

UCR | Bourns College of Engineering

COLLEGE DIRECTORY 2017



Bourns College of Engineering



Sharon Walker

Interim Dean

John Babbage Chair in Environmental Engineering

Professor of Chemical & Environmental Engineering

Office of the Dean

Winston Chung Hall Suite 446

(951) 827-6374

(951) 827-3188 (fax)

We engineer excellence at the Bourns College of Engineering (BCOE) at UC Riverside. For the past quarter century, BCOE has delivered on an ambitious growth trajectory that has surpassed all other colleges of its size and resulted in it becoming respected, nationally ranked and internationally known.

Our success is rooted in two core values – performing world-class research and developing a diverse and talented professional engineering workforce. Not only are we internationally recognized for the quality of our research, but we also take great pride in the excellent engineering education that we provide to both undergraduate and graduate students. Our students are deeply engaged in research, and along with our dedicated faculty and researchers, benefit from state-of-the-art facilities and equipment, including the world's largest known atmospheric chamber and a \$10 million nanofabrication cleanroom.

The college's collaborative and innovative culture prepares undergraduate and graduate students alike to transition to successful careers, be they in industry, government or academe. Our diverse student body – the majority of whom participate in the college's more than 24 student professional organizations – are in-demand as employees and leaders throughout the world.

Bourns College of Engineering

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Bourns College of Engineering

Quick Facts

FOUNDED	1989
US WORLD NEWS RANKING	71 ST (39 th among public universities)
LEIDEN RANKING	8 th among engineering
NATIONAL RESEARCH COUNCIL	Top Quartile
FACULTY COUNT	118
UNDERGRADUATE ENROLLMENT	2,849*
GRADUATE ENROLLMENT	869*
RESEARCH EXPENDITURES	\$61 Million
IDC GENERATED	\$4.1 Million
ENDOWMENT SUPPORTS	\$36 Million
ENDOWED PROFESSORSHIPS	10
NAE MEMBER	2
FELLOWS OF PROFESSIONAL SOCIETIES	90
YOUNG INVESTIGATOR/NSF CAREER AWARDS	54
DIVERSITY	34% URM

*Fall 2016

Bourns College of Engineering

Vision

The Vision of the College of Engineering is to become a nationally recognized leader in engineering research and education.

Mission

- Produce engineers with the educational foundation and adaptive skills to serve rapidly evolving technology industries;
- Conduct nationally recognized engineering Research Area: focused on providing a technical edge for the United States;
- Contribute to knowledge of both fundamental and applied areas of engineering;
- Provide diverse curricula that will instill in our students the imagination, talents, creativity, and skills necessary for the varied and rapidly changing requirements of modern life;
- Enable our graduates to serve in a wide variety of other fields that require leadership, teamwork, decision-making and problem-solving abilities; and
- Be a catalyst for industrial growth in Inland Southern California.

Bourns College of Engineering

Undergraduate Degrees Available

B.S. in Bioengineering

B.S. + M.S. in Bioengineering

B.S. in Environmental Engineering (two concentrations)

Air Pollution Control Technology

Water Pollution Control Technology

B.S.+ M.S. in Chemical and Environmental Engineering

B.S. in Chemical Engineering (three concentrations)

Biochemical Engineering

Chemical Engineering

Nanotechnology

B.S. in Computer Science

B.S.+ M.S. in Computer Science

B.S. in Computer Engineering

B.S. in Electrical Engineering

B.S.+ M.S. in Electrical Engineering

B.S. in Business Informatics

B.S. in Materials Science and Engineering

B.S. in Mechanical Engineering (four concentrations)

Mechanics of Materials and Structures

Energy and Environment

Design and Manufacturing

General Mechanical Engineering

B.S.+ M.S. in Mechanical Engineering

****Concentrations are in italics***



Bourns College of Engineering

Graduate Degrees Available

M.S. in Bioengineering

M.S. in Chemical & Environmental Engineering

M.S. in Computer Science

M.S. in Computer Engineering

M.S. in Electrical Engineering

M.S. in Materials Science and Engineering

M.S. in Mechanical Engineering

M.S. Online in Engineering

Ph.D. in Bioengineering

Ph.D. in Chemical & Environmental Engineering

Ph.D. in Computer Engineering

Ph.D. in Computer Science

Ph.D. in Electrical Engineering

Ph.D. in Materials Science and Engineering

Ph.D. in Mechanical Engineering



Bourns College of Engineering

Leadership



Sharon Walker, Interim Dean

John Babbage Chair in Environmental Engineering
Professor of Chemical & Environmental Engineering

(951) 827-6374

swalker@engr.ucr.edu



Chinya Ravishankar, Associate Dean

Research and Graduate Education
Professor of Computer Science & Engineering

(951) 827-3197

ravi@engr.ucr.edu



Marko Princevac, Associate Dean

Student Academic Affairs
Professor of Mechanical Engineering

(951) 827-6106

marko@engr.ucr.edu



D. Patrick Hartney, Assistant Dean

Finance & Administration

(951) 827-5653

pat@engr.ucr.edu

**Offices are located at Winston Chung Hall
4th floor, suite 446**

Bourns College of Engineering

Department & Program Chairs & Directors



Xiaoping Hu, Chair

Bioengineering

205 Materials Science & Engineering Building

T: (951) 827-2925

F: (951) 827-6416

xhu@engr.ucr.edu



Nosang Myung, Chair

Chemical & Environmental Engineering

353 Bourns Hall – Building B

T: (951) 827-7710

F: (951) 827-5696

nosang@engr.ucr.edu



Walid Najjar, Director

Computer Engineering

421 Winston Chung Hall

T: (951) 827-4406

F: (951) 827-4643

najjar@cs.ucr.edu



Marek Chrobak, Chair

Computer Science & Engineering

406 Winston Chung Hall

T: (951) 827-2244

F: (951) 827-4643

marek@cs.ucr.edu



Jay Farrell, Chair

Electrical and Computer Engineering

341 Winston Chung Hall

T: (951) 827-2159

F: (951) 827-2425

farrell@ece.ucr.edu

Bourns College of Engineering



Ashok Mulchandani, Chair

Materials Science & Engineering
317 Bourns Hall – Building B
T: (951) 827-6419
F: (951) 827-3188
adani@engr.ucr.edu



Guillermo Aguilar, Chair

Mechanical Engineering
345 Bourns Hall – Building A
T: (951) 827-7717
F: (951) 827-2899
gaguilar@engr.ucr.edu



Kambiz Vafai, Director

Masters of Science in Engineering Online
363 Bourns Hall – Building A
T: (951) 827-2135
F: (951) 827-3188
vafai@engr.ucr.edu

Bourns College of Engineering

Center Directors



Jerome Schultz, Distinguished Professor

Bioengineering

jssbio@engr.ucr.edu

(951) 827-2111



Matthew Barth

Center for Environmental Research & Technology
(CE-CERT)

barth@cert.ucr.edu

(951) 781-5782



Alex Balandin

Center for Nanoscale Science & Engineering (CNSE)

balandin@ece.ucr.edu

(951) 827-2351



Bir Bhanu

Center for Research in Intelligent Systems (CRIS)

bhanu@cris.ucr.edu

(951) 827-2918



Alex Balandin

Phonon Optimized Engineered Materials (POEM)

balandin@ece.ucr.edu

(951) 827-2351



Xiaoping Hu

UCR Center for Advanced Neuroimaging (CAN)

xhu@engr.ucr.edu

(951) 827-2925

Bourns College of Engineering



Alfredo Martinez-Morales

Southern California Research Initiative for Solar Energy

alfmart@cert.ucr.edu

(951) 781-5652



Albert Wang

Center for Ubiquitous Communication by Light

aw@ece.ucr.edu

(951) 827-2555



Reza Abbaschian

Winston Chung Global Energy Center

rabba@engr.ucr.edu

(951) 827-2942

Bourns College of Engineering

Office of the Dean

Administrative Staff

Winston Chung Hall, Suite 446



Eilene J. Montoya
Executive Assistant to the Dean
emontoya@engr.ucr.edu

(951) 827-6374



Mallorie Hardcastle
Administrative Assistant to Associate Deans
& Administrative Finance Assistant
mhardcastle@engr.ucr.edu

(951) 827-5190



Richard Bain
Administrative Assistant
rbain@engr.ucr.edu

(951) 827-5161

Advancement

Winston Chung Hall, Suite 445

(951) 827-4897



Jed Schwendiman
Senior Director of Development
jed.schwendiman@ucr.edu

Bourns College of Engineering

Central Personnel Services Unit (CPSU)

Winston Chung Hall, Suite 458



Cecilia Gonzalez
Director

(951) 827-5655

ceciliag@engr.ucr.edu



Janna Le Blanc
Assistant Director

(951) 827-2968

jannal@engr.ucr.edu



Jenny Chen
Analyst

(951) 827-5217

jenny.chen@ucr.edu



Angelique Jones-Butler
Analyst

(951) 827-2972

angie.jones-butler@ucr.edu



Tiffany Lindsey
Analyst

(951) 827-6237

tiffany.lindsey@ucr.edu

Bourns College of Engineering

Contracts & Grants

Winston Chung Hall, Suite 458

Mitch Boretz
Technical Communications Specialist

(951) 827-7069
mitch@engr.ucr.edu

Oscar Caso
Analyst

(951) 827-7885
oscar.caso@ucr.edu

Helen Chen
Analyst

(951) 827-2974
helen.chen@ucr.edu



Facilities

Winston Chung Hall, Suite 445



Maggie Souder
Safety & Facilities Coordinator
msouder@engr.ucr.edu

(951) 827-1241

Marketing & Communications

Winston Chung Hall, Suite 445



Angela Meluski
Senior Manager
ameluski@engr.ucr.edu

(951) 827-2988

Bourns College of Engineering

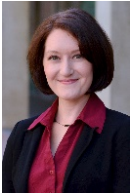
Finance

Winston Chung Hall, Suite 446



Alissa Rackstraw
Analyst, Budget & Finance
alissa@engr.ucr.edu

(951) 827-6417



Becki Jo Ray
Financial Analyst
beckijo@engr.ucr.edu

(951) 827-2967

Systems

Bourns Hall – Building A – A308



John Cleary
Systems Administrator
john@engr.ucr.edu

(951) 827-2638

Bourns College of Engineering

List of Faculty – Alphabetical

Name	Dept.	Office	Phone	Email
Reza Abbaschian	ME/MSE	MSE-323	827-2942	rabba@engr.ucr.edu
Nael Abu-Ghazaleh	CEN/CSE /ECE	WCH-441	827-2347	nael@cs.ucr.edu
Guillermo Aguilar	ME	BH-A345	827-7717	gaguilar@engr.ucr.edu
Bahman Anvari	BIEN	MSE-211	827-5726	anvari@engr.ucr.edu
Akua Asa-Awuku	CEE	BH-A219	827-2271	akua@engr.ucr.edu
Salman, Asif	ECE	WCH-345	827-2385	sasif@ece.ucr.edu
Alex Balandin	ECE/MSE	WCH-435	827-2351	balandin@ece.ucr.edu
Kelley Barsanti	CEE	BH-A213	827-3152	kbarsanti@engr.ucr.edu
Matthew Barth	ECE	WCH-342	827-2992	barth@ece.ucr.edu
Gerardo Beni	ECE	---	827-2484	beni@ece.ucr.edu
Bir Bhanu	ECE	WCH-219	827-3954	bhanu@cris.ucr.edu bhanu@engr.ucr.edu
Laxmi Bhuyan	CEN/CSE	WCH-351	827-2347	bhuyan@cs.ucr.edu
Harvey Blanch	CEE	BH-A243	827-6445	harvey.blanch@ucr.edu
Philip Brisk	CEN/CSE /MSE	WCH-339	827-2030	philip@cs.ucr.edu
Jiasi (Jessie) Chen	CSE	WCH 308	827-5815	jiasi@cs.ucr.edu
Zizhong (Jeffrey) Chen	CSE	WCH-428	827-3688	chen@cs.ucr.edu
Phillip Christopher	CEE	WCH-422	827-2403	christopher@engr.ucr.edu
Marek Chrobak	CSE	BH-B363	827-2244	marek@cs.ucr.edu
David Cocker	CEE	BH-A221	827-2408	dcocker@engr.ucr.edu
Sinisa Coh	ME	BH-A323	827-3375	sinisa.coh@ucr.edu
Shane Cybart	ME	BH-A322	827-5834	shane.cybart@ucr.edu
Ilya Dumer	ECE	WCH-427	827-2924	dumer@ece.ucr.edu
Ahmed Eldawy	CSE	WCH-357	827-5654	eldawy@cs.ucr.edu
Michalis Faloutsos	CSE	WCH-332	827-2480	michalis@cs.ucr.edu
Jay Farrell	ECE	WCH-342	827-2159	farrell@ece.ucr.edu
Elisa Franco	ME	BH-A311	827-2442	efranco@engr.ucr.edu
Xin Ge	CEE	BH-A319	827-6229	xge@engr.ucr.edu

Emeritus

Bourns College of Engineering

Kaustabh Ghosh	BIEN	MSE-207	827-4203	kghosh@engr.ucr.edu
P. Alex Greaney	ME	BH-A311	827-2884	agreaney@engr.ucr.edu
William Grover	BIEN	MSE-219	827-4311	wgrover@engr.ucr.edu
Juchen Guo	CEE/MSE	BH-A245	827-6472	jguo@engr.ucr.edu
Rajiv Gupta	CEN/CSE	WCH-408	827-2558	gupta@cs.ucr.edu
Elaine Haberer	ECE/MSE	WCH-418	827-7174	haberer@ece.ucr.edu
Susan Hackwood	ECE	---	---	hackwood@ece.ucr.edu
Vagelis Hristidis	CSE	WCH-317	827-2478	vagelis@cs.ucr.edu
Xiaoping Hu	BIEN	MSE 205	827-2925	xhu@engr.ucr.edu
Yingbo Hua	ECE	WCH-432	827-2853	yhua@ece.ucr.edu
David Jassby	CEE	BH-A241	827-6475	djassby@engr.ucr.edu
Tao Jiang	CSE	WCH-336	827-2991	jiang@cs.ucr.edu
Robert Jinkerson	CEE	---	827-4655	robert.jinkerson@ucr.edu
Heejung Jung	ME	BH-A357	827-2262	heejung@engr.ucr.edu
Konstantinos Karydis	ECE	BH-B357	827-5744	konstantinos.karydis@ucr.edu
Zak Kassas	ECE	WCH-319	827-5652	zkassas@ece.ucr.edu
Eamonn Keogh	CSE	WCH-318	827-2032	eamonn@cs.ucr.edu
Hyoseung Kim	ECE	WCH-346	827-2390	hyoseung@ece.ucr.edu
David Kisailus	CEE/MSE	BH-B357	827-2260	david@engr.ucr.edu
Alexander Korotkov	ECE	WCH-434	827-2345	korotkov@ece.ucr.edu
Srikanth Krishnamurthy	CSE	WCH-334	827-2348	krish@cs.ucr.edu
Sandeep Kumar	ME/MSE	BH-A305	827-5832	skumar@engr.ucr.edu
Roger Lake	CEN/ECE /MSE	WCH-437	827-2122	rlake@ece.ucr.edu
Mohsen Lesani	CSE	WCH-312	827-5639	lesani@cs.ucr.edu
Chen Li	ME	BH-A321	827-5842	chen.li@ucr.edu
Yanran Li	CEE	BH-A217	827-5696	liyanran@engr.ucr.edu
Ping Liang	ECE	WCH-323	827-2261	liang@ece.ucr.edu
Jiayu Liao	BIEN	MSE-231	827-6240	jliao@engr.ucr.edu
Haizhou Liu	CEE	BH-A239	827-2076	haizhou@engr.ucr.edu
Huinan Liu	BIEN/ MSE	MSE-227	827-2944	huinan.liu@ucr.edu
Jianlin Liu	ECE/MSE	WCH-439	827-7131	jianlin@ece.ucr.edu
Jinyong Liu	CEE	BH-B321	827-4654	jinyongl@ucr.edu

Emeritus

Bourns College of Engineering

Ming Liu	ECE/MSE	WCH-321	827-6317	ming@ece.ucr.edu
Stefano Lonardi	CSE	WCH-325	827-2203	stelo@cs.ucr.edu
Lorenzo Mangolini	ME/MSE	BH-A307	827-5872	lmangolini@engr.ucr.edu
Monica Martinez Wilhelmus	CEE/ME	BH-A342	827-3373	monicamo@engr.ucr.edu
Suveen Mathaudhu	ME/MSE	BH-A324	827-4144	smathaudhu@engr.ucr.edu
Hamed Mohsenian-Rad	ECE	WCH-436	827-2387	hamed@ece.ucr.edu
Mart Molle	CSE	WCH-331	827-7354	mart@cs.ucr.edu
Dimitrios Morikis	BIEN	MSE-223	827-2696	dmorikis@engr.ucr.edu
Anastasios Mourikis	ECE	WCH-306	827-6051	mourikis@ece.ucr.edu
Ashok Mulchandani	CEE	BH-B317	827-6419	adani@engr.ucr.edu
Nosang Myung	CEE	BH-B353	827-7710	nosang@engr.ucr.edu
Walid Najjar	CEN/CSE	WCH-421	827-4406	najjar@cs.ucr.edu
Jin Nam	BIEN	MSE-331	827-2064	jnam@engr.ucr.edu
Cengiz Ozkan	ME	MSE-315	827-5016	cozkan@engr.ucr.edu
Mihri Ozkan	ECE/MSE	MSE-319	827-2900	mihri@ece.ucr.edu
Evangelos Papalexakis	CSE	WCH-357	827-6244	epapalex@cs.ucr.edu
Hyle Park	BIEN	MSE-243	827-5188	hylepark@engr.ucr.edu
Fabio Pasqualetti	ME	BH-A309	827-2327	fabiopas@engr.ucr.edu
Thomas Payne	CSE	WCH-409	827-3119	thp@cs.ucr.edu
Michael Pazzani	CSE	UOB	827-4800	michael.pazzani@ucr.edu
Marko Princevac	ME	BH-A359	827-2445	marko@engr.ucr.edu
Teodor Pryzmusinski	CSE	---	827-5639	teodor@cs.ucr.edu
Zhiyun Qian	CSE	WCH-314	827-6438	zhiyung@cs.ucr.edu
K.K. Ramakrishnan	CSE	WCH-332	827-2480	kk@cs.ucr.edu

Emeritus

Bourns College of Engineering

Masaru Rao	ME/MSE	BH-A313	827-5870	mp rao@engr.ucr.edu
Chinya Ravishankar	CSE	WCH-326	827-5318	ravi@cs.ucr.edu
Shaolei Ren	ECE	BH-B357	827-2968	sren@ece.ucr.edu
Wei Ren	ECE	WCH-416	827-6204	ren@ece.ucr.edu
Victor Rodgers	BIEN	MSE-215	827-6241	vrodgers@engr.ucr.edu
Amit Roy Chowdhury	ECE	WCH-431	827-7886	amitrc@ece.ucr.edu
Craig Schroeder	CSE	WCH-309	827-5639	craigs@cs.ucr.edu
Jerome Schultz	BIEN	MSE-203	827-2111	jssbio@engr.ucr.edu
Christian Shelton	CSE	WCH-327	827-2554	cshelton@cs.ucr.edu
Tamar Shinar	CSE	WCH-419	827-5015	shinar@cs.ucr.edu
Chengyu Song	CSE	WCH-314	827-5639	csong@cs.ucr.edu
Thomas Stahovich	ME	BH-A349	827-7719	stahov@engr.ucr.edu
Kawai Tam	CEE	BH-A235	827-2498	kawai.tam@ucr.edu
Sheldon Tan	CEN/ECE	WCH-424	827-5143	stan@engr.ucr.edu
Vassilis Tsotras	CSE	WCH335	827-2888	tsotras@cs.ucr.edu
Hideaki Tsutsui	ME	BH-A315	827-2444	htsutsui@engr.ucr.edu
Ertem Tuncel	ECE	WCH-426	827-7718	ertem@ece.ucr.edu
Kambiz Vafai	ME	BH-A363	827-2135	vafai@engr.ucr.edu
Frank Vahid	CEN/CSE	WCH-328	827-4710	vahid@cs.ucr.edu
Akula Venkatram	ME	BH-A343	827-2195	venky@engr.ucr.edu
Valentine Vullev	BIEN	MSE-235	827-6239	vullev@engr.ucr.edu
Sharon Walker	CEE	BH-A237	827-6094	swalker@engr.ucr.edu
Albert Wang	CEN/ECE	WCH-451	827-2555	aw@ece.ucr.edu
Ian Wheeldon	CEE	BH-B319	827-2471	iwheeldon@engr.ucr.edu
Richard Wilson	ME	BH-A319	827-3374	rwilson@engr.ucr.edu
Bryan Wong	CEE/MSE	BH-A211	827-2163	bryan.wong@ucr.edu
Daniel Wong	ECE	WCH 425	827-2986	dwong@ece.ucr.edu
Jianzhong Wu	CEE	BH-A249	827-2413	jwu@engr.ucr.edu
Charles Wyman	CEE	BH-A217	781-5703	cewyman@engr.ucr.edu
Guanshui Xu	ME	BH-A361	827-2497	gxu@engr.ucr.edu
Ruoxue Yan	CEE/MSE	WCH-425	827-2986	rxyan@engr.ucr.edu
Heng Yin	CSE	WCH-316	827-6437	heng@cs.ucr.edu

Emeritus

Bourns College of Engineering

Neal Young	CSE	WCH-423	827-7146	neal@cs.ucr.edu
Nanpeng (Eric) Yu	ECE	WCH-428	827-3688	nyu@ece.ucr.edu
Zhijia Zhao	CSE	WCH-412	827-2993	zhijia@cs.ucr.edu
Qi Zhu	CEN/ECE	WCH-322	827-7701	gqzhu@ece.ucr.edu

Emeritus

Bourns College of Engineering

Undergraduate Student Affairs

Academic Advisors

Academic Advisors offer students guidance on academic, life, and career matters on behalf of the college and its departments. As such, the academic advising staff is the first line of contact on curriculum matters, any issue impacting a student's ability to succeed, and referrals to other service providers on campus. Academic Advisors are also a great source for prospective students seeking freshmen or transfer admission, readmission, or special admission. They work closely with UCR Admissions in recruiting prospective students, and in the case of prospective transfers, evaluating applications for admission.



Rod Smith

Director of Student Affairs

rsmith@engr.ucr.edu

(951) 827-6380



Tara Brown

Asst. Director of Student Affairs

tbrown@engr.ucr.edu

(951) 827-2577

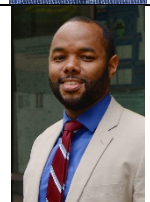


Michael Cruz

Academic Advisor – Freshman Advisor

mcruz@engr.ucr.edu

(951) 827-2959



Desmond Harvey

Academic Advisor – all Chemical & Environmental Engineering Majors

dharvey@engr.ucr.edu

(951) 827-6409

Bourns College of Engineering

**Janeth Jauregui**

Academic Advisor – all Computer Science Majors

janethj@engr.ucr.edu

(951) 827-2469

**Malcolm Manuel**

Academic Advisor – all Mechanical Engineering Majors

malcolm@engr.ucr.edu

(951) 827-4344

**Thomas McGraw**

Academic Advisor – all Electrical Engineering Majors

tmcgraw@engr.ucr.edu

(951) 827-4517

**Emily Nudge**

Academic Advisor – all Bioengineering Majors

enudge@engr.ucr.edu

(951) 827-2577

**Terri Phonharath**

Academic Advisor – all Computer Science w/Business Applications & Computer Engineering Majors

tphonharath@engr.ucr.edu

(951) 827-7150

**Kimberley Wolf**

Academic Advisor – Curriculum Partner

kwolf@engr.ucr.edu

(951) 827-2997

Bourns College of Engineering

Undergraduate Faculty Advisors

Undergraduate Faculty Advisors are responsible for upholding program and major requirements established by faculty in their department; this includes considering petitions for exceptions to requirements, coordinating departmental response to UC or UCR initiatives impacting the undergraduate curriculum, and offering guidance to the academic advising staff on policy matters.

Bioengineering	William Grover
Computer Science & Computer Science with Business Applications	Zizhong Chen
Computer Engineering	Laxmi Bhuyan
Chemical Engineering & Environmental Engineering	Kawai Tam
Electrical Engineering	Ping Liang
Mechanical Engineering	V. Sundararajan
Materials Science & Engineering	David Kisailus

Bourns College of Engineering

Professional Development Program for Students

At Bourns College of Engineering one of our objectives is to nurture and grow our students into professional engineers of the future.

- Developing and maintaining relationships with premier industrial, academic, and government organizations
- Supervising the student chapters of 24 professional engineering organizations
- Facilitating student organizational events and conferences, budget controlling and strategic planning of activities that support the professional development of students
- Advising engineering students on professional career opportunities
- Recommending and assisting students in seeking information on career options and their career development processes
- Advising students on resume and cover letter preparation, interviewing techniques and job search methods
- Assisting with the marketing and outreach components of the Undergraduate Research Opportunities Program



Jun Wang

Director of Student Development
and International Initiatives
(951) 827-2708
junwang@engr.ucr.edu



Rosie Zhang

Professional Development Officer
(951) 827-7149
yzhang@engr.ucr.edu

Bourns College of Engineering

Transfer Transition Program

We understand it can be challenging and overwhelming to adjust to a new school environment. The Transfer Transition Program in BCOE is a year-long program exclusively designed to support a student's successful move from a community college to UC Riverside.



As a participant in the Transfer Transition Program you have opportunities to:

- Learn how to access and use resources to facilitate academic success
- Attend workshops to help you refine your time management skills and study techniques
- Work closely with a faculty member in your program to receive mentoring and professional guidance
- Meet with your Academic Advisor on a quarterly basis to develop a personalized course schedule
- Work with the Professional Development Officer to discuss co-curricular opportunities
- Get involved in student engineering clubs, professional organizations, and peer mentoring

For further information and details about this program please contact



Guadalupe Ruiz
STEM Transfer Coordinator
(951) 827-5124
gruiz@engr.ucr.edu

Bourns College of Engineering

MESA Schools Program

The Mathematics, Engineering and Science Achievement (MESA) program is an academically based STEM outreach program of the UC Riverside Bourns College of Engineering. Since 1999, the program has addressed the needs of math/science education by providing opportunities for interest and growth in engineering to under-represented and disadvantaged students throughout both Riverside and San Bernardino counties. Through academic contests and competitions, classroom guidance and advisement, and exploratory activities like visits to engineering colleges and industry locations, the program has succeeded in creating a college-going culture in the schools it serves, and a heightened awareness of engineering fields and careers.

MESA services middle and high school students, their teachers and parents, including:

Classroom/Section: Supporting daily MESA classes that strengthen core mathematics and science concepts and principles, teach engineering thinking and problem solving skills and provide a venue for MESA projects to be conceived, tested, and evaluated. Our teachers receive year-round professional development opportunities to strengthen their delivery of MESA curriculum and services.

Engineering Projects/Competitions: Large engineering project competitions, usually contested at the UCR College of Engineering, where students compete against peers in academic contests. The competitions help drive curriculum, motivate and inspire students, while providing a stage for creativity, ingenuity and academic achievement.

Mentoring/Academic Advisement: Group and individual mentoring and academic advising sessions with students. These sessions and workshops help students connect classroom activities and project competitions to the real-world. They also inform MESA students on pre-college requirements needed to major in STEM fields and the breadth of careers in STEM fields.

Bourns College of Engineering

Community/Parent Events: Hosting events throughout the year that benefit and impact our MESA families and the community at large. These events connect families with the college & engineering, while learning how STEM is put in practice at a major research university. Parents are also able to learn about the importance of their students' participation in the program, and about the real demands and results of a STEM career path.



Carlos Gonzalez, Director
carlos@engr.ucr.edu

(951) 827-2746



Stephanie Cervin, Program Coordinator
scervin@engr.ucr.edu

(951) 827-2324



Bourns College of Engineering

Graduate Program

BCOE offers M.S. and Ph.D. degrees that are designed to deepen student understanding of fundamental principles and applications in their chosen field of study. Graduate degrees are offered in the following programs:

- Bioengineering (M.S., Ph.D.)
- Chemical and Environmental Engineering (M.S., Ph.D.)
- Computer Engineering (M.S.)
- Computer Science and Engineering (M.S., Ph.D.)
- Electrical Engineering (M.S., Ph.D.)
- Material Science and Engineering (M.S., Ph.D.)
- Mechanical Engineering (M.S., Ph.D.)
- Masters of Science in Engineering Online (designed for employed professionals)

Bourns College of Engineering

Program Contacts

Program	Staff Contact	Faculty Graduate Advisor
Bioengineering	Annette Meneses ameneses@engr.ucr.edu (951) 827-4314	Admissions: Victor Rodgers, Professor vrodgers@engr.ucr.edu (951) 827-6241 Enrolled: Hyle Park, Assoc. Professor hylepark@engr.ucr.edu (951) 827-5188
Chemical and Environmental Engineering	Adrienne Thomas gradcee@engr.ucr.edu (951) 827-2859	Phillip Christopher, Asst. Professor Christopher@engr.ucr.edu (951) 827-7959
Computer Engineering	Madie Heersink madie@cs.ucr.edu (951) 827-3383	Nael Abu Ghazaleh, Professor nael@ece.ucr.edu (951) 827-2347
Computer Science and Engineering	Vanda Yamaguchi gradadmission@cs.ucr.edu (951) 827-2903	Vassilis Tsotras, Professor tsotras@cs.ucr.edu (951) 827-2888
Electrical and Computer Engineering	Kim Claffey ecegradoffice@ece.ucr.edu (951) 827-2484	Admissions: Ilya Dumer, Professor dumer@ece.ucr.edu (951) 827-2924 Enrolled: Anastasios Mourikis, Assoc. Professor mourikis@ee.ucr.edu (951) 827-6501
Materials Science and Engineering	Lorena Roman lroman@engr.ucr.edu (951) 827-3383	Ludwig Bartels, Professor ludwig.bartels@ucr.edu (951) 827-2041
Mechanical Engineering	Paul Talavera me-gradprogram@engr.ucr.edu (951) 827-2115	Suveen Mathaudhu, Asst. Professor smathaudhu@engr.ucr.edu (951) 827-4414 Lorenzo Mangolini, Assoc. Professor lmangolini@engr.ucr.edu (951) 827-5872
Masters of Science Online	Kim Love klove@engr.ucr.edu (951) 827-5196	Kambiz Vafai, Distinguished Professor vafai@engr.ucr.edu (951) 827-2135

Bourns College of Engineering

Professional Student Organizations

ACM—Association for Computing Machinery



<http://acm.cs.ucr.edu>

ACM is devoted to bringing Computer Science students beyond the four walls of a classroom and into the real world.

ASME—American Society of Mechanical Engineers



<http://www.engr.ucr.edu/~asme/>

ASME at BCOE is focused on technical, educational and research issues of the engineering and technology community. ASME conducts one of the world's largest technical publishing operations, holds numerous technical conferences worldwide, and offers hundreds of professional development courses each year. ASME sets internationally recognized industrial and manufacturing codes and standards that enhance public safety.

AIChE—American Institute of Chemical Engineers



<http://www.engr.ucr.edu/~aiche/>

Assist Chemical & Environmental students to ease the transition "from college to career" by providing opportunities for students to visit various industrial plants and chemical engineering environments.

Bourns College of Engineering

ASQ—American Society for Quality



As a global quality community, ASQ advances the professional development, credentials, knowledge and information services, membership community, and advocacy on behalf of millions of individual and organizational members in 140 countries.

AWMA—Air & Waste Management Association



An interdisciplinary club consisting of members from across the environmental fields - science, toxicology and engineering.

BMES—Biomedical Engineering Society



<https://sites.google.com/site/bmesucr/>

BMES integrates biology and engineering in all their practical applications.

COELC—College of Engineering Leadership Council



<http://www.engr.ucr.edu/~coelc/>

An organizing body that encourages an active relationship among all student organizations and BCOE.

Bourns College of Engineering

ELECTROCHEMICAL SOCIETY



<http://www.engr.ucr.edu/news/2011news.html#ecs>

ECS' objectives are: to advance the theory and practice of electrochemistry, solid-state science, and allied subjects; to encourage research and dissemination of knowledge in these fields; and to assure the availability of adequate training and education of fundamental and applied scientists and engineers in these fields.

EWB—Engineers without Borders



<http://www.engr.ucr.edu/~ewb/>

An organization established to help develop areas worldwide with their engineering needs, while involving and training a new kind of internationally responsible engineering student.

IEEE—Institute of Electrical & Electronic Engineers



<http://ieee.ece.ucr.edu/>

IEEE provides students with professional development and academic achievement opportunities.

Bourns College of Engineering

IEEE-EDS – Institute of Electrical & Electronic Engineers – Electric Devices Society



<http://www.engr.ucr.edu/~eds/>

The field of interest for EDS is all aspects of engineering, physics, theory, experiment and simulation of electron and ion devices involving insulators, metals, organic materials, plasmas, semiconductors, quantum-effect materials, vacuum, and emerging materials. Specific applications of these devices include bioelectronics, biomedical, computation, communications, displays, electro and micro mechanics, imaging, micro actuators, optical, photovoltaics, power, sensors and signal processing.

IOM3 – Institute of Materials, Minerals and Mining



IOM3 is a major engineering institution whose activities encompass the whole materials cycle, from exploration and extraction, through characterization, processing, forming, finishing and application, to product recycling and land reuse.

ION – Institute of Navigation



ION is the world's premier non-profit professional society dedicated to the advancement of the art and science of positioning, navigation and timing (PNT). It serves a diverse community including those interested in air, space, marine, land navigation, and position determination. Its membership is worldwide, and it is affiliated with the International Association of Institutes of Navigation.

Bourns College of Engineering

LUG – Linux Users Group



<http://lug.cs.ucr.edu/>

LUG at UCR is a student-run organization comprised of hobbyists. We are dedicated to helping anyone who is interested in Linux. We offer Install-fests to help get Linux running on your computer, as well as info-sessions to further knowledge of computers.

MEGSA—Mechanical Engineering Graduate Student Association

<http://www.engr.ucr.edu/megsa/>

MEGSA promotes social and academic aspects of the Mechanical Engineering graduate student life at UCR and increases student involvement in the local community.

MRS—Materials Research Society



<http://www.engr.ucr.edu/~mrs>

MRS will build a dynamic, interactive, global community of materials researchers to advance technical excellence by providing a framework in which the materials disciplines can convene, collaborate, integrate and advocate.

NSBE—National Society of Black Engineers



<http://www.engr.ucr.edu/~nsbe/>

An organization that truly fulfills its mission statement: excelling academically, succeeding professionally, and positively impacting the community.

Bourns College of Engineering

OSA—Optical Society of America



<http://www.ece.ucr.edu/news/departments-news/2010-10-11-News.html>

The mission of OSA is to promote the generation, application and archiving of knowledge in optics and photonics and to disseminate this knowledge worldwide. The purposes of the Society are scientific, technical and educational.

SACNAS —Society for Advancement of Chicanos and Native Americans in Science



SACNAS @ UCR

<http://www.sacnasatucr.org/>

SACNAS is a society of scientists dedicated to fostering the success of Hispanic/Chicano and Native American scientists—from college students to professionals—to attain advanced degrees, careers, and positions of leadership in science.

SAE—Society of Automotive Engineers



<http://www.engr.ucr.edu/sae>

Members design, fabricate and assemble vehicles using state-of-the-art software and equipment and participates in national competitions annually.

Bourns College of Engineering

SHPE—Society of Hispanic Professional Engineers



<http://www.shpeatucr.org/>

Professional and leadership development of a Hispanic Engineer is a major objective of this organization.

SWE—Society of Women Engineers



<http://www.engr.ucr.edu/~swe/>

SWE encourages young girls and undergraduate women to pursue careers in engineering through the development of programs that enhance their leadership, communication, and problem – solving skills.

Tau Beta Pi Engineering Honor Society



<http://www.engr.ucr.edu/~tbp/>

Tau Beta Pi is the only national engineering honor society that aspires to honor both character and academics representing all disciplines of engineering.

Theta Tau Professional Engineering Fraternity



<http://www.engr.ucr.edu/~thetatau/>

The purpose of Theta Tau is to develop and maintain a high standard of professional interest among its members, and to unite them in a strong bond of fraternal fellowship.

Bourns College of Engineering

Executive Committee

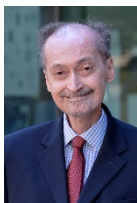
The Executive Committee of the College of Engineering helps guide the college in the development of curriculum and policy as well as the review and approval of new courses.

Members



Tom Stahovich
Chair (2016-2019)
stahov@engr.ucr.edu

Amit Roy Chowdhury,
ECE Representative
(2015-18)
amitrc@ece.ucr.edu



Dimitrios Morikis,
BIEN Representative
(2016-19)
dmorikis@engr.ucr.edu

Lorenzo Mangolini, ME
Representative (2015-18)
lmangolini@engr.ucr.edu



Xin Ge, CEE
Representative
(2015-18)
xge@engr.ucr.edu

Alex Balandin, Member
at Large (2014-17)
balandin@ece.ucr.edu



Srikanth Krishnamurthy, CSE
Representative
(2014-17)
krish@cs.ucr.edu

Bourns College of Engineering

Ex-Officio Members



Sharon Walker
Interim Dean

swalker@engr.ucr.edu



Marko Princevac
Associate Dean

marko@engr.ucr.edu



Chinya Ravishankar
Associate Dean

ravi@engr.ucr.edu

Administrative Liaisons



Rod Smith
Undergraduate Student Affairs
Manager

rsmith@engr.ucr.edu



Eilene J. Montoya
BCOE Executive Committee Liaison

emontoya@engr.ucr.edu

Bourns College of Engineering

Bylaws of the College

EN¹Membership

EN1.1The Faculty of the College of Engineering consists of (a) the president of the University; (b) the Chancellor; (c) the Executive Vice Chancellor; (d) the Dean of the College of Engineering; (e) all members of the Academic Senate who are assigned to the College of Engineering; (f) designated Senate members from other colleges and schools, the number and departmental affiliation of such members to be specified by the Faculty of the College at a regular meeting in each case; and (g) such other Senate members as may be specified by the bylaws of the Riverside Division.

EN1.2Only voting members of the Academic Senate are eligible to vote in the Faculty of the College of Engineering.

EN²Officers

EN2.1The Officers of the Faculty consist of a Chair, a vice Chair, a secretary, and a parliamentarian.

EN2.1.1The Chair of the Faculty is elected for a three-year term and is not eligible to succeed himself/herself immediately. The election is conducted in accordance with the procedure prescribed in these bylaws. If the Chair is unable to complete the term of office for which he/she has been elected, the Secretary-Parliamentarian of the Division shall, within two months, conduct an election in accordance with the procedure prescribed in these bylaws for the unexpired term, provided that the unexpired term is longer than six months. In the interim, or in the event that the vacated term is less than six months, the Vice Chair of the Faculty will serve as Chair.(Am 20 Nov 07)

EN2.1.2The Vice Chair of the Faculty is chosen by the Executive Committee from among its membership. The term of office expires at the end of committee membership.(Am 20 Nov 07)

EN2.1.3The secretary of the Faculty is chosen by the Executive Committee from among its membership. The term of office expires at the end of committee membership.(Am 20 Nov 07)

EN2.1.4The parliamentarian of the Faculty is chosen by the Executive Committee from among its membership. The term of office expires at the end of committee membership.(Am 20 Nov 07)

EN2.1.5The election of the Chair of the Faculty is conducted as provided in Chapter 7 of the bylaws of the Division.

EN2.1.6The Chair assumes office on the first day of September following his/her election at a regular election, or immediately upon completion of the ballot count at a special election. The vice Chair, secretary, and parliamentarian take office immediately upon appointment.

Bourns College of Engineering

EN³Meetings

EN3.1 Meetings may be called by the Chair of the Faculty or by the Executive Committee. At the written request of ten percent of voting members of the Faculty, the Chair must call a meeting. The Chair must call at least one meeting in each academic year.

EN3.1.1A quorum consists of thirty percent of the members of the Faculty.

EN3.1.2A motion to submit a measure to mail ballot has precedence over a motion for a vote in a meeting.

EN3.1.3 The Chair must send, at least five days before each meeting, copies of the call for a meeting together with all pertinent documents to each member of the Faculty. The Faculty shall not change curricular requirements or regulations of the college or its departments or change these bylaws at the meetings at which such proposals for change are first made, unless notice is previously given to all members of the Faculty in a call to the meeting.

EN3.1.4 These bylaws constitute primary rules of order for meetings of the Faculty and of the committees of the Faculty. The order of business is that prescribed in Chapter 4 of the bylaws of the Division. Questions of order not covered by these bylaws or those of the Division are covered by Robert's Rules of Order, Newly Revised.

EN3.1.5 The minutes of every meeting of the Faculty shall be sent to every member of the Faculty within ten days after the meeting.

EN⁴Committees

EN4.1 There is an Executive Committee consisting of the Chair of the Faculty, ex officio; the Dean of the college, ex officio; the associate Dean(s) of the college, ex officio; the elected members of the Faculty as provided in EN4.01.01. An elected member is not eligible for immediate reelection unless he/she has completed a term of fewer than 18 months. Eligibility is reestablished after one year of non-service. The Chair, vice Chair, secretary, and parliamentarian of the Faculty occupy corresponding offices in the Executive Committee. The Vice Chair, Secretary, and Parliamentarian are elected by the Executive Committee from the existing elected Faculty members of the Executive Committee whenever a vacancy arises. (Am 20 Feb 07) (Am 20 Nov 07)

EN4.1.1 The elected membership of the committee shall include one member chosen from each of the departments in the College, elected by the faculty of that department, and one member-at large elected by the Faculty at large of the College. The election is conducted as provided in Chapter 7 of the bylaws of the Division. The first order of business of the Executive Committee, after the election of the Chair of the Faculty, will be to determine whether the representation formula needs change and to recommend appropriately to the Faculty. (Am 28 May 98) (Am 20 Feb 07) (Am 20 Nov 07) (Am 25 May 2010)

EN4.1.1.1 The term of office of members of the Executive Committee is three years. (Am 20 Feb 07) (Am 25 May 2010)

EN4.1.1.2 The election is held by mail ballot as provided in Chapter 7 of the bylaws of the Division. For purposes of these elections, members of the Executive Committee are considered Officers of the Faculty of the College. Members of the

Bourns College of Engineering

Executive Committee take office on the first day of September following their election at a regular election, or immediately upon completion of the ballot count at a special election.

EN4.1.1.3 Whenever the Executive Committee determines that a vacancy exists in its membership, the secretary of the Division conducts an election in accordance with the procedure prescribed within these bylaws provided the vacancy is to last more than seven months. A vacancy will be declared to exist and a committee member considered to have resigned if he/she anticipates an absence from the committee of more than seven months. Vacancies of seven months or less are filled temporarily by appointment by the Chair of the Faculty with the advice and consent of the Executive Committee.

EN4.1.1.4A quorum consists of fifty percent of the elected faculty members of the Executive Committee. For the purposes of quorum the Chair is considered an elected faculty members. (En 20 Nov 07) (Am 25 May 2010)

EN4.1.1.5 At the beginning of each academic year, to provide input on the student point-of-view, the Executive Committee shall appoint a non-voting undergraduate student representative, who shall be majoring in an Engineering program, to a one-year term. (En 25 May 2010)

EN4.1.2 The Executive Committee has the following functions:

EN4.1.2.1 The Executive Committee has general oversight of the academic welfare and discipline of students in the college and has the power to bring before the Faculty any matters that the committee deems advisable.

EN4.1.2.2 The Executive Committee appoints all other standing committees and all special committees of the Faculty unless otherwise directed at a meeting of the Faculty.

EN4.1.2.3 The Executive Committee acts finally for the Faculty (a) in the awarding of all degrees to students of the college, and (b) in the awarding of honors at graduation. The committee is likewise empowered to act on petitions of students for graduation under suspension of the regulations. The committee will report all degrees approved to the Division.

EN4.1.2.4 The Executive Committee acts for the Faculty in the establishment, modification, and discontinuation of majors and minors within the college.

EN4.1.2.5 The Executive Committee acts for the Faculty in making recommendations to the Division regarding courses.

EN4.1.2.6 The Executive Committee reviews and makes recommendations to the Dean of the college on proposals for the establishment of new departments or modifications of existing departments and reviews the status of all interdisciplinary programs.

EN4.1.2.7 The Executive Committee establishes and maintains liaison with the Executive Committees of the other colleges and schools in the Division.

EN4.1.2.8 The Executive Committee assists the Dean on his/her request in matters relating to the administration of the College of Engineering.

EN4.2 There is a standing undergraduate education committee consisting of the undergraduate advisors from each of the programs in the college and chaired by the associate dean. The duties of the committee are the judging of the awarding of honors at graduation and evaluation of applications for fellowships and

Bourns College of Engineering

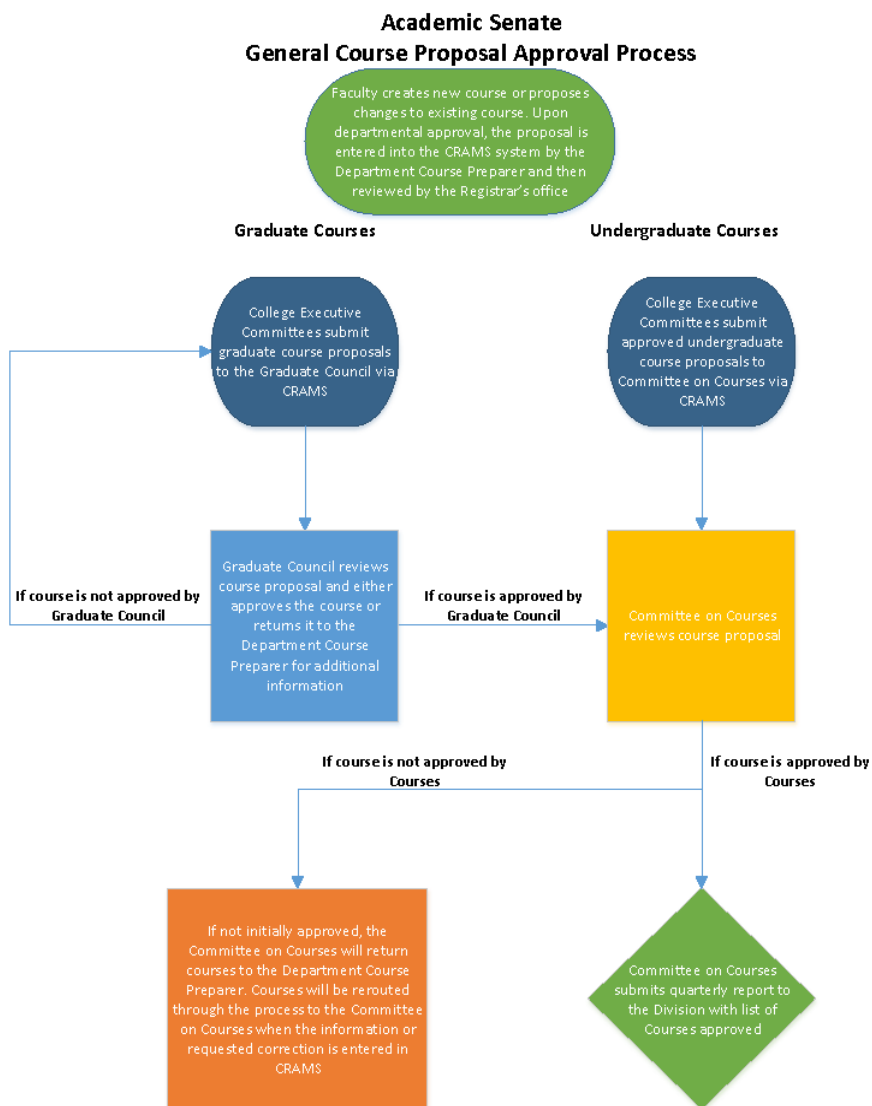
scholarships judged and/or awarded through this college. The committee is also charged with the duty to provide an on-going review of college undergraduate programs and policies. Its advice and recommendations are to be presented to the dean and the departmental chairs, and reported quarterly to the executive committee. (EN 31 May 01) (Am 20 Nov 07)

EN⁵ Amendments/Suspensions

EN5These bylaws and regulations can be amended or suspended only as provided in Chapter 6 of the bylaws of the Division and EN 3.01.03

Bourns College of Engineering

Course Approval Process



****Please note that some courses including those from GSoE, SoBA, SoM, SPP, and the Honors Program have different course proposal processes. For detailed course proposal processes for all courses please see the Office of the Registrar's webpage (<http://registrar.ucr.edu/crams/course-proposal/index.html>).**

Bourns College of Engineering

College of Engineering Regulations

ENR¹ STATUS OF STUDENTS

ENR1.1 CATEGORIES OF STUDENTS

ENR1.1.1 The categories of students are: (1) regular students, (2) special students, (3) limited status students as defined in the Manual of the Academic Senate, Regulations 310, 312, 314, 650.

ENR² REGISTRATION AND COURSE WORK

ENR2.1 FACULTY ADVISORS

ENR2.1.1 Each academic department in the College of Engineering will assign one faculty member to be the Undergraduate Faculty Advisor. This faculty member will serve as a contact point in the student's area of interest. In addition, this faculty member will participate on the Undergraduate Education Committee, and will be responsible for communicating to continuing students in an annual forum. (En 21 Nov 02)

ENR2.2 STUDENT RESPONSIBILITY (EN 21 NOV 02)

ENR2.2.1 Students should plan their program of studies carefully in consultation with an academic advisor. It is the student's responsibility to make sure that all of the requirements for graduation are met and to attend the Undergraduate Faculty Advisor's annual forum. (Am 21 Nov 02)

ENR2.2.2 Students are responsible for obtaining their grades, for selecting an appropriate collection of courses, and for confirming their enrollment by relevant deadlines. (En 21 Nov 02)

ENR2.2.3 Students are required to attend class meetings. Students who do not attend in accordance with any published requirement in the Schedule of Classes or a course syllabus may be dropped from the course. (En 21 Nov 02)

Bourns College of Engineering

ENR2.3 ENROLLMENT REGULATIONS (AM 21 NOV 02)

ENR2.3.1 Each quarter, students will secure enrollment in each of their courses by the deadlines and methods published in the Schedule of Classes. Changes in enrollment after the published deadlines require the approval of the Associate Dean of the college. Course schedules of fewer than 12 units must have the approval of the Associate Dean of the college. (Am 21 Nov 02)

ENR2.3.2 Students on Probation or Subject to Dismissal status are required to consult with an academic advisor prior to the third week of each quarter in which they are in academic difficulty. A student on Probation or Subject to Dismissal may not enroll in more than 13 units without the approval of the Associate Dean of the college. (En 21 Nov 02)

ENR2.3.3 Students who have not met the Subject A requirement are required to enroll in a basic writing or qualifier course, as determined by their placement, during their first quarter of residency. (AM 21 Nov 02) (AM 21 Nov 02)

ENR2.3.4 With the approval of the Associate Dean, students may withdraw from the University at any time prior to the end of instruction. (AM 21 Nov 02)

ENR2.3.5 Any changes in a student's course schedule not covered by the above regulations must have the approval of the Associate Dean. (Am 21 Nov 02)

ENR2.4 MAJOR REQUIREMENTS

ENR2.4.1 The College of Engineering has approved majors in Bioengineering, Business Informatics, Chemical Engineering (Biochemical, Bioengineering, Chemical and Nanotechnology options), Computer Engineering, Computer Science, Electrical Engineering, Environmental Engineering (Air Pollution Control Technology and Water pollution Control Technology options), Mechanical Engineering (Design and Manufacturing, Energy and Environment, General Mechanical Engineering, and Mechanical of Materials and Structures concentrations), and Material Sciences and Engineering. (Am 11 Nov 93) (Am 25 May 00) (Am 25 May 2010)

Bourns College of Engineering

ENR2.4.2 A major shall consist of not fewer than 50 upper division units.

ENR2.4.3 Not more than 9 units of courses in the 190-199 series may be counted in fulfilling the upper division units needed for the major. (Am 11 Nov 93)

ENR2.4.4 The College of Engineering will not allow simultaneous enrollment in more than one degree program. A student may be considered for a second Baccalaureate only upon completion of degree requirements in his/her first degree, providing he/she meets the spirit of Regulation 650 of the Academic Senate, Candidacy for a Second Bachelor's Degree. (Am 25 May 00)

ENR2.4.5 A student in good standing may elect to take a second major within the College of Engineering. A declaration of a second major must be signed by the Dean of the college and filed by the student with the Dean's office. A course used to satisfy the requirements for one major may be used to fulfill the requirements for a second major as well. However, of the required upper division units, a minimum of 24 must be unique to each major. (Am 25 May 00)

ENR2.4.6 A student registered in the College of Engineering, and in good standing, may elect a second major in another college. A declaration of such second major must be signed by the Deans of both colleges and filed by the student with the primary college. A student will meet requirements of both primary and secondary majors and the college requirements of the primary major if they are both in the same baccalaureate class. If the two majors lead to different degree designations (B.S. and B. A.), that fact will be noted on the transcript, but only one diploma indicating both degree designations will be issued upon successful completion of such a double major program. Furthermore, if the double major is a mixed B.S./B.A., the college requirements for both majors must be met. A course used to satisfy the requirements for one major may be used to fulfill the requirements for a second major as well. However, of the required upper division units, a minimum of 24 must be unique to each major. (Am 25 May 00)

Bourns College of Engineering

ENR2.4.7 A student who has declared a double major may graduate in one major upon the completion of all requirements for that major, but may not continue in the University for completion of the second major. (En 25 May 00)

ENR2.4.8 A student in good standing may request transfer from one major to another by filing a petition of change with the Dean's office. (Am 25 May 00)

ENR2.4.9 A grade point average of at least 2.00 in upper division courses taken in the field of the major is a graduation requirement. (Ed 25 May 00)

ENR2.5 CREDIT BY EXAMINATION

ENR2.5.1 A student who wishes to have the privilege of examination for degree credit must be in residence and not on academic probation.

ENR2.5.2 Arrangements for examination for degree credit must be made in advance with the student's Faculty adviser. The approval of the Faculty adviser, the Dean of the college, and that of the instructor who is appointed to give the examination, are necessary before the examination can be given.

ENR2.5.3 The results of all examinations for degree credit are entered on the student's record in the same manner as for regular courses of instruction.

ENR2.6 UNDERGRADUATE CREDIT FOR GRADUATE COURSES

ENR2.6.1 An upper division student who has a grade point average of at least 3.00 in all courses taken in the University may take a graduate course for undergraduate credit with the permission of the Faculty advisor and the instructor concerned.

ENR2.7 ENROLLMENT ON A SATISFACTORY/NO CREDIT (S/NC) BASIS

ENR2.7.1 A student in good standing may enroll and receive credit for courses graded S. However, the S/NC grading system cannot be used for any course that is used to fulfill major or breadth requirements, except for any required course which is restricted to S/NC grading and up to eight units of courses in the Humanities and Social Sciences. Exceptions to this policy may be

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granted, upon petition, by the student's adviser and the Dean.
(Am 25 May 95) (Am 28 May 98)

ENR2.7.2 A student may change from letter grading in a course to (S/NC), or vice versa, until the end of the eighth week of instruction.

ENR2.8 ENROLLMENT IN HONORS SECTION (EN 31 MAY 01)

ENR2.8.1 An Honors section offering of any course will be granted credit equal to that of a regular offering of the course.

ENR³ DEGREE REQUIREMENTS

ENR3.1 GENERAL REQUIREMENTS

ENR3.1.1 A minimum of 180 units of academic work is required for graduation. No more than 6 units physical education activity may be counted toward the requirement. After having credit for 216 units, a student will not be permitted to continue, except in cases approved by the Dean, in which specific academic or professional reasons are involved. (Am 25 May 00)

ENR3.1.2 A grade point average of at least 2.00 in all courses taken in the University of California is required for graduation.

ENR3.1.3 Concurrent enrollment in any course offered by University Extension or at any other institution is permitted only with prior approval of the Dean of the college.

ENR3.1.4 Thirty-five of the final 45 units completed by each student prior to receiving the Baccalaureate Degree must be earned in residence. The minimum residence at the University of California required for a degree is three quarters. One of these may be completed in summer session on the Riverside campus provided the student carries at least 8 units in a summer session, unless a reduced load is approved by the Dean of the college. Courses completed through the concurrent enrollment program of University Extension are not considered work in residence. (Am 25 May 00)

ENR3.1.5 Each student must declare candidacy for the Bachelor's Degree with the Dean's office at the beginning of the senior year and again at the beginning of the final quarter.

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ENR3.1.6 Honors with the Bachelor's Degree are awarded to students who complete with distinction the work of the junior and senior years. Policies are determined by the college committee on honors and scholarships.

ENR3.2 SUBJECT REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

ENR3.2.1 English Composition: Students must demonstrate adequate proficiency in English Composition by completing a one-year sequence of college-level instruction in English Composition with an average grade of C or better and no grade lower than C-minus. UCR's sequence is ENGL 001A, ENGL 001B, and either ENGL 001C or ENGLS 001SC. Transfer students who have credit for one semester of English Composition from another institution are required to take two additional quarters, i.e., ENGL 001B and either ENGL001C or ENGL 01SC. Students have the option of using a score of 3 on the College Board Advanced Placement Test in English to satisfy ENGL 001A; they must complete ENGL 001B and either ENGLS 001C or ENGL 001SC. Students with a score of 4 or 5 on the College Board Advanced Placement Test in English have satisfied ENGL 001A and ENGL 001B; they must complete ENGL 001C or ENGL 01SC. (Am 31 May 01)(Am 22 Nov 05)

ENR3.2.2 Humanities: three courses, as specified by {{bylaw|r|6.3|R6.03}} for the B.S. degree. (Am 11 Nov 93)(Am 25 May 95) (Am 25 May 00)

ENR3.2.3 Social Sciences: three courses as specified by {{bylaw|r|6.4|R6.04}} for the B.S. degree. (Am 25 May 95) (Am 25 May 00)

ENR3.2.4 In order to provide depth in satisfying breadth in the humanities and social sciences, at least two of the courses must be upper division, and at least two courses, one of which is upper division, must be from the same subject area. (En 11 Nov 93)

ENR3.2.5 Natural Sciences and Mathematics: five courses, as specified in {{bylaw|r|6.2|R6.02}}. . (Renumbered & Am 11 Nov 93)(Am 25 May 95) (Renumbered & Am 25 May 00)

Bourns College of Engineering

ENR3.2.6 Ethnicity: One course as specified in R6.05, R6.05.01, and R6.05. (En 25 May 95)(Renumbered & Am 25 May 00)

ENR3.2.7 The executive committee, in consultation with the faculty, is responsible for the determining which courses may be used to satisfy the requirements of ENR03.02.02, 3.02.03, 3.02.04, 3.02.05, and 3.02.06. (Renumbered & Am 25 May 00)

ENR3.2.8 Internships and independent study courses may not be used to satisfy College subject requirements. (En 25 May 95) (Renumbered & Am 25 May 00)

ENR3.2.9 In accordance with Division Regulation 6.08, any one course in ENR3.02.02, 3.02.03, 3.02.04, 3.02.05, and 3.02.06 is defined to be a block of instruction that carries four or more units of credit. (En 25 May 95) (Am 25 May 00)

ENR3.3 ACADEMIC MINORS (EN 28 MAY 98)

ENR3.3.1 A disciplinary minor is a set of courses focused on an academic discipline proposed by a department or program and approved by the Executive Committee, the Faculty, the Committee on Educational Policy and the Academic Senate. (En 28 May 98)

ENR3.3.2 An interdisciplinary minor is a set of courses focused on an interdisciplinary thematic area, proposed by more than one department or program and approved by the Executive Committee, the Faculty, the Committee on Educational Policy and the Academic Senate. Each interdisciplinary minor is to be supervised by a representative committee of at least three Faculty members, one designated as Chair. (En 28 May 98)

ENR3.3.3 A minor shall consist of not fewer than 20 nor more than 28 units of organized upper division courses. No more than 4 (four) units of 190-199 courses may be used in fulfilling the upper division unit requirement for a minor. Overlap may occur between the upper-division course requirements of the major and the minor only to the extent permitted by the department, program, or interdisciplinary committee offering the minor, or the college of the minor. (En 28 May 98)(Am 31 May 01)

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ENR3.3.4 Courses used, or prerequisite to those used, in fulfilling the minor may be taken on an S/NC basis only on approval of the Dean. (En 28 May 98)

ENR3.3.5 The department, program, or interdisciplinary committee offering the minor is responsible for student and administrative issues pertaining to the minor. (En 28 May 98)

ENR3.3.6 Students must file a declaration of a minor at least two quarters before graduation and must be in good academic standing at the time of filing. A minor requires the signature of the department Chair or Chair of the Faculty committee which supervises the minor and the signature of the Dean of the college. (En 28 May 98)

ENR3.3.7 A grade point average of at least 2.00 in upper division courses in the field of the minor is a graduation requirement. When all other requirements for graduation have been met, the student will be graduated without the minor if the minimum GPA in the minor field has not been met. (En 28 May 98)

Bourns College of Engineering

ABET Coordinators



Jin Nam, Assistant Professor

Bioengineering

jin.nam@ucr.edu

(951) 827-2064



Eamonn Keogh, Professor

Business Informatics

Computer Science

Computer Engineering

eamonn.keogh@ucr.edu

(951) 827-2032



Kawai Tam, Lecturer

Chemical Engineering

Environmental Engineering

kawai.tam@ucr.edu

(951) 827-2498



Wei Ren, Professor

Electrical and Computer Engineering

wei.ren@engr.ucr.edu

(951) 827-6204



Suveen Mathaudhu, Assistant Professor

Mechanical Engineering

suveen.mathaudhu@ucr.edu

(951) 827-4414



Perry Cheung, Research & Development Officer

Materials Science & Engineering

pcheung@engr.ucr.edu

(951) 827-3419

Bourns College of Engineering

Academic Calendar

	FALL 2016	WINTER 2017	SPRING 2017
First day of the quarter	19-Sep-16	4-Jan-17	29-Mar-17
First day of instruction	22-Sep-16	9-Jan-17	3-Apr-17
SCHEDULE OF CLASSES			
Schedule of Classes is online	5-May-16	20-Oct-16	2-Feb-17
INITIAL ENROLLMENT			
Enrollment appointments viewable in Growl	10-May-16	25-Oct-16	7-Feb-17
Continuing students register	May 16, 2016 - June 3, 2016	Oct. 31 - Nov. 28, 2016	Feb. 13 - March 9, 2017
New and readmitted students register	August 22-26, 2016	N/A	N/A
Transfer students register	August 29 - September 1, 2016	N/A	N/A
CONTINUING ENROLLMENT			
Enrollment appointments for 2nd pass viewable in Growl	6-Sep-16	29-Nov-16	10-Mar-17
Undergraduate 16 unit maximum load lifted	September 7 - 15, 2016	Nov. 30 - Dec. 15, 2016	March 10- April 14, 2017
Makeup enrollment and add/drop	June 6-17, 2016 (Continuing Students) and Sept. 19-Oct. 7, 2016 (All Students)	Dec. 19, 2016 - Jan. 15, 2017	N/A
For registration deadlines, see "LAST DAY" tab.			
Statement of Account (shows fees, tuition and projected student aid) available in Growl.	mid-August, 2016	mid-November, 2016	mid-February 2017
Student Aid Refunds disbursed (by direct deposit or mail) by Student Business Services Office.	19-Sep-16	4-Jan-17	22-Mar-17

Bourns College of Engineering

	FALL 2016	WINTER 2017	SPRING 2017
Last day to pay fees without \$50 penalty. Cashier's Office payments are due by 3 p.m. Growl and Drop Box payments due at 4 p.m.	15-Sep-16	15-Dec-16	15-Mar-17
Last day to enroll in classes and pay fees (with penalties). If you do not enroll/pay, your student status lapses. Cashier's Office payments are due by 3 p.m. Growl and Drop Box payments due at 4 p.m. Enrollment for Financial Aid Qualification must be completed by 4 p.m.	21-Sep-16	27-Jan-17	21-Apr-17
Last day to apply for readmission if you have been absent one or more quarters	20-Jun-16	22-Sep-16	9-Jan-17
Last day to mail payment for tuition/fees to allow for processing time. Postmarks not considered.	1-Sep-16	1-Dec-16	1-Mar-17
Last day to add/drop courses in Growl (no fee) without a "W" appearing on your transcript. Enrollment closes when the Student Information System is closed for nightly processing. To ensure your request is processed we recommend you complete your enrollment activity prior to 6 p.m. See When To Register for Growl availability	7-Oct-16	20-Jan-17	14-Apr-17
Last day to add a course without dean approval (no fee). Enrollment Adjustment Forms are due at NOON.	14-Oct-16	27-Jan-17	21-Apr-17
Last day to withdraw from a course (no fee)	14-Oct-16	27-Jan-17	21-Apr-17
Last day to change grading basis (no fee)	14-Oct-16	27-Jan-17	21-Apr-17

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	FALL 2016	WINTER 2017	SPRING 2017
Last day for undergraduates to get dean approval to enroll in 10 or fewer units (and reduced tuition). Part-Time Fee Waivers are due at NOON.	14-Oct-16	27-Jan-17	21-Apr-17
Last day to withdraw from a course (\$4 fee). Enrollment Adjustment Forms are due at NOON.	4-Nov-16	17-Feb-17	12-May-17
Last day to change grading basis or variable units (\$4 fee). Enrollment Adjustment Forms are due at NOON.	18-Nov-16	3-Mar-17	26-May-17
Last day of instruction	2-Dec-16	17-Mar-17	9-Jun-17
Last day to withdraw from UCR for the full term	2-Dec-16	17-Mar-17	9-Jun-17
Last day to complete work in order to remove an incomplete grade from the prior quarter	9-Dec-16	24-Mar-17	16-Jun-17
Last day of the quarter	9-Dec-16	24-Mar-17	16-Jun-17
Final Examinations	December 3-9, 2016	March 18-24, 2017	June 10-16, 2017
Grades available on Growl	3-Jan-17	3-Apr-17	26-Jun-17

Bourns College of Engineering

Bioengineering (BIEN)

Welcome to the Department of Bioengineering in the Bourns College of Engineering at the University of California, Riverside. Established in 2006 by National Academy of Engineering member Jerome S. Schultz, our department is home to a cutting-edge research program and a nationally recognized, unique student training and educational enterprise.

Innovative Interdisciplinary Research

Bioengineering is an interdisciplinary field where engineering/physical sciences and biology/medicine synergistically meet, work together, cross-fertilize, mutually benefit, lead to discoveries, and define and usher in new fronts of interdisciplinary research. Our core faculty is comprised of internationally acclaimed bioengineers with multidisciplinary expertise. Together we carry out cutting edge, collaborative research as well as provide enriched, in-depth training for our students in the following focus areas:

- Biomaterials and Regenerative Medicine
- Biomedical Imaging
- Computational Bioengineering
- Medical Devices
- Molecular and Cellular Engineering

Other bioengineering areas are covered by faculty in the bioengineering interdisciplinary graduate (BIG) program, which includes 49 additional faculty members with biomedical engineering or bioengineering interest, across the campus in departments ranging from Mechanical Engineering to the Biomedical Sciences Division in the School of Medicine. Together we positioned to achieve translational bioengineering research excellence.

Rigorous Student Preparation in a Welcoming Environment

The educational program, at both undergraduate and graduate levels, in our department is heavily integrated with our research activities and is intended for well-qualified individuals who wish to become future leaders in academia or industry. At the undergraduate level, an emphasis is placed on fundamental preparation and undergraduate research. Consequently, many of our B.S. graduates are highly successful in gaining admission into renowned graduate programs all around the world, with a number of them

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receiving prestigious awards such as the NSF Graduate Research Fellowship. For those who opt for industrial positions, our training prepares them with engineering and biomedical fundamentals and the ability to apply their knowledge to solve real world problems and to translate creative ideas quickly to practical outcomes.

At the graduate level, our education effort is equally excellent. BIG is designed to not only prepare the entering graduate student with a well-rounded academic preparation in engineering and the biosciences for research, but also to help them hone their skills in communicating advanced technical information to an academically diverse audience. This rigorous but welcoming attention helps our students release their potential in expressive productivity. As a consequence, despite our relative youth, 24% of our eligible doctoral students are NSF Graduate Research Fellows.

One of the Most Diverse Educational Programs in the Nation

Finally, the Department of Bioengineering and BIG are beyond merely committed to diversity. Just as an educationally diverse faculty is needed to provide the most advanced preparation for our graduates, a diverse community provides a wealth of insight in formulating new ideas and solutions to problems. Our graduate program is a gender-balanced blend of U.S. and international students with 68% domestic Ph.D. students. Among the domestic Ph.D. students, 24% are currently underrepresented minorities.

If you are interested in an exciting research-focused educational program that will prepare you to be a leader in the field of biomedical engineering or bioengineering, UCR is the right place for you. Please feel free to contact us for more information.

With warmest regards,



Xiaoping Hu, Ph.D.
Provost Fellow
Professor and Chair

Bourns College of Engineering

Staff



Nancy Ford

Financial & Administrative Officer

Materials Science & Engineering Bldg. 209

(951) 827-5025

nford@engr.ucr.edu



Hong Xu

Senior Development Engineer

Materials Science & Engineering Bldg. 233

(951) 827-7235

hongxu@engr.ucr.edu



Sonia Godinez

Financial and Administrative Analyst

Materials Science & Engineering Bldg. 217

(951) 827-4314

soniag@engr.ucr.edu



Annette Meneses

Student Affairs Officer

Materials Science & Engineering Bldg. 217

(951) 827-4314

amenses@engr.ucr.edu



Michel'le Barker

Payroll, Purchasing and Travel Assistant

Materials Science & Engineering Bldg. 217

(951) 827-4303

mbarker@engr.ucr.edu

Administrative Office is located in the Materials Science & Engineering (MSE)
Building – Second floor
(951) 827-4303 (phone)
(951) 827-6416 (fax)

Bourns College of Engineering

Faculty



Bahman Anvari, Professor

Bioengineering

211 Materials Science & Engineering Building

anvari@engr.ucr.edu

(951) 827-5726

Ph.D., Bioengineering, Texas A&M University, 1993

Research Area: Biophotonics, cell membrane electromechanics



Kaustabh Ghosh, Assistant Professor

Bioengineering

207 Materials Science & Engineering Building

kghosh@engr.ucr.edu

(951) 827-4203

Ph.D., Biomedical Engineering, University of New York, Stony Brook, 2006

Research Area: Cellular Mechanobiology, Vascular Physiology, Nanomedicine



William Grover, Assistant Professor

Bioengineering

219 Materials Science & Engineering Building

wgrover@engr.ucr.edu

(951) 827-4311

Ph.D., Chemistry, UC Berkeley, 2006

Research Area: Sensors, Diagnostics, Biomaterials, Biophysics, Pharmacology, Microfluidics



Xiaoping Hu, Professor

Chair, Bioengineering

205 Materials Science & Engineering Building

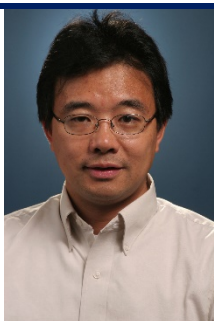
xiaoping.hu@ucr.edu

(951) 827-2925

Ph.D., Medical Physics, University of Chicago, 1988

Research Area: Magnetic resonance imaging and spectroscopy, functional MRI, image reconstruction and processing, molecular imaging

Bourns College of Engineering



Jiayu Liao, Associate Professor

Bioengineering

231 Materials Science & Engineering Building

jliao@engr.ucr.edu

(951) 827-6240

Ph.D., Biological Chemistry, UC Los Angeles, 1999

Research Area: Quantitative FRET assay, Quantitative system biology, High-throughput screening assay development and drug discovery, SUMOylation and Ubiquitin-like pathways, Bioconjugation on solid surfaces



Huinan Liu, Associate Professor

Bioengineering

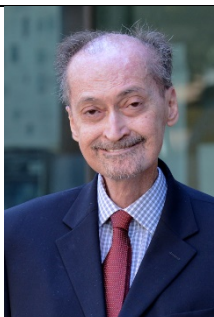
227 Materials Science & Engineering Building

huinanliu@engr.ucr.edu

(951) 827-2944

Ph.D., Brown University, 2008

Research Area: Biomaterials guided tissue regeneration, nanotechnology, ceramic nanoparticles, degradable polymers, nanocomposites, resorbable metals, surface treatment for medical implants and devices, controlled drug delivery, and stem cell therapy



Dimitrios Morikis, Professor

Bioengineering

223 Materials Science & Engineering Building

dmorikis@engr.ucr.edu

(951) 827-2696

Ph.D., Physics, Northeastern University, 1990

Research Area: Immunophysics and immune-engineering; computational modeling of biomolecular structure, dynamics, and interactions; structural bioinformatics; protein, peptide, and drug design; NMR spectroscopy

Bourns College of Engineering



Jin Nam, Assistant Professor

Bioengineering

331 Materials Science & Engineering Building

jnam@engr.ucr.edu

(951) 827-2064

Ph.D., Materials Science and Engineering, The Ohio State University, 2006

Research Area: Polymeric Scaffolding, Mechanobiology/Mechanotransduction in Stem Cells and Skeletal Cells/Tissues, Orthopaedic Tissue



Boris Hyle Park, Associate Professor

Bioengineering

243 Materials Science & Engineering Building

hylepark@engr.ucr.edu

(951) 827-5188

Ph.D., Physics, UC Irvine, 2005

Research Area: Optical imaging techniques such as optical coherence tomography to neuroscience



Victor Rodgers, Professor

Bioengineering

215 Materials Science & Engineering Building

vrodgers@engr.ucr.edu

(951) 827-6241

D.Sc., Chemical Engineering, Washington University, 1989

Research Area: Biotransport phenomena, bioreaction kinetics, redox cellular reactions, drug delivery vehicles, bioseparations



Jerome Schultz, Distinguished Professor

Bioengineering

203 Materials Science & Engineering Building

jssbio@engr.ucr.edu

(951) 827-2111

Ph.D., Biochemistry, University of Wisconsin, 1958

Research Area: Intracellular sensors and metabolic controls

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Valentine Vullev, Associate Professor

Bioengineering

235 Materials Science & Engineering Building

vullev@engr.ucr.edu

(951) 827-6239

Ph.D., Chemistry, Boston University, 2001

Research Area: Biophysics, microfluidics and charge transfer

Adjunct Faculty



Shu-Wei (Richard) Sun, Assistant Adjunct Professor

shuwei.sun@gmail.com

(909) 558-7115

Ph.D., Biomedical Engineering, National Yang-Ming University, Taiwan, 2002

Bourns College of Engineering

Chemical & Environmental Engineering (CEE)



We have one of the more truly unique engineering programs with the combination of chemical and environmental engineering that focuses on six key research areas including: Biotechnology, Advanced Materials and Nanotechnology, Air Quality Systems, Water Quality Systems, Energy Systems, and Theory and Molecular Modeling. Our undergraduate program began in 1990-1991 and a graduate program in 1999, which is ranked 21st overall in the NRC lexicographic s-rankings.

We are an interdisciplinary department by nature as evidenced by our ties to the UCR Center for Nanoscale Science and Engineering (CNSE), The College of Engineering Center for Environmental Research and Technology (CE-CERT), and the Winston Chung Global Energy Center.

Our faculty are both productive and well respected within the engineering community. I truly believe the possibilities are endless with the strong core faculty within CEE.

Our students, the lifeblood of our department, have been well-recognized for their outstanding work and achievement. We have a truly diverse student population which was reflected by ABET awarding BCOE the prestigious Claire Felbinger Award for Diversity in 2009.

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Graduates of our undergraduate and graduate programs go on to rewarding careers in industry (ClearEdge Power, Ford Motor Company, General Electric, Intel, Nanomix), academia (Chonbuk National University, United Arab Emirates University, University of Connecticut, University of Waterloo) and government (California Air Resources Board, EPA, Pacific Air and Environment).

We look forward to continuing innovative research and fostering our students to become future leaders within the CEE field.

Cheers,
Nosang Myung
Department Chair

Bourns College of Engineering

Staff



Sabrina Schuster
Financial & Administrative Officer
Bourns Hall A233
(951) 827-4655
sabrina@engr.ucr.edu



Polly C. Beattie
Contract & Grant/Payroll Analyst
(951) 827-4654
polly@engr.ucr.edu



John Cleary
Systems Administrator
Bourns Hall A308
(951) 827-2638
john@engr.ucr.edu



Kathy Cocker
Development Engineer/Lab Safety Officer
Bourns Hall A229
(951) 827-4314
ksmihula@engr.ucr.edu



Kevin J. Schulte
Purchasing/Travel Assistant
(951) 827-6460
kschulte@engr.ucr.edu



Adrienne L. Thomas
Graduate Student Affairs Officer
(951) 827-2859
gradcee@engr.ucr.edu

Bourns College of Engineering

Faculty



**Akua Asa-Awuku, Associate Professor
Chemical & Environmental Engineering**

Bourns Hall A219

akua@engr.ucr.edu

(951) 827-2271

Ph.D., Chemical Engineering, Georgia Tech, 2008

Research Area: Understanding and predicting aerosol-cloud climate interactions, impact of warm cumulus clouds that may counteract the warming effects of greenhouse gases and models of cloud microphysical processes are investigated



**Kelley Barsanti, Assistant Professor
Chemical & Environmental Engineering**

Bourns Hall A213

kbarsanti@engr.ucr.edu

(951) 827-3152

Ph.D., Oregon Health & Science University, 2006

Research Area: Development of mechanistic models for the prediction of atmospheric particulate matter, Improving speciation of organic compounds in emissions inventories for biomass burning and other combustion sources, Improving model representation of secondary organic aerosol in biomass burning plumes, developing models of new particle formation



**Harvey Blanch, Professor
Chemical & Environmental Engineering**

Bourns Hall A243

hwblanch@engr.ucr.edu

(951) 827-6445

Ph.D., University of New South Wales, Sydney, Australia, 1971

Research Area: Protein interactions, DNA electrophoresis and mammalian cell metabolism

Bourns College of Engineering



**Phillip Christopher, Assistant Professor
Chemical & Environmental Engineering**

Bourns Hall B363

christopher@engr.ucr.edu

(951) 827-7959

Ph.D., Chemical Engineering, University of Michigan, Ann Arbor, 2011

Research Area: Heterogeneous catalysis, photocatalysis, electrocatalysis, nanomaterials synthesis, solar energy conversion, molecular modeling



David Cocker

Chemical & Environmental Engineering

Bourns Hall A221

dcocker@engr.ucr.edu

(951) 827-2408

Ph.D., Environmental Science, Caltech, 2001

Research Area: Secondary organic aerosol formation, emissions characterization, air quality systems



Xin Ge, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall B309

xge@engr.ucr.edu

(951) 827-6229

Ph.D., Chemical Engineering, McMaster University, 2008

Research Area: Therapeutic antibody discovery and engineering, directed evolution of enzymes, metabolic pathways and microbial strains, next generation DNA sequencing and bioinformatics, in vivo partitioning for biogenesis and bioremediation

Bourns College of Engineering



Juchen Guo, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall A245

jguo@engr.ucr.edu

(951) 827-6472

Ph.D., Chemical Engineering, University of Maryland, College Park, 2007

Research Area: Rational design, synthesis, and characterization of novel materials for energy and environmental technologies including rechargeable batteries, polymer electrolyte membrane fuel cells, photovoltaic devices, and water treatment



David Jassby, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall A241

djassby@engr.ucr.edu

(951) 827-6475

Ph.D., Chemical Engineering, Duke University, 2011

Research Area: Membrane technology, water and wastewater treatment, environmental implications and applications of nanotechnology. To meet the water demand of a growing population and treat the increasingly complex waste generated by human activity, new technologies need to be developed and incorporated into existing infrastructure



Robert Jinkerson, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall

robert.jinkerson@ucr.edu

(951) 827-4655

Ph.D., Applied Chemistry, Colorado School of Mines, 2014

Research Area: Metabolically engineering biological systems, re-routing native metabolism in microorganisms, transcriptomics, proteomics, metabolomics, photoautotrophic microorganisms (algae and cyanobacteria)

Bourns College of Engineering



David Kisailus, Professor
Winston Chung Endowed Chair of Energy Innovation

Chemical & Environmental Engineering

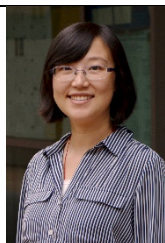
343 Materials Science & Engineering Building

david@engr.ucr.edu

(951) 827-2260

Ph.D., Materials Science and Engineering, UC Santa Barbara, 2002

Research Area: Bio-mimetics, Bio-inspired Materials Synthesis for Nanomaterials, Energy Storage and Conversion Materials (Fuel Cell, Batteries), Biomineralization Studies, Ceramic Processing, Thin Film Growth



Yanran Li, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall A217

yanranl@engr.ucr.edu

(951) 827-4332

Ph.D., Chemical Engineering, UC Los Angeles, 2012

Research Area: Metabolic engineering



Haizhou Liu, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall A239

haizhou@engr.ucr.edu

(951) 827-2076

Ph.D., Environmental Engineering, University of Washington, 2010

Research Area: Advancing the knowledge and application of environmental chemical processes at the molecular level to provide more reliable water supplies, improve water quality and protect public health, with particular interests in enhancement of drinking water quality, remediation of contaminated groundwater, and development of new water purification technologies

Bourns College of Engineering



Jinyong Liu, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall B321

jinyongl@ucr.edu

(951) 827-4654

Ph.D., Environmental Engineering, University of Illinois at Urbana-Champaign, 2014

Research Area: Water purification catalysts and pollutant detection technologies based on biomimetic metal complexes, functional materials, and nanoparticles; Chemical destruction of recalcitrant contaminants (inorganic, organic, and perfluorinated) in water and wastewater, Environmental behavior study and recovery technology for rare elements



Monica Martinez Wilhelmus, Assistant Professor
Chemical & Environmental Engineering
Mechanical Engineering

Bourns Hall A313

monicamo@engr.ucr.edu

(951) 827-3373

Ph.D., Mechanical Engineering, California Institute of Technology, 2015

Research Area: Fluid transport and mixing by collective motion of self-propelled organisms, Hydrodynamics of plankton aggregations in the wild, Effect of turbulence in naturally occurring biological phenomena



Ashok Mulchandani, Distinguished Professor
Chemical & Environmental Engineering

Bourns Hall B317

adani@engr.ucr.edu

(951) 827-6419

Ph.D., Chemical Engineering, McGill University, 1985

Research Area: Nanobiotechnology, environmental biotechnology, biosensors, bioengineering

Bourns College of Engineering



Nosang Myung, Professor
Chair, Chemical & Environmental Engineering

Bourns Hall B353

nosang@engr.ucr.edu

(951) 827-7710

Ph.D., Chemical Engineering, UC Los Angeles, 1998

Research Area: Synthesis of nanoengineering materials, thermoelectric, spintronics, NEMS/MEMS, gas sensor, bio-sensor environmental remediation, dental biofilm



Kawai Tam, Lecturer (LSOE)
Chemical & Environmental Engineering

Bourns Hall A235

ktam@engr.ucr.edu

(951) 827-2498

Ph.D., Biosystems Engineering, McGill University, 2002

Research Area: Bioremediation, mixed culture and biofilm development and characterization



Sharon Walker, Interim Dean and Professor
Chemical & Environmental Engineering

Bourns Hall A237

swalker@engr.ucr.edu

(951) 827-6374

Ph.D. Environmental Engineering, Yale, 2004

Research Area: Particle fate and transport in aquatic environments including bacterial pathogens and nanoparticles



Ian Wheeldon, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall B319

iwheeldon@engr.ucr.edu

(951) 827-2471

Ph.D., Chemical Engineering, Columbia University, 2009

Research Area: Biocatalysis, biologically inspired engineering, protein engineering, synthetic biology, adaptive materials, bioenergy

Bourns College of Engineering



Bryan Wong, Assistant Professor

Chemical & Environmental Engineering

335 Materials Science & Engineering Building

bmwong@engr.ucr.edu

(951) 827-2163

Ph.D., Physical Chemistry, Massachusetts Institute of Technology, 2007

Research Area: Development and application of theoretical tools to calculate, understand, and rationally design functional materials



Jianzhong Wu, Professor

Chemical & Environmental Engineering

Bourns Hall A249

jwu@engr.ucr.edu

(951) 827-2413

Ph.D. Chemical Engineering, UC Berkeley, 1998

Research Area: Molecular modeling and design, soft materials, and biophysics



Charles Wyman, Distinguished Professor

Ford Motor Company Chair

Chemical & Environmental Engineering

Bourns Hall A215

cewyman@engr.ucr.edu

(951) 827-5703

Ph.D., Chemical Engineering, Princeton University, 1971

Research Area: Biological and thermochemical conversion of abundant, non-food cellulosic biomass to transportation fuels on biomass pretreatment, enzymatic hydrolysis, and dehydration to make appropriate precursors



Ruoxue (Victoria) Yan, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall A247

rxyan@engr.ucr.edu

(951) 827-2242

Ph.D., Chemistry, UC Berkeley, 2010

Research Area: Nanomaterials, nano-catalysis, solar energy conversion, nano-photonics, nano-live cell interface

Bourns College of Engineering

Adjunct Faculty

Kanok Boriboonsomsin, Associate Adjunct Professor

kanok.boriboonsomsin@ucr.edu

(951) 827-5792

Charles Cai, Assistant Adjunct Professor

charles.cai@ucr.edu

(951) 781-5791

Christopher Clark, Assistant Adjunct Professor

christopher.clark@ucr.edu

(951) 827-3646

Thomas Durbin, Adjunct Professor

durbin@cert.ucr.edu

(951) 781-5794

Kent Johnson, Assistant Adjunct Professor

kjohnson@cert.ucr.edu

(951) 781-5786

Georgios Karavalakis, Associate Adjunct Professor

gkaraval@cert.ucr.edu

(951) 781-5799

Rajeev Kumar, Assistant Adjunct Professor

rajeev.kumar@ucr.edu

(951) 827-1012

Wayne Miller, Adjunct Professor

wayne@cert.ucr.edu

(951) 781-5579

Joon Min, Adjunct Professor

Chan Seung Park, Associate Adjunct Professor

cspark@cert.ucr.edu

(951) 781-5771

Bourns College of Engineering

Computer Engineering

Computer Engineering (CEN) at UCR's BCOE has long been a popular major. In 2010 the Computer Engineering Program was created as an interdepartmental program between the Computer Science and Engineering and Electrical and Computer Engineering departments to accommodate its rapid growth and enable future graduate degrees.

What is Computer Engineering?

CEN has been a distinct discipline for over 30 years, focused on the design, programming and use of computing structures, large and small.

Computer engineering is a discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. Computer engineering has traditionally been viewed as a combination of both computer science (CS) and electrical engineering (EE).

[IEEE/ACM Curriculum Guidelines for Undergraduate Degree Programs in Computer Engineering, 2004]

Computer engineers have training in electronic engineering, software design and hardware-software integration. They are involved in many aspects of computing, from the design of individual microprocessors, personal computers, and supercomputers, to circuit design. This field of engineering not only focuses on how computer systems themselves work, but also how they integrate into the larger picture of the specific application.

Computer Engineering Careers

The career options for CEN graduates are extremely varied and diverse, ranging from embedded systems to large-scale servers; from software to hardware design etc. This major has seen and continues to see a very healthy growth in employment. The Bureau of Labor Statistics (BLS) projects a 12% growth in computer occupations between 2014 and 2024 in the United States.

Bourns College of Engineering

- Computer software engineers and developers are projected to grow by 19 percent from 2014-2024
- Excellent job prospects are expected for applicants with at least bachelor's degree in computer engineering or computer science and with practical work experience.
- Computer software engineers must continually strive to acquire new skills in conjunction with the rapid changes that occur in computer technology".

[Job prospect for Computer Engineers", from the BLS Occupational Outlook Handbook]



Walid Najjar

Director, Computer Engineering Program
Professor, Department of Computer Science & Engineering

Bourns College of Engineering

Faculty



**Nael Abu-Ghazaleh, Professor
Computer Science & Engineering
Electrical & Computer Engineering**

441 Winston Chung Hall

nael@cs.ucr.edu

(951) 827-2347

Ph.D., Computer Engineering, University of Cincinnati,
1997

Research Area: Computer architecture, Parallel discrete
event simulation, computer system security, high
performance computing, wireless and sensor networks



Laxmi Bhuyan, Distinguished Professor

Computer Science & Engineering

442 Winston Chung Hall

bhuyan@cs.ucr.edu

(951) 827-2347

Ph.D., Computer Engineering, Wayne State University,
1982

Research Area: Heterogeneous architectures, parallel
and distributed systems, power aware design, network
computing, performance evaluation



**Philip Brisk, Associate Professor
Computer Science & Engineering**

339 Winston Chung Hall

philip@cs.ucr.edu

(951) 827-2030

Ph.D., Computer Science, UC Los Angeles, 2006

Research Area: Computer architecture, reconfigurable
computing, application specific and customizable
processors, compilers

Bourns College of Engineering



Zizhong Chen, Associate Professor

Computer Science & Engineering

442 Winston Chung Hall

chen@cs.ucr.edu

(951) 827-2403

Ph.D., Computer Science, University of Tennessee at Knoxville, 2006

Research Area: Parallel and distributed systems, fault-tolerance and checkpointing, power-aware algorithms and software, grid and cloud computing, numerical algorithms and software, large scale computer simulations, high performance computing



Rajiv Gupta, Professor

Computer Science & Engineering

408 Winston Chung Hall

gupta@cs.ucr.edu

(951) 827-2558

Ph.D., Computer Science, University of Pittsburg, 1987

Research Area: Parallelizing and optimizing compilers, parallel computer architectures, parallel graph analysis on GPUs and clusters, programming, runtime and compiler support for parallelism



Hyoseung Kim, Assistant Professor

Electrical & Computer Engineering

346 Winston Chung Hall

hyoseung@ece.ucr.edu

(951) 827-2390

Ph.D., Electrical & Computer Engineering, Carnegie Mellon University, 2016

Research Area: Cyber-physical systems, embedded real-time systems, safety-critical systems, autonomous vehicles, operating systems, virtualization, multi-core and many-core architectures

Bourns College of Engineering



Roger K. Lake, Professor

Electrical & Computer Engineering

437 Winston Chung Hall

rlake@ece.ucr.edu

(951) 827-2122

Ph.D., Purdue University, 1992

Research Area: Electron and thermal transport in low-dimensional structures such as graphene, transition metal di-chalcogenides, carbon nanotubes, semiconductor nanowires, semiconductor nanocrystals, and molecules



Walid Najjar, Professor

Director, Computer Science & Engineering

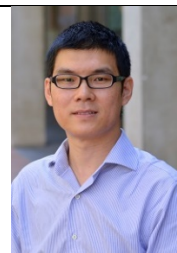
421 Winston Chung Hall

najjar@cs.ucr.edu

(951) 827-4406

Ph.D., Computer Engineering, USC, 1988

Research Area: Computer architecture and parallel computing, low power computer architectures, compilation and code optimizations for reconfigurable computing systems, novel platforms and programming paradigms for sensor networks



Shaolei Ren, Assistant Professor

Electrical & Computer Engineering

357 Bourns Hall – Building B

sren@ece.ucr.edu

(951) 827-2258

Ph.D., UC Los Angeles, 2008

Research Area: Data centers, mobile edge computing, smart grid and buildings, cyber-physical systems, scheduling in web-scale systems

Bourns College of Engineering



Sheldon Tan, Professor

Electrical & Computer Engineering

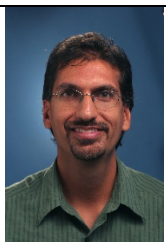
424 Winston Chung Hall

stan@ece.ucr.edu

(951) 827-5143

Ph.D., Electrical & Computer Engineering, University of Iowa, 1999

Research Area: VLSI long-term reliability, modeling, optimizations and management at circuit and system levels, thermal modeling, optimization and dynamic thermal management at circuit, chip and board levels, parallel and intelligent computing and analysis on heterogeneous and accelerator-rich platforms, hardware security and trust computing, smart devices and embedded and cyber-physical systems, statistical modeling and optimization for VLSI systems



Frank Vahid, Professor

Computer Science & Engineering

328 Winston Chung Hall

vahid@cs.ucr.edu

(951) 827-4710

Ph.D., Computer Engineering, UC Irvine, 1994

Research Area: Embedded systems, college STEM education, anti-DUI technologies



Albert Wang, Professor

Electrical & Computer Engineering

417 Winston Chung Hall

aw@ece.ucr.edu

(951) 827-2555

Ph.D., Electrical Engineering, University of New York at Buffalo, 1996

Research Area: RF/Analog/Mixed-signal integrated circuits (IC), design-for-reliability and advanced ESD protection for ICs & systems, SoC (system-on-a-chip), IC CAD and modeling, emerging nano devices & circuits

Bourns College of Engineering



Daniel Wong, Assistant Professor
Electrical & Computer Engineering

425 Winston Chung Hall

dwong@ece.ucr.edu

(951) 827-2986

Ph.D., Electrical Engineering, USC, 2015

Research Area: Computer architecture, energy efficient computer design, data centers, parallel architectures, microarchitecture application of embedded systems



Qi Zhu, Assistant Professor
Electrical & Computer Engineering

322 Winston Chung Hall

qzhu@ece.ucr.edu

(951) 827-7701

Ph.D., Electrical Engineering & Computer Science, UC Berkeley, 2008

Research Area: cyber-physical systems, embedded software, model-based design and synthesis, SoC design

Bourns College of Engineering

Computer Science & Engineering

Fostering groundbreaking research and producing graduates who are in demand, our department has established itself as a leader in the field of computer science and engineering. In recognition of the quality of our research and educational opportunities, the department has been highly ranked by the National Review Council, the Princeton Review, and U.S. News & World Report.

All degree programs combine the teaching of core principles with hands-on laboratory experience, preparing students for exciting careers in industry and academia. Students at all levels can enrich their educational experience by participating in sponsored research projects and professional student organizations like ACM or IEEE. The majority of our undergraduates go on to work in the computer industry at major companies like Google, Microsoft, or Facebook, while others get involved in start-ups, work for government agencies, or continue their education in graduate school. A number of our graduate students continue into careers in academia.

Our department's 33 faculty are involved in cutting-edge research in the areas of computer architecture, compilers, embedded systems, algorithms, computational biology, databases, data mining, machine learning, computer networks, distributed processing, artificial intelligence, software engineering, and graphics. Attesting to the quality and impact of the research conducted in our laboratories are the prestigious awards won by our faculty, who include three ACM Fellows, five IEEE Fellows, five AAAS Fellows, and nine NSF CAREER awardees. Research projects in our department receive more than \$10 million in funding per year from external sources, including federal agencies like NSF, NIH, and DARPA as well as high-tech companies like Google, HP, Intel, AT&T, and Samsung.



Marek Chrobak
Professor and
Chair

Bourns College of Engineering

Staff

Winston Chung Hall–Suite 351
827-5639/ 827-4643 (fax)

Isaac Owusu-Frimpong..... (951) 827-2559

Financial & Administrative Officer isaac@cs.ucr.edu

Madie Heersink..... (951) 827-2493

Payroll/Personnel Analyst madie@cs.ucr.edu

Vanda Yamaguchi..... (951) 827-2903

Graduate Program Coordinator vanda@cs.ucr.edu

Patrice Delgado..... (951) 827-2946

Contracts and Grants Analyst patrice@cs.ucr.edu

Systems Staff

Victor Hill..... (951) 827-3803

Manager of Technical Operations vhill@cs.ucr.edu

Sean Mahoney..... (951) 827-3803

Systems Administrator smahoney@cs.ucr.edu

Bourns College of Engineering

Faculty



**Nael Abu-Ghazaleh, Professor
Computer Science & Engineering
Electrical & Computer Engineering**

441 Winston Chung Hall

nael@cs.ucr.edu

(951) 827-2347

Ph.D., Computer Engineering, University of Cincinnati,
1997

Research Area: Computer architecture, Parallel discrete
event simulation, computer system security, high
performance computing, wireless and sensor networks



**Laxmi Bhuyan, Distinguished Professor
Computer Science & Engineering**

442 Winston Chung Hall

bhuyan@cs.ucr.edu

(951) 827-2347

Ph.D., Computer Engineering, Wayne State University,
1982

Research Area: Heterogeneous architectures, parallel
and distributed systems, power aware design, network
computing, performance evaluation



**Philip Brisk, Associate Professor
Computer Science & Engineering**

339 Winston Chung Hall

philip@cs.ucr.edu

(951) 827-2030

Ph.D., Computer Science, UC Los Angeles, 2006

Research Area: Computer architecture, reconfigurable
computing, application specific and customizable
processors, compilers

Bourns College of Engineering



Jiasi (Jessie) Chen, Assistant Professor

Computer Science & Engineering

308 Winston Chung Hall

jjiasi@cs.ucr.edu

(951) 827-5815

Ph.D., Computer Science, Princeton, 2015

Research Area: Internet video streaming, wireless & mobile networks, network economics, and sensor networks



Zizhong Chen, Associate Professor

Computer Science & Engineering

442 Winston Chung Hall

chen@cs.ucr.edu

(951) 827-2403

Ph.D., Computer Science, University of Tennessee at Knoxville, 2006

Research Area: Parallel and distributed systems, fault-tolerance and checkpointing, power-aware algorithms and software, grid and cloud computing, numerical algorithms and software, large scale computer simulations, high performance computing



Marek Chrobak, Professor

Chair, Computer Science & Engineering

406 Winston Chung Hall

marek@cs.ucr.edu

(951) 827-3769

Ph.D., Computer Science, Warsaw University, 1985

Research Area: Design and analysis of algorithms, data structures, theory of computation, combinatorial optimization, computational geometry, automata theory, graph theory, on-line algorithms, graph drawing algorithms, algorithms in discrete tomography



Ahmed Eldawy, Assistant Professor

Computer Science & Engineering

357 Winston Chung Hall

eldawy@cs.ucr.edu

(951) 827-5654

Ph.D., Computer Science, University of Minnesota, 2016

Research Area: Database, big data management, spatial data

Bourns College of Engineering



**Michalis Faloutsos, Professor
Computer Science & Engineering**

michalis@cs.ucr.edu

(951) 827-2557

Ph.D., Computer Science, University of Toronto, 1999

Research Area: Internet protocols and measurements, peer-to-peer networks, social networks, network security, and ad-hoc networks



**Rajiv Gupta, Professor
Computer Science & Engineering**

408 Winston Chung Hall

gupta@cs.ucr.edu

(951) 827-2558

Ph.D., Computer Science, University of Pittsburg, 1987

Research Area: Programming, compiler, runtime & architectural support for parallel & distributed heterogeneous systems, and software tools for monitoring and managing the runtime behavior



**Vagelis Hristidis, Professor
Computer Science & Engineering**

317 Winston Chung Hall

vagelis@cs.ucr.edu

(951) 827-2478

Ph.D., Computer Science, UC San Diego, 2004

Research Area: Databases, information retrieval, web search, database search, healthcare data, semi-structured data



**Tao Jiang, Professor
Computer Science & Engineering**

336 Winston Chung Hall

jiang@cs.ucr.edu

(951) 827-2991

Ph.D., Computer Science, University of Minnesota, 1988

Research Area: Design and analysis of algorithms, computational molecular biology, bioinformatics, comparative genomics, approximation algorithms, average-case analysis, applications of Kolmogorov complexity

Bourns College of Engineering



**Eamonn Keogh, Professor
Computer Science & Engineering**

318 Winston Chung Hall

eamonn@cs.ucr.edu

(951) 827-2032

Ph.D., Computer Science, UC Irvine, 2001

Research Area: Machine learning and information retrieval, techniques for solving similarity and indexing problems in time-series datasets



**Srikanth Krishnamurthy, Professor
Computer Science & Engineering**

324 Winston Chung Hall

srikanth@cs.ucr.edu

(951) 827-2348

Ph.D., Electrical & Computer Engineering, UC San Diego, 1997

Research Area: Wireless networks and systems, broadband networks, network security



**Mohsen Lesani, Assistant Professor
Computer Science & Engineering**

312 Winston Chung Hall

lesani@cs.ucr.edu

(951) 827-5639

Ph.D., Computer Science, UC Los Angeles, 2016

Research Area: Programming languages, compilers and verification, concurrent and distributed algorithms



**Stefano Lonardi, Professor
Vice Chair, Computer Science & Engineering**

325 Winston Chung Hall

stelo@cs.ucr.edu

(951) 827-2203

Ph.D., Computer Science, Purdue, 2001

Research Area: Computational molecular biology, data mining & compression, design & analysis of algorithms

Bourns College of Engineering



Mart Molle, Professor

Computer Science & Engineering

331 Winston Chung Hall

mart@cs.ucr.edu

(951) 827-7354

Ph.D., Computer Science, UC Los Angeles, 1981

Research Area: Computer networking, performance evaluation, distributed algorithms, fundamental performance limits, applications of analytical modeling techniques to practical problems in computer systems



Walid Najjar, Professor

Computer Science & Engineering

421 Winston Chung Hall

najjar@cs.ucr.edu

(951) 827-4406

Ph.D., Computer Engineering, USC, 1988

Research Area: Computer architectures and compilers for parallel and high-performance computing, embedded systems, FPGA-based code acceleration and reconfigurable computing



Vagelis (Evangelos) Papalexakis, Assistant Professor

Computer Science & Engineering

357 Winston Chung Hall

epapalex@cs.ucr.edu

(951) 827-5639

Ph.D., Computer Science, Carnegie Mellon University, 2016

Research Area: Data mining, data science, machine learning, tensor decompositions, matrix factorization, factorization models, signal processing for data mining, scalable algorithms, applications in social networks, neuroscience, web search, anomaly detection

Bourns College of Engineering



Michael Pazzani, Professor
Vice Chancellor, Research & Economic Development

Computer Science & Engineering

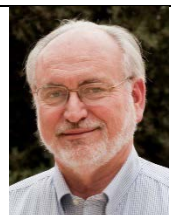
200 University Office Building

pazzani@cs.ucr.edu

(951) 827-5535

Ph.D., Computer Science, UC Los Angeles, 1987

Research Area: Investigation and analysis of learning methods that make use of prior knowledge to guide the learning process



Thomas Payne, Professor (Emeritus)

Computer Science & Engineering

thp@cs.ucr.edu

(951) 827-3119

Ph.D., Mathematics, University of Notre Dame, 1967

Research Area: Efficient implementation of programming language features related to operating systems - concurrency, protection, dynamic binding



Teodor Przymusiński, Professor (Emeritus)

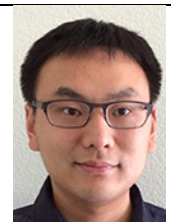
Computer Science & Engineering

teodor@cs.ucr.edu

(951) 827-5015

Ph.D., Mathematics, Institute of Mathematics of the Polish Academy of Sciences in Warsaw, 1974

Research Area: Declarative knowledge representation in artificial intelligence, commonsense reasoning, symbolic representation and efficient computer automation of human reasoning



Zhiyun Qian, Assistant Professor

Computer Science & Engineering

334 Winston Chung Hall

zhiyunq@cs.ucr.edu

(951) 827-6438

Ph.D., Computer Science, University of Michigan, Ann Arbor, 2012

Research Area: Cyber security, mobile computing and network systems

Bourns College of Engineering



**Kadangode (KK) Ramakrishnan, Professor
Computer Science & Engineering**

332 Winston Chung Hall

kk@cs.ucr.edu

(951) 827-2480

Ph.D., Computer Science, University of Maryland, College Park, 1983

Research Area: Computer Network Architectures, Protocols and Systems, Virtualization and Cloud Computing; Information Centric Networks



**Chinya "Ravi" Ravishankar, Professor
Associate Dean, Graduate Education & Research
Computer Science & Engineering**

326, 446 Winston Chung Hall

ravi@cs.ucr.edu

(951) 827-2451

Ph.D., Computer Science, University of Wisconsin-Madison, 1987

Research Area: Databases, security, distributed systems, networking, programming languages, practical and theoretical techniques to build large software systems



**Craig Schroeder, Assistant Professor
Computer Science & Engineering**

309 Winston Chung Hall

craigs@cs.ucr.edu

(951) 827-5639

Ph.D., Computer Science, Stanford, 2011

Research Area: Computational fluid dynamics, solid mechanics, fluid-structure interaction, physically-based simulation for computer graphics, mathematical modelling, and scientific computing

Bourns College of Engineering



**Christian Shelton, Professor
Computer Science & Engineering**

327 Winston Chung Hall

cshelton@cs.ucr.edu

(951) 827-2554

Ph.D., Computer Science, Massachusetts Institute of Technology, 2001

Research Area: Automated decision-making in uncertain or unknown environments, learning algorithms, sequential decision making



**Tamar Shinar, Amrik Singh Poonian Assistant
Professor**

Computer Science & Engineering

419 Winston Chung Hall

shinar@cs.ucr.edu

(951) 827-5015

Ph.D., Scientific Computing & Computational Mathematics, Stanford University, 2008

Research Area: Scientific computing, computational fluid mechanics, computational biology, computer graphics



**Chengyu Song, Assistant Professor
Computer Science & Engineering**

314 Winston Chung Hall

csong@cs.ucr.edu

(951) 827-5639

Ph.D., Computer Science, Georgia Tech University, 2016

Research Area: System security, program analysis, operating systems



**Vassilis Tsotras, Professor
Computer Science & Engineering**

335 Winston Chung Hall

tsotras@cs.ucr.edu

(951) 827-2888

Ph.D., Computer Science, Columbia University, 1991

Research Area: Database management, indexing and search, query processing, data dissemination, mobile data services, spatial, temporal, and spatiotemporal databases, XML and semistructured data

Bourns College of Engineering



Frank Vahid, Professor

Computer Science & Engineering

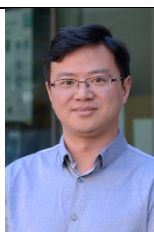
328 Winston Chung Hall

vahid@cs.ucr.edu

(951) 827-4710

Ph.D., Computer Engineering, UC Irvine, 1994

Research Area: Embedded systems, college STEM education, anti-DUI technologies



Heng Yin, Associate Professor

Computer Science & Engineering

316 Winston Chung Hall

heng@cs.ucr.edu

(951) 827-6437

Ph.D., Computer Science, College of William & Mary, 2009

Research Area: Applying binary or bytecode code analysis and virtualization techniques to tackle computer security problems, such as malware analysis and detection, smartphone security, digital forensics, etc.



Neal Young, Professor

Computer Science & Engineering

423 Winston Chung Hall

neal.young@ucr.edu

(951) 827-7146

Ph.D., Computer Science, Princeton, 1991

Research Area: Approximation algorithms for combinatorial optimization, Lagrangian-relaxation, algorithms for networks and caching, dynamic optimization problems, fast algorithms for special classes of linear programs



Zhijia Zhao, Assistant Professor

Computer Science & Engineering

412 Winston Chung Hall

zhijia@cs.ucr.edu

(951) 827-2993

Ph.D., Computer Science, College of William & Mary, 2015

Research Area: Programming systems and run-times for parallel computing, big data, and mobile computing

Bourns College of Engineering

Adjunct Faculty



Gianfranco Ciardo, Adjunct Professor
ciardo@cs.ucr.edu



Iulian Neamtiu, Associate Adjunct Professor
neamtiu@cs.ucr.edu



Victor Zordan, Associate Adjunct Professor
vbz@cs.ucr.edu

Bourns College of Engineering

Electrical & Computer Engineering

The Electrical & Computer Engineering (ECE) department was founded in the early 1990's and has grown rapidly in size and stature. ECE has 31 faculty members: 10 IEEE Fellows, 7 AAAS Fellows, 9 NSF Career Awardees, 3 ARO or ONR Young Investigator Awardees, 1 OSA and 1 APS Fellow. In 2014, three professors were president of their IEEE society. The latest NRC S-Ranking placed the UCR ECE department in the top quartile. The faculty research expertise covers:

- Communications and Signal Processing
- Controls and Robotics
- Integrated Circuits
- Intelligent Systems
- Nanoscale Materials and Devices

The related research funding by ECE faculty and staff provides many funded research positions for graduate and undergraduate students.

The department offers undergraduate programs in Electrical Engineering and Computer Engineering. Both programs are ABET accredited. The EE program currently enrolls 282 students. The Computer Engineering program currently enrolls 218 students. A distinction of the UCR EE undergraduate courses is that most are accompanied by a hands-on laboratory component, so that the classroom theory is immediately applied in the lab. A senior design project caps the undergraduate experience. Projects such as sumo-robots, self-guided vehicles, and carbon nanotube solar cells span all areas of EE.

The graduate program focuses on research leading to M.S. and Ph.D. degrees. The research involves strong interaction with campus and system wide research centers: the Center for Nanoscale Science and Engineering (CNSE), the Center for Research in Intelligent Systems (CRIS), the Center for Environmental

Bourns College of Engineering

Research and Technology (CE-CERT), the UC-Light Center and the Phonon Optimized Engineered Materials Center (POEM). Four of the Center Directors are ECE professors. A shared class 100 clean room is available for fabrication of nanodevices such as graphene transistors. UCR ECE students travel nationally and internationally to present their research at conferences. Several faculty and graduate students have earned best paper awards. Our students obtain summer internships and permanent jobs with top universities and industries.

Jay Farrell, Professor and Chair

827-2376

farrell@ece.ucr.edu



Bourns College of Engineering

Staff



Bill Bingham.....827-2397

Administrative Supervisor

bill@ece.ucr.edu



Jun Dizon.....827-2475

Administrative Assistant

jdizon@ece.ucr.edu



Tom Gregory.....827-2452

Department Access Control Coordinator

systems@ece.ucr.edu



Trudi Loder.....827-2727

Research Administrator

trudi@ece.ucr.edu



Pavle Kirilov.....827-2220

Research & Development Engineer

Dept. Safety Coordinator

pavle@ece.ucr.edu



Kim Claffey..... 827-2484

Student Services Advisor

ecegradoffice@ece.ucr.edu

Administrative Suite is located at Winston Chung Hall - 343

Bourns College of Engineering

Faculty



Nael Abu-Ghazaleh, Professor
Electrical & Computer Engineering
Computer Science & Engineering

441 Winston Chung Hall

nael@cs.ucr.edu

(951) 827-2347

Ph.D., Computer Engineering, University of Cincinnati,
1997

Research Area: Computer architecture support for
security, networking and distributed systems, and
parallel computing



Salman Asif, Assistant Professor
Electrical & Computer Engineering

345 Winston Chung Hall

sasif@ece.ucr.edu

(951) 827-2385

Ph.D., Electrical & Computer Engineering, Georgia
Tech, 2013

Research Area: Machine learning and information
processing, computational imaging, compressive
sensing



Alex Balandin, Distinguished Professor Electrical
& Computer Engineering
Director, POEM and CNSE
Founding Chair, Materials Science & Engineering

435 Winston Chung Hall

balandin@ece.ucr.edu

(951) 827-2351

Ph.D., Electrical Engineering, University of Notre Dame,
1997

Research Area: Advanced materials, nanostructures
and nanodevices for electronics, optoelectronics and
renewable energy conversion

Bourns College of Engineering



Matthew Barth, Professor

Yeager Families Chair

Director, CE-CERT

Electrical & Computer Engineering

342 Winston Chung Hall

barth@cert.ucr.edu

(951) 781-5782

Ph.D., Electrical & Computer Engineering, UC Santa Barbara, 1990

Research Area: Intelligent transportation systems



Gerardo Beni, Professor (Emeritus)

Electrical & Computer Engineering

beni@ece.ucr.edu

(951) 827-6317

Ph.D., Physics, UC Los Angeles, 1974

Research Area:

Swarm intelligence, distributed robotic systems, financial engineering, multimedia (3D animation) for education technology



Bir Bhanu, Distinguished Professor

Marlan and Rosemary Bourns Presidential

Endowed Chair

Director, CRIS

Founding Chair, Electrical Engineering

219 Winston Chung Hall

bhanu@cris.ucr.edu

(951) 827-2918

Ph.D., Electrical Engineering, USC, 1981

Research Area: Computer vision, machine learning and pattern recognition, video networks, image and video databases, biological and medical image & signal processing, sensor fusion, computer graphics and visualization, robotics, artificial intelligence, commercial, medical, military and intelligence applications

Bourns College of Engineering



Ilya Dumer, Professor

Electrical & Computer Engineering

427 Winston Chung Hall

dumer@ece.ucr.edu

(951) 827-2924

Ph.D., Information Theory, Institute for Problems of Information Transmission, Russian Academy of Sciences, 1981

Research Area: Error-correcting codes, nonbinary coding, decoding algorithms, information theory



Jay Farrell, Professor

Chair, Electrical & Computer Engineering

341 Winston Chung Hall

farrell@ece.ucr.edu

(951) 827-2376

Ph.D., Electrical Engineering, University of Notre Dame, 1989

Research Area: Estimation and control for nonlinear dynamic systems. Current research includes adaptive approximation based control systems, aided navigation systems and autonomous vehicles



Elaine Haberer, Associate Professor

Electrical & Computer Engineering

418 Winston Chung Hall

haberer@ece.ucr.edu

(951) 827-7174

Ph.D., Materials Science, UC Santa Barbara, 2005

Research Area: Bio-templated materials for electronic, optoelectronic, and energy applications; nano-structured hybrid materials; and novel top-down and bottom-up assembly techniques

Bourns College of Engineering



Susan Hackwood, Professor
Electrical & Computer Engineering
Executive Director, California Council on Science & Technology (CCST)
Founding Dean, BCOE
hackwood@ece.ucr.edu

(951) 827-5652

Ph.D., Solid State Ionics, DeMontfort University, UK, 1979

Research Area: Intelligent Systems, particularly those using Distributed Sensing, and Multimedia Controllers; Robotics, related to Manufacturing, and the Robot-Human Interface



Yingbo Hua, Professor
Electrical & Computer Engineering
432 Winston Chung Hall
yhua@ece.ucr.edu

(951) 827-2853

Ph.D., Electrical Engineering, Syracuse University, 1988

Research Area: Signal processing and its applications, wireless communications and networking, remote sensing and sensor networks



Zak Kassas, Assistant Professor
Electrical & Computer Engineering
319 Winston Chung Hall
zkassas@ece.ucr.edu

(951) 827-5652

Ph.D., Electrical & Computer Engineering, University of Texas at Austin, 2014

Research Area: Optimal estimation, navigation systems, autonomous vehicles, target tracking, and intelligent transportation systems

Bourns College of Engineering



**Konstantinos Karydis, Assistant Professor
Electrical & Computer Engineering**

Bourns Hall B357

kkarydis@ece.ucr.edu

(951) 827-2484

Ph.D., Mechanical Engineering, University of Delaware, 2015

Research Area: Motion planning, navigation, and control of uncertain and stochastic systems, multi robot cyber-physical systems, robot design for bio-robotics research



**Hyoseung Kim, Assistant Professor
Electrical & Computer Engineering**

346 Winston Chung Hall

hyoseung@ece.ucr.edu

(951) 827-2390

Ph.D., Electrical & Computer Engineering, Carnegie Mellon University, 2016

Research Area: Cyber-physical systems, embedded real-time systems, safety-critical systems, autonomous vehicles, operating systems, virtualization, multi-core and many-core architectures



**Alexander Korotkov, Professor
Electrical & Computer Engineering**

434 Winston Chung Hall

alexander.korotkov@ucr.edu

(951) 827-2345

Ph.D., Physics, Moscow State University, Russia, 1991

Research Area: Single-electronics, transport in semiconductor heterostructures, noise analysis, quantum computing, and quantum measurements

Bourns College of Engineering



Roger K. Lake, Professor
Electrical & Computer Engineering

437 Winston Chung Hall

rlake@ece.ucr.edu

(951) 827-2122

Ph.D., Purdue University, 1992

Research Area: Electron and thermal transport in low-dimensional structures such as graphene, transition metal di-chalcogenides, carbon nanotubes, semiconductor nanowires, semiconductor nanocrystals, and molecules



Ping Liang, Associate Professor
Electrical & Computer Engineering

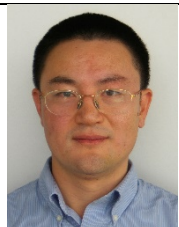
323 Winston Chung Hall

liang@ece.ucr.edu

(951) 827-2261

Ph.D., Electrical & Computer Engineering, University of Pittsburg, 1987

Research Area: VLSI/ASIC architectures for signal, video and multimedia processing and network-on-chips, and information retrieval systems.



Jianlin Lu, Professor
Electrical & Computer Engineering
Director of Microelectronics Laboratory

439 Winston Chung Hall

jianlin@ece.ucr.edu

(951) 827-7131

Ph.D., Electrical Engineering, UC Los Angeles, 2003

Research Area: 1) Silicon-based and zinc oxide based thin films, quantum wires and quantum dots; 2) Nanoelectronic devices including nonvolatile memories and nanoscale field effect transistors; 3) Silicon photonics and zinc oxide photonics including lasers, light emitting diodes and photodetectors; 4) Diluted magnetic semiconductors and spintronic devices.

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Ming Liu, Assistant Professor
Electrical & Computer Engineering

321 Winston Chung Hall

ming@ece.ucr.edu

(951) 827-6317

Ph.D., Applied Physics, UC Berkeley, 2010

Research Area: Photonics, optical communication, material science, nano-fabrication



Hamed Mohsenian-Rad, Associate Professor
Electrical & Computer Engineering

436 Winston Chung Hall

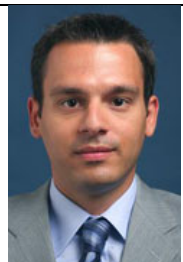
hamed@ece.ucr.edu

(951) 827-2425

Ph.D., Electrical & Computer Engineering, University of British Columbia, 2008

Research Area:

Smart Power Grid, Cyber-physical Systems, Communication Networks, Optimization, and Game Theory



Anastasios Mourikis, Associate Professor
Electrical & Computer Engineering

306 Winston Chung Hall

mourikis@ece.ucr.edu

(951) 827-6051

Ph.D., Computer Science, University of Minnesota, 2008

Research Area: Autonomous vehicle localization, multi-robot systems, estimation in mobile sensor networks, vision-aided inertial navigation, simultaneous localization and mapping, structure from motion.

Bourns College of Engineering



Mihri Ozkan, Professor

Electrical & Computer Engineering

319 Material Science Building

mihri@ece.ucr.edu

(951) 827-2900

Ph.D., Electrical & Computer Engineering, UC San Diego, 2001

Research Area: Industrial scale advanced energy storage devices such as batteries and super capacitors for zero emission vehicles, wearable technologies and sustainable manufacturing. Research group's materials portfolio includes 2D Van de Waal materials (graphene, BN, MoS₂, WS₂), nanoparticles, nanofabrics, nanowires, bioinspired and bio-mass hybrids and porous materials.



Shaolei Ren, Assistant Professor

Electrical & Computer Engineering

347 Winston Chung Hall

sren@ece.ucr.edu

(951) 827-2260

Ph.D., UC Los Angeles, 2008

Research Area: Data centers, mobile edge computing, smart grid and buildings, cyber-physical systems, scheduling in web-scale systems



Wei Ren, Professor

Electrical & Computer Engineering

416 Winston Chung Hall

ren@ece.ucr.edu

(951) 827-6204

Ph.D., Electrical Engineering, Brigham Young University, 2004

Research Area: Multi-agent systems, cyber-physical systems, cooperative control, distributed control, networked control systems, autonomous vehicles, robotics.

Bourns College of Engineering



Amit Roy-Chowdhury, Professor
Electrical & Computer Engineering

431 Winston Chung Hall

amitrc@ece.ucr.edu

(951) 827-7886

Ph.D., Electrical Engineering, University of Maryland, College Park, 2002

Research Area: Computer vision and image processing, statistical pattern recognition, machine learning, video communication, imaging/non-imaging sensor networks, biological image processing



Sheldon Tan, Professor
Electrical & Computer Engineering

424 Winston Chung Hall

stan@ece.ucr.edu

(951) 827-5143

Ph.D., Electrical & Computer Engineering, University of Iowa, 1999

Research Area: VLSI long-term reliability, resilient systems, fault tolerant computing, reliability-aware design and management at circuit and system levels, parallel and intelligent computing (deep learning) and analysis on heterogeneous and accelerator-rich (GPUs) platforms, hardware security and trust computing; Smart devices and embedded and cyber-physical systems, thermal modeling, optimization and dynamic thermal management at circuit, chip and board levels



Ertem Tuncel, Professor
Electrical & Computer Engineering

426 Winston Chung Hall

ertem@ece.ucr.edu

(951) 827-7718

Ph.D., Electrical & Computer Engineering, UC Santa Barbara, 2002

Research Area: Information theory, distributed source coding in sensor networks with emphasis on low-delay communication, multi-terminal joint source-channel coding, content-based retrieval from high-dimensional databases and fundamental limits of retrieval performance

Bourns College of Engineering



Albert Wang, Professor

Electrical & Computer Engineering

417 Winston Chung Hall

aw@ece.ucr.edu

(951) 827-2555

Ph.D., Electrical Engineering, University of New York at Buffalo, 1996

Research Area: RF/Analog/Mixed-signal integrated circuits (IC), design-for-reliability and advanced ESD protection for ICs & systems, SoC (system-on-a-chip), IC CAD and modeling, emerging nano devices & circuits



Daniel Wong, Assistant Professor

Electrical & Computer Engineering

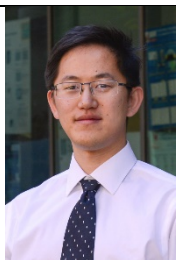
425 Winston Chung Hall

dwong@ece.ucr.edu

(951) 827-2986

Ph.D., Electrical Engineering, USC, 2015

Research Area: Computer architecture, energy efficient computer design, data centers, parallel architectures, microarchitecture application of embedded systems



Nanpeng (Eric) Yu, Assistant Professor

Electrical & Computer Engineering

428 Winston Chung Hall

nyu@ece.ucr.edu

(951) 827-3688

Ph.D., Electrical Engineering, Iowa State University, 2010

Research Area: Smart grid technology, big data analytics in power distribution systems, energy storage optimization and design of electricity market.



Qi Zhu, Assistant Professor

Electrical & Computer Engineering

322 Winston Chung Hall

qzhu@ece.ucr.edu

(951) 827-7701

Ph.D., Electrical Engineering & Computer Science, UC Berkeley, 2008

Research Area: Cyber-physical systems, embedded software, model-based design & synthesis, SoC design

Bourns College of Engineering

Lecturers

Nissim Amos
namos@ece.ucr.edu

Roman Chomko
chomko@ece.ucr.edu

Tofigh Heidarzadeh
theidarzadeh@ece.ucr.edu

Adjunct Faculty

Gang Chen, Associate Researcher
gachen@ece.ucr.edu

Hossny El-Sherief
hsherief@ece.ucr.edu



Alexander Khitun, Research Engineer
akhitun@ece.ucr.edu

Bahram Parvin
mailto:bparvin@unr.edu

Bourns College of Engineering

Materials Science & Engineering

Established in 2007 with the Undergraduate (B.S.) degree followed with the Graduate (M.S. and Ph.D.) degree in 2010, the young program has rapidly gained recognition and was ranked #48 in the 2017 U.S. News and World Report ranking of the Best Materials Engineering Graduate Program in the country. This is a true testament of a truly unique multidisciplinary MSE program.

MSE is an intercollegiate and interdisciplinary program made up of faculty from the departments of Bioengineering, Chemical and Environmental Engineering, Electrical and Computer Engineering, Computer Science and Engineering, and Mechanical Engineering from BCOE and Biology, Chemistry, and Physics and Astronomy from CNAS. The program provides students with interdisciplinary education related to the development, adaptation and validation of novel materials for a broad spectrum of applications. The Accreditation Board of Engineering and Technology (ABET) accredited B.S. degree curriculum prepares the students for graduate studies/school and careers in a variety of industries, ranging from nanotechnology, electronics, energy generation and distribution, medical and pharmaceuticals, aerospace and automotive. The M.S. and Ph.D. degree programs are open to students from varied undergraduate majors, gives students comprehensive training in fundamental materials subjects to pursue many areas of specialization for rewarding careers in industry, government laboratories and academia.

Our world class faculty from the eight departments of the two colleges include many elected fellows of professional societies, MRS Medal recipient, and winners of the National Science Foundation (NSF), Department of Energy (DoE) and Department

Bourns College of Engineering

of Defense (DoD) Early Career Awards. Research projects in the program are funded from the industry and federal agencies like NSF, DoD, DoE, etc.



Ashok Mulchandani
Distinguished Professor and Chair
adani@engr.ucr.edu
(951) 827-6419

Bourns College of Engineering

Staff



Christina Gnuschke
Program Manager
cgnuschke@engr.ucr.edu
(951) 827-3392



Dr. Perry Cheung
Research & Development Engineering
Lab Safety Officer
ABET Coordinator
pcheung@engr.ucr.edu
(951) 827-3378

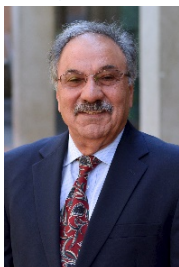


Lorena Roman
Graduate Student Affairs Officer
lroman@engr.ucr.edu
(951) 827-3383

**Administrative Suite for Materials Science &
Engineering is located at MSE 313**

Bourns College of Engineering

Faculty within Bourns College of Engineering



Reza Abbaschian, Distinguished Professor
William R. Johnson, Jr. Family Professor
Mechanical Engineering

323 Materials Science & Engineering Building
rabba@engr.ucr.edu

(951) 827-2942

Ph.D., Materials Science and Engineering
UC Berkley, 1971

Research Area: Materials processing, solidification including low-gravity experiments, crystal growth, functionally graded composites, and diamond processing



Alex Balandin, , Distinguished Professor
Electrical & Computer Engineering
Director, POEM and CNSE
Founding Chair, Materials Science & Engineering

435 Winston Chung Hall

balandin@ece.ucr.edu

(951) 827-2351

Ph.D., Electrical Engineering, University of Notre Dame, 1997

Research Area: Advanced materials, nanostructures and nanodevices for electronics, optoelectronics and renewable energy conversion



Phillip Christopher, Assistant Professor
Chemical & Environmental Engineering

Bourns Hall B363

christopher@engr.ucr.edu

(951) 827-7959

Ph.D., Chemical Engineering, University of Michigan, Ann Arbor, 2011

Research Area: Heterogeneous catalysis, photocatalysis, electrocatalysis, nanomaterials synthesis, solar energy conversion, molecular modeling

Bourns College of Engineering



Sinisa Coh, Assistant Professor

Mechanical Engineering

Bourns Hall A323

Sinisa.coh@ucr.edu

(951) 827-3375

Ph.D., Physics, Rutgers University, 2011

Research Area: Computational materials theorist working on nanostructures, complex oxides, layered materials, topological insulators, superconductors, and optical properties of materials



Shane Cybart, Assistant Professor

Mechanical Engineering

Bourns Hall

shane.cybart@ucr.edu

(951) 827-5834

Ph.D., Material Science, UC San Diego, 2005

Research Area: High-transition temperature Josephson devices, superconducting electronics, multiferroic and magnetic oxides, oxide electronic devices for a diverse range of applications



Juchen Guo, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall A245

jguo@engr.ucr.edu

(951) 827-6472

Ph.D., Chemical Engineering, University of Maryland, College Park, 2007

Research Area: Rational design, synthesis, and characterization of novel materials for energy and environmental technologies including rechargeable batteries, polymer electrolyte membrane fuel cells, photovoltaic devices, and water treatment

Bourns College of Engineering



P. Alex Greaney, Assistant Professor

Mechanical Engineering

339 Materials Science & Engineering Building

agreaney@engr.ucr.edu

(951) 827-2884

Ph.D., Material Science, UC Berkeley, 2003

Research Area: Thermal properties of materials, mechanical properties, functional nanostructures materials, and computational design of materials, energy conversion, energy storage, and clean water



Elaine Haberer, Associate Professor

Electrical & Computer Engineering

418 Winston Chung Hall

haberer@ece.ucr.edu

(951) 827-7174

Ph.D., Materials Science, UC Santa Barbara, 2005

Research Area: Bio-templated materials for electronic, optoelectronic, and energy applications, nano-structured hybrid materials, and novel top-down and bottom-up assembly techniques



David Kisailus, Professor

Winston Chung Endowed Chair of Energy Innovation

Chemical & Environmental Engineering

343 Materials Science & Engineering Building

david@engr.ucr.edu

(951) 827-2260

Ph.D., Materials Science and Engineering, UC Santa Barbara, 2002

Research Area: Bio-mimetics, bio-inspired materials synthesis for nanomaterials, energy storage and conversion materials (fuel cell, batteries), biomineralization studies, ceramic processing, thin film growth

Bourns College of Engineering



**Sandeep Kumar, Assistant Professor
Mechanical Engineering**

Bourns Hall A305

skumar@engr.ucr.edu

(951) 827-5832

Ph.D., Mechanical Engineering, Pennsylvania State University, 2012

Research Area: Spin mediated thermal transport in semiconductor and ferromagnetic thin films, Spin-Phonon interactions and enhanced spin-Seebeck effect, Spin wave characterization in ferromagnetic thin films and Thermal transport in dilute ferromagnetic semiconductors



**Roger K. Lake, Professor
Electrical & Computer Engineering**

437 Winston Chung Hall

rlake@ece.ucr.edu

(951) 827-2122

Ph.D., Purdue University, 1992

Research Area: Electron and thermal transport in low-dimensional structures such as graphene, transition metal di-chalcogenides, carbon nanotubes, semiconductor nanowires, semiconductor nanocrystals, and molecules



**Chen Li, Assistant Professor
Mechanical Engineering**

Bourns Hall A321

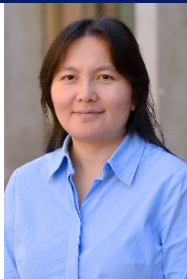
Chen.li@ucr.edu

(951) 827-5842

Ph.D., Materials Science, California Institute of Technology, 2012

Research Area: Geophysics. Structure and transportation properties of energy materials under high pressure with diamond anvil cell (DAC) together using Raman, X-ray, and neutron scattering techniques

Bourns College of Engineering



Huinan Liu, Associate Professor

Bioengineering

227 Materials Science & Engineering Building

huinanliu@engr.ucr.edu

(951) 827-2944

Ph.D., Brown University, 2008

Research Area: Biomaterials guided tissue regeneration, nanotechnology, ceramic nanoparticles, degradable polymers, nanocomposites, resorbable metals, surface treatment for medical implants and devices, controlled drug delivery & stem cell therapy



Jianlin Liu, Professor

Electrical & Computer Engineering

439 Winston Chung Hall

jianlin@ece.ucr.edu

(951) 827-7131

Ph.D., Electrical Engineering, UC Los Angeles, 2003

Research Area: Silicon-based and zinc oxide based thin films, quantum wires and quantum dots, nano-electronic devices including nonvolatile memories and nanoscale field effect transistors, silicon photonics and zinc oxide photonics including lasers, light emitting diodes and photodetectors, diluted magnetic semiconductors and spintronic devices



Ming Liu, Assistant Professor

Electrical & Computer Engineering

321 Winston Chung Hall

ming@ece.ucr.edu

(951) 827-6317

Ph.D., Applied Physics, UC Berkeley, 2010

Research Area: Photonics, optical communication, material science, nano-fabrication



Stefano Lonardi, Professor & Vice Chair

Computer Science & Engineering

317 Winston Chung Hall

stelo@cs.ucr.edu

(951) 827-2203

Ph.D., Computer Science, Purdue, 2001

Research Area: Computational molecular biology, data mining/ compression, design/analysis of algorithms

Bourns College of Engineering



**Lorenzo Mangolini, Associate Professor
Mechanical Engineering**

Bourns Hall A307

lmangolini@engr.ucr.edu

(951) 827-5872

Ph.D., Mechanical Engineering, University of Minnesota, 2007

Research Area: Development of devices based on nanostructured materials for the solution of energy-related issues, characterization of nano-materials, plasma enhanced chemical vapor deposition synthesis of nanostructures and semiconductor quantum dots



**Suveen Mathaudhu, Assistant Professor
Mechanical Engineering**

Bourns Hall A325

smathaudhu@engr.ucr.edu

(951) 827-4414

Ph.D., Mechanical Engineering, Texas A&M University, 2006

Research Area: Ultrafine-grained and nano structured materials, processing and consolidation of non-equilibrium and metastable particulate materials, microstructural optimization of lightweight/high-specific strength metals and refractory metals, tailored nanocrystalline microstructures with high thermal and mechanical stability, fundamental physics of deformation in nanostructured metallic alloys, high-rate mechanical response of fine-grained materials, computational materials simulation and design



**Mart Molle, Professor
Computer Science & Engineering**

331 Winston Chung Hall

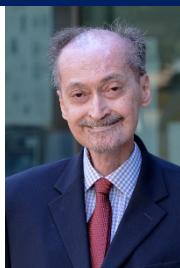
mart@cs.ucr.edu

(951) 827-7354

Ph.D., Computer Science, UC Los Angeles, 1981

Research Area: Computer networking, performance evaluation, distributed algorithms, fundamental performance limits, applications of analytical modeling techniques to practical problems in computer systems

Bourns College of Engineering



Dimitrios Morikis, Professor

Bioengineering

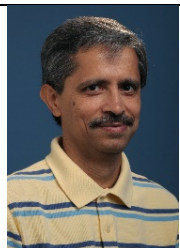
223 Materials Science & Engineering Building

dmorikis@engr.ucr.edu

(951) 827-2696

Ph.D., Physics, Northeastern University, 1990

Research Area: Immunophysics and immunoengineering, computational modeling of biomolecular structure, dynamics, and interactions, structural bioinformatics, protein, peptide, and drug design, NMR spectroscopy



Ashok Mulchandani, Distinguished Professor

Chair, Materials Science & Engineering

Chemical & Environmental Engineering

Bourns Hall B317

adani@engr.ucr.edu

(951) 827-6419

Ph.D., Chemical Engineering, McGill University, 1985

Research Area: Nanobiotechnology, environmental biotechnology, biosensors, bioengineering



Nosang Myung, Chair & Professor

Chemical & Environmental Engineering

Bourns Hall B353

nosang@engr.ucr.edu

(951) 827-7710

Ph.D., Chemical Engineering, UC Los Angeles, 1998

Research Area: Synthesis of nanoengineering materials, thermoelectric, spintronics, NEMS/MEMS, gas sensor, bio-sensor environmental remediation, dental biofilm



Cengiz Ozkan, Professor

Mechanical Engineering

Bourns Hall A305

cozkan@engr.ucr.edu

(951) 827-5016

Ph.D., Material Science, Stanford, 1997

Research Area: Nanomaterials synthesis and processing, graphene, III-V and II-VI materials, energy storage and photovoltaic devices, nanoelectronics, nanopatterning for beyond CMOS

Bourns College of Engineering



Mihri Ozkan, Professor
Electrical & Computer Engineering

436 Winston Chung Hall

mihri@ece.ucr.edu

(951) 827-2900

Ph.D., Electrical & Computer Engineering, UC San Diego, 2001

Research Area: Industrial scale advanced energy storage devices such as batteries and super capacitors for zero emission vehicles, wearable technologies and sustainable manufacturing, 2D Van de Waal materials (graphene, BN, MoS₂, WS₂), nanoparticles, nanofabrics, nanowires, bioinspired and bio-mass hybrids and porous materials



Masaru Rao, Associate Professor
Mechanical Engineering

Bourns Hall A313

mp rao@engr.ucr.edu

(951) 827-5870

Ph.D., Material Engineering, UC Santa Barbara, 2001

Research Area: Development and application of novel micro/nanofabrication methods and materials for microelectromechanical systems (MEMS), microfluidics, and biomedical microdevices



Victor Rodgers, Professor
Bioengineering

215 Materials Science & Engineering Building

vrodgers@engr.ucr.edu

(951) 827-6241

D.Sc., Chemical Engineering, Washington University, 1989

Research Area: Biotransport phenomena, bioreaction kinetics, redox cellular reactions, drug delivery vehicles, bioseparations

Bourns College of Engineering



Kambiz Vafai, Distinguished Professor

Director, MSOL

Mechanical Engineering

Bourns Hall A363

vafai@engr.ucr.edu

(951) 827-2135

Ph.D., Mechanical Engineering, UC Berkeley, 1980

Research Area: Transport through porous media, multiphase transport, natural convection in complex configurations, analysis of porous insulations, heat flux applications, free surface flows, unconventional heat pipes, and power electronics, transport through biological membranes, mine detection



Valentine Vullev, Associate Professor

Bioengineering

235 Materials Science & Engineering Building

vullev@engr.ucr.edu

(951) 827-6239

Ph.D., Chemistry, Boston University, 2001

Research Area: Biophysics, microfluidics and charge transfer



Richard Wilson, Assistant Professor

Mechanical Engineering

Bourns Hall A319

rwilson@engr.ucr.edu

(951) 827-3374

Ph.D., Material Science, University of Illinois at Urbane, 2016

Research Area: Electronic, magnetic, and thermal transport phenomena

Bourns College of Engineering



Bryan Wong, Assistant Professor

Chemical & Environmental Engineering

335 Materials Science & Engineering Building

bmwong@engr.ucr.edu

(951) 827-2163

Ph.D., Physical Chemistry, Massachusetts Institute of Technology, 2007

Research Area: Development and application of theoretical tools to calculate, understand, and rationally design functional materials – working closely with experimentalists during each step



Jianzhong Wu, Professor

Chemical & Environmental Engineering

Bourns Hall A249

jwu@engr.ucr.edu

(951) 827-2413

Ph.D., Chemical Engineering, UC Berkeley, 1998

Research Area: Molecular modeling and design, soft materials, and biophysics



Guanshui (Alex) Xu, Professor

Mechanical Engineering

Bourns Hall A361

gxu@engr.ucr.edu

(951) 827-2497

Ph.D., Engineering, Brown University, 1994

Research Area: Mechanics, Material, and Geophysics with an emphasis on Analytical and Computational Modeling, and their Scientific and Engineering Applications



Ruoxue (Victoria) Yan, Assistant Professor

Chemical & Environmental Engineering

Bourns Hall A247

rxyan@engr.ucr.edu

(951) 827-2242

Ph.D., Chemistry, UC Berkeley, 2010

Research Area: Nanomaterials, nano-catalysis, solar energy conversion, nano-photonics, nano-live cell interface

Bourns College of Engineering

Faculty within the College of Natural & Agricultural Sciences



Igor Barsukov, Assistant Professor

Physics and Astronomy

222/178 Materials Science & Engineering Building

Igor.barsukov@ucr.edu

(951) 827-5343

Ph.D., University Duisburg-Essen, 2012

Research Areas: Experimental condensed matter physics, spintronics



Christopher Bardeen, Professor

Chemistry

134 Chemical Sciences

Christopher.bardeen@ucr.edu

(951) 827-2723/3029

Ph.D., UC Berkeley, 1995

Research Area: Photophysics of photovoltaic materials, photomechanical properties of organic nanostructures, photochemistry in biological tissues



Ludwig Bartels, Professor

Chemistry

124 Pierce Annex

Ludwig.bartels@ucr.edu

(951) 827-2041/2057

Dr. Rer. Nat., Freie Universität Berlin, 1997

Research Area: Investigation and design of surface roughness, surface properties, surface reactivity, in particular with regards to organic materials and metals surfaces



Yongtao Cui, Assistant Professor

Physics and Astronomy

242 Materials Science & Engineering Building

Yongtao.cui@ucr.edu

(951) 827-5395

Ph.D., Cornell University, 2011

Research Areas: Experimental condensed matter physics, nanoscale physics

Bourns College of Engineering



Pingyun Feng, Professor

Chemistry

336 Chemical Sciences

Pingyun.feng@ucr.edu

(951) 827-2042/2043

Ph.D., UC Santa Barbara, 1998

Research Area: Porous materials, porous semiconducting materials, catalytic, electronic, and optical materials, templated self-assembly, and targeted drug delivery



Boniface P.T. Fokwa, Assistant Professor

Chemistry

225 Pierce Annex

bfokwa@ucr.edu

(951) 827-2038

Ph.D., Dresden University of Technology, 2003

Research Area: Inorganic chemistry, materials chemistry, computational chemistry



Nathaniel Gabor, Assistant Professor

Physics & Astronomy

314 Materials Science & Engineering Building

Nathaniel.gabor@ucr.edu

(951) 827-5338

Ph.D., Cornell University, 2010

Research Area: New quantum phenomena in atomically thin two-dimensional (2D) electronic materials including graphene, hexagonal boron nitride, and layered transition metal dichalcogenides

Bourns College of Engineering



Harry Green, Distinguished Professor

Geology & Geophysics

Harry.green@ucr.edu

(951) 827-4508

Ph.D., UC Los Angeles, 1968

Research Area: Synthetic and natural ceramics and rocks, mechanisms of plastic deformation, pressure effect on flow properties of solids, effect of stress on phase transformations, shearing instabilities at high pressure, nonhydrostatic thermodynamics, transmission electron microscopy, understanding the deep interior of Earth



Cheryl Hayashi, Professor

Biology

2318 Spieth Hall

Cheryl.hayashi@ucr.edu

(951) 827-4322

Ph.D., Yale University, 1996

Research Area: The mechanical properties of silk -- elasticity, tensile properties, breaking strength, etc. - - are ultimately dependent on the sequence of amino acids that form silk proteins



De-Eng Jiang, Assistant Professor

Chemistry

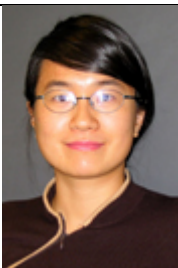
136 Chemical Sciences

De-en.jiang@ucr.edu

(951) 827-4430/3082

Ph.D., UC Los Angeles, 2005

Research Area: Computational chemistry, materials chemistry, physical chemistry



Chun Ning (Jeanie) Lau

Physics

3024 Physics

lau@physics.ucr.edu

(951) 827-7197

Ph.D., Harvard University, 2001

Research Area: Electrical, thermal and mechanical properties of nanoscale systems; mesoscopic superconductivity, nanofabrication, new electromechanical devices

Bourns College of Engineering



Allen Mills, Professor

Physics

3023/1153 Physics

Allen.mills@ucr.edu

(951) 827-6469

Ph.D., Brandeis University, 1967

Research Area: defects in thin films, porous materials, electron spin-momentum distributions in half metals, contactless gating of heterostructures



Umar Mohideen, Professor

Physics

3047A/1051-5 Physics

Umar.mohideen@ucr.edu

(951) 827-5390

Ph.D., Columbia University, 1992

Research Area: The physical nature of empty space, nanostructure physics, interaction between single molecules or a single assembly of bound proteins



Leonard Mueller, Professor

Chemistry

124 Chemical Sciences

Leonard.mueller@ucr.edu

(951) 827-3565/7365

Ph.D., California Institute of Technology, 1997

Research Area: Solid-state NMR of materials, electronic and structural characterization of catalysts, organic conductors, fullerenes and nanotubes



Jing Shi, Professor

Physics & Astronomy

218 Materials Science & Engineering Building

Jing.shi@ucr.edu

(951) 827-1059

Ph.D., University of Illinois, 1994

Research Area: spin-dependent transport and tunneling, nanoscale magnetism, graphene physics and devices, transition metal oxide thin films and devices

Bourns College of Engineering



Ming Lee Tang, Assistant Professor
Chemistry

138 Chemical Sciences

mltang@ucr.edu

(951) 827-5964/2126

Ph.D., Stanford University, 2009

Research Area: Monovalent gold for nanophotonics at visible wavelength, metamaterials, vacuum rabi splitting, antenna-enhanced fluorescence and raman scattering, single molecule studies of the nanoparticle-ligand interface



Harry W.K. Tom, Professor
Physics & Astronomy

3021 Physics

Harry.tom@ucr.edu

(951) 827-2818/2472

Ph.D., UC Berkeley, 1984

Research Area: Nonlinear optical and ultrafast optical studies of interfacial magnetism and spin transport across interfaces, magnetic nanowire devices, optical biosensors, terahertz spectroscopy of biomolecules in liquids, orientation of biological molecules at solid/liquid interfaces



Kathryn Uhrich, Dean & Professor
Chemistry

2258D Geology

Kathryn.uhrich@ucr.edu

(951) 827-3101

Ph.D., Organic Chemistry, Cornell University, 1992

Research Area: Materials & organic chemistry



Chao Wang, Assistant Professor
Chemistry

323 Pierce Annex

Chao.wang@ucr.edu

(951) 827-4865/3756

Ph.D., Tsinghua University, 2011

Research Area: Combining molecular chemistry and supramolecular chemistry to achieve precise control of electronic/mechanical properties of organic polymer materials at the molecular level

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**Jory Yamoff, Professor
Physics and Astronomy**

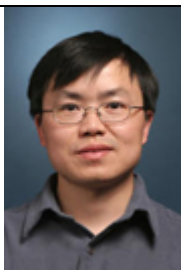
3036/1013/17 Physics

yamoff@ucr.edu

(951) 827-5336/3537

Ph.D., UC Los Angeles, 1985

Research Area: Investigates physical and chemical properties of solid surfaces and interfaces, chemical reactions at surfaces, and particle-surface interactions, with applications in nanoscale materials, semiconductor processing, tribology, catalysis, and environmental sciences



**Yadong Yin, Professor
Chemistry**

302 Pierce Annex

Yadong.yin@ucr.edu

(951) 827-4965/3429

Ph.D., University of Washington, 2002

Research Area: Colloidal inorganic nanostructures: synthesis and surface modification, self-assembly approaches to nanoscale electronic and photonic devices, composite nanomaterials for catalytic applications, biomedical applications of nanostructures, colloidal and interface chemistry, nanofabrication using unconventional methods



**Francisco Zaera, Distinguished Professor
Chemistry**

146A Chemical Sciences

Francisco.zaera@ucr.edu

(951) 827-5498/5736

Ph.D., UC Berkeley, 1984

Research Area: Surface chemistry, with emphasis in heterogeneous catalysis and materials science, surface reaction mechanisms, thin film deposition

Bourns College of Engineering

Adjunct Faculty

Nissim Amos, Electrical & Computer Engineering

gnamos@ece.ucr.edu

Krassimir Bozhilov, Central Facility for Advanced
Microscopy and Microanalysis

bozhilov@ucr.edu



Alexander Khitun, Electrical & Computer Engineering

akhitun@ee.ucr.edu

Bourns College of Engineering

Mechanical Engineering

Faculty research in the Mechanical Engineering (ME) Department spans four broad areas: thermal and fluid sciences; mechanics and materials; biosensors and biomedical applications; and information, computation, and design. Many of our research programs combine to form seven multidisciplinary clusters including: energy processing; bio-applications; micro and nanoscale engineering; computation and design; materials properties and processing; multiphase flow and combustion; and air quality and fire engineering. These research efforts are sponsored by a variety of federal agencies including NSF, NIH, DOE, DARPA, ARO, AFOSR, USDAFS, and ONR; state and county agencies including Caltrans, CIEE, CEC, California Air Resources Board, South Coast Air Quality Management District, Riverside Public Utilities, and UCTC; and industrial sponsors including Raytheon, HP, Microsoft, Aeptec, Lockheed Martin, Magnecomp, SRC, Winston Chung Global Energy Center, Bereket Energy Company, and Bourns Inc. The Department continues to grow and is now home to 22 full-time faculty members.

We have a strong ABET-accredited undergraduate mechanical engineering program that emphasizes fundamentals coupled with effective engineering design and analysis. The curriculum stresses professional skills including an understanding of the relevance and impact of engineering in society, professional ethics, engineering economics, and technical communication. We are a unique program in that 20% of our undergraduate students participate in faculty research. The Department's Board of Advisors, comprised of dedicated representatives from industry and academia, reviews and recommends curriculum changes that best reflect the needs of industry while maintaining a good balance between theoretical concepts and practical skills.

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Our graduate program provides advanced education in a major area of study combined with cutting-edge research. Through this training, our M.S. and Ph.D. graduates are well-prepared to pursue successful careers in academia, government research facilities, and high-tech companies. In addition to running pioneering research programs, our faculty are dedicated teachers, valuing interaction with students beyond the classroom. Several of our faculty serve on editorial boards and as editors of prestigious journals. Collectively, our faculty honors include Fellows of prestigious professional societies, such as TMS, ASM, ASME, AAAS, ASLMS and AIAA; young investigator awards: one ARO, one AFOSR, three NSF CAREER, one NIH-K01, one SAE Ralph Teetor, and one 3M.



Guillermo Aguilar
Professor and Chair
(951) 827-2404

gaguilar@engr.ucr.edu

Bourns College of Engineering

Staff



Susana Aparicio.....827-2409

Financial & Administrative Officer

susana@engr.ucr.edu



Robert Godoy.....827-2417

Contacts and Grants Analyst

rgodoy@engr.ucr.edu



Louis Sandoval.....827-5830

Purchasing/ Personnel Assistant

lsandoval@engr.ucr.edu



Paul Talavera.....827-2115

Graduate Program Assistant

paul@engr.ucr.edu

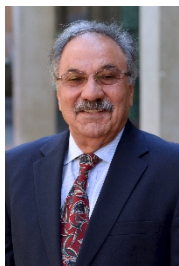
Mechanical Engineering–Suite 342 BH

827-5830

827-2899 (fax)

Bourns College of Engineering

Faculty



Reza Abbaschian, Distinguished Professor
William R. Johnson, Jr. Family Professor
Mechanical Engineering

323 Materials Science & Engineering Building

rabba@engr.ucr.edu

(951) 827-2942

Ph.D., Materials Science and Engineering, UC Berkeley, 1971

Research Area: Materials processing, solidification including low-gravity experiments, crystal growth, functionally graded composites, & diamond processing



Guillermo Aguilar, Professor
Chair, Mechanical Engineering

Bourns Hall A345

gaguilar@engr.ucr.edu

(951) 827-7717

Ph.D., Mechanical Engineering, UC Santa Barbara, 1999

Research Area: Cryogen Spray Cooling, Medical Lasers and Transport Phenomena for Biomedical Applications



Sinisa Coh, Assistant Professor
Mechanical Engineering

Bourns Hall A323

Sinisa.coh@ucr.edu

(951) 827-3375

Ph.D., Physics, Rutgers University, 2011

Research Area: Computational materials theorist working on nanostructures, complex oxides, layered materials, topological insulators, superconductors, and optical properties of materials



Shane Cybart, Assistant Professor
Mechanical Engineering

Bourns Hall

shane.cybart@ucr.edu

(951) 827-5834

Ph.D., Material Science, UC San Diego, 2005

Research Area: High-transition temperature Josephson devices, superconducting electronics multiferroic and magnetic oxides, oxide electronic devices for a diverse range of applications

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Elisa Franco, Assistant Professor

Mechanical Engineering

Bourns Hall A311

efranco@engr.ucr.edu

(951) 827-2442

Ph.D., Mechanical Engineering, California Institute of Technology, 2011

Research Area: Biological feedback processes, analysis, design and synthesis of robust biochemical networks, in vitro molecular circuits and control systems



P. Alex Greaney, Assistant Professor

Mechanical Engineering

339 Materials Science & Engineering Building

agreaney@engr.ucr.edu

(951) 827-2884

Ph.D., Material Science, UC Berkeley, 2003

Research Area: Thermal properties of materials, mechanical properties, functional nanostructures materials, and computational design of materials, energy conversion, energy storage, and clean water



Heejung Jung, Associate Professor

Mechanical Engineering

Bourns Hall A357

heejung@engr.ucr.edu

(951) 827-2262

Ph.D., Mechanical Engineering, University of Minnesota, 2003

Research Area: Aerosol

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Sandeep Kumar, Assistant Professor

Mechanical Engineering

Bourns Hall A305

skumar@engr.ucr.edu

(951) 827-5832

Ph.D., Mechanical Engineering, Pennsylvania State University, 2012

Research Area: Spin mediated thermal transport in semiconductor and ferromagnetic thin films, spin-phonon interactions and enhanced spin-Seebeck effect, spin wave characterization in ferromagnetic thin films and Thermal transport in dilute ferromagnetic semiconductors



Chen Li, Assistant Professor

Mechanical Engineering

Bourns Hall A321

Chen.li@ucr.edu

(951) 827-5842

Ph.D., Materials Science, California Institute of Technology, 2012

Research Area: Geophysics, structure and transportation properties of energy materials under high pressure with diamond anvil cell (DAC) together using Raman, X-ray, and neutron scattering techniques



Lorenzo Mangolini, Associate Professor

Mechanical Engineering

Bourns Hall A307

lmangolini@engr.ucr.edu

(951) 827-5872

Ph.D., Mechanical Engineering, University of Minnesota, 2007

Research Area: Development of devices based on nanostructured materials for the solution of energy-related issues, characterization of nano-materials, Plasma Enhanced Chemical Vapor Deposition (PECVD) synthesis of nanostructures and semiconductor quantum dots, advanced process characterization and modeling of gas-phase reactive systems

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**Suveen Mathaudhu, Assistant Professor
Mechanical Engineering**

Bourns Hall A325

smathaudhu@engr.ucr.edu

(951) 827-4414

Ph.D., Mechanical Engineering, Texas A&M University, 2006

Research Area: Ultrafine-grained and nano structured materials, processing and consolidation of non-equilibrium and metastable particulate materials, microstructural optimization of lightweight/high-specific strength metals and refractory metals, tailored nanocrystalline microstructures with high thermal and mechanical stability, fundamental physics of deformation in nanostructured metallic alloys, high-rate mechanical response of fine-grained materials, computational materials simulation and design



**Monica Martinez Wilhelmus, Assistant Professor
Mechanical Engineering
Chemical & Environmental Engineering**

Bourns Hall A313

monicamo@engr.ucr.edu

(951) 827-3373

Ph.D., Mechanical Engineering, California Institute of Technology, 2015

Research Area: Fluid mechanics, oceanography and biology. Biological fluid dynamics, turbulence and two-phase flows



**Cengiz Ozkan, Professor
Mechanical Engineering**

Bourns Hall A305

cozkan@engr.ucr.edu

(951) 827-5016

Ph.D., Material Science, Stanford, 1997

Research Area: Nanomaterials synthesis and processing; graphene, III-V and II-VI materials, energy storage and photovoltaic devices, nanoelectronics, nanopatterning for beyond CMOS

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Fabio Pasqualetti, Assistant Professor
Mechanical Engineering

Bourns Hall A309

fabiopas@engr.ucr.edu

(951) 827-2327

Ph.D., Mechanical Engineering, UC Santa Barbara, 2012

Research Area: Multi-agent, large-scale, and networked systems, such as power grids, water distribution networks, and cooperative robotic systems



Marko Princevac, Professor
Associate Dean, Student Affairs
Mechanical Engineering

Bourns Hall A359

marko@engr.ucr.edu

(951) 827-2445

Ph.D., Mechanical Engineering, Arizona State University, 2003

Research Area: Fundamental and applied fluid mechanics research, the application of fundamental turbulence concepts to studies in environmental flows



Masaru Rao, Associate Professor
Mechanical Engineering

Bourns Hall A313

mprao@engr.ucr.edu

(951) 827-5870

Ph.D., Material Engineering, UC Santa Barbara, 2001

Research Area: Development and application of novel micro/nanofabrication methods and materials for microelectromechanical systems (MEMS), microfluidics, and biomedical microdevices

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Tom Stahovich, Professor
Chair, Executive Committee
Mechanical Engineering

Bourns Hall A349

stahov@engr.ucr.edu

(951) 827-7719

Ph.D., Mechanical Engineering, Massachusetts Institute of Technology, 1995

Research Area: Design, artificial intelligence, pen-based computing, sketch-understanding, and human-computer interaction



Hideaki Tsutui, Assistant Professor
Mechanical Engineering

Bourns Hall A315

htsutui@engr.ucr.edu

(951) 827-2444

Ph.D., Mechanical Engineering, UC Los Angeles, 2009

Research Area: Biomedical microdevices, stem cell engineering, three-dimensional micro/nano fabrication, bio-inspired self-assembly



Kambiz Vafai, Distinguished Professor
Director, MSOL
Mechanical Engineering

Bourns Hall A363

vafai@engr.ucr.edu

(951) 827-2135

Ph.D., Mechanical Engineering, UC Berkeley, 1980

Research Area: Transport through porous media, multiphase transport, natural convection in complex configurations, analysis of porous insulations, heat flux applications, free surface flows, unconventional heat pipes, and power electronics, transport through biological membranes, mine detection

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Akula Venkatram, Professor

Mechanical Engineering

Bourns Hall A343

venky@engr.ucr.edu

(951) 827-2195

Ph.D., Mechanical Engineering, Purdue, 1976

Research Area: Comprehensive modeling of systems governing air quality, theoretical aspects of small-scale dispersion, application of micrometeorology to dispersion problems, development of simplified models for complex systems



Richard Wilson, Assistant Professor

Mechanical Engineering

Bourns Hall A319

rwilson@engr.ucr.edu

(951) 827-3374

Ph.D., Material Science, University of Illinois at Urbane, 2016

Research Area: Electronic, magnetic, and thermal transport phenomena



Guanshui (Alex) Xu, Professor

Mechanical Engineering

Bourns Hall A361

gxu@engr.ucr.edu

(951) 827-2497

Ph.D., Engineering, Brown University, 1994

Research Area: Mechanics, material, and geophysics with an emphasis on analytical and computational modeling, and their scientific and engineering applications

Bourns College of Engineering

Adjunct Faculty & Researchers

Santiago Camacho-Lopez, Adjunct Professor
camachol@cicese.mx

Carlos Coimbra, Adjunct Professor
ccoimbra@ucsd.edu

Chris Dames, Associate Adjunct Professor
cdames@berkeley.edu

Javier Garay, Adjunct Professor
jegaray@ucsd.edu

Bourns College of Engineering

Masters of Science in Engineering



**Kambiz Vafai, Director
Distinguished Professor**

The Online Master of Science in Engineering Program at BCOE is a calibrated blend of targeted engineering skills and management strategy designed to mold a new generation of leaders in the field. Delivered by experts with industry experience, this empowering program can help students thrive in their segment of a rapidly growing global industry.

Kimberly Love, Student Affairs Officer

Kimberly.love@ucr.edu

(951) 827-5196



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Research Centers – Quick Overview List

The Center for Bioengineering Research

- Cellular Control and Regulation
- In-silico Biosystems and Biomolecular Modeling
- Biophotonics and Laser Applications
- Drug Design
- High Throughput Screening

The College of Engineering-Center for Environmental Research and Technology (CE-CERT)

- Atmospheric Processes
- Emissions and Fuels
- Environmental Modeling
- Sustainable Energy Systems
- Transportation Systems

The Center for Nanoscale Science and Engineering (CNSE)

- Spintronics
- Electronics/Photonics
- Devices
- Computing
- Neuroscience
- Sensors

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The Center for Research in Intelligent Systems (CRIS)

- Image Processing and Understanding
- Machine Learning and Pattern Recognition
- Image and Video Databases
- Distributed Sensing, Control and Robotics
- Data Mining
- Cognitive Information Processing
- Intelligent Systems and Machine Intelligence
- Automatic Target/Object Recognition
- Multi-Sensor Fusion
- Autonomous Navigation
- Wireless Large Scale Sensor Networks, Surveillance/Monitoring
- Multi-Modal Biometrics and Security
- Biological and Medical Image Processing and Analysis
- Science of Innovations
- Applications

The Center for Ubiquitous Communication by Light (UC-LIGHT)

- Lighting
- Communications
- Networking
- Navigation
- ASIC Design
- System Integration Resources

UCR Center for Advanced Neuroimaging (CAN)

- Magnetic resonance imaging and spectroscopy
- Functional MRI
- Image reconstruction and processing
- Molecular imaging

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Phonon Optimized Engineered Materials (POEM)

- Phonon optimization of nanostructured materials
- Thermal management of advanced electronics
- Efficient renewable energy generation and storage
- Low-power dissipation electronic and optoelectronic devices
- Innovative materials characterization techniques
- Novel biomedical methods of diagnostics

Winston Chung Global Energy Center (WCGEC)

- Efficient Thermal Management of High-Power Batteries and Battery Packs with Graphene-Based Materials
- Biologically Inspired Cathode Materials
- Silicon Quantum Dot–Graphene Composite as Anode for Lithium Ion Batteries
- Electrochemical Synthesis of Vertical LiFePO_4 Nanowire Arrays as Cathode for Lithium Ion Rechargeable Microbatteries
- Tunable Hybrid Nanotube-Graphene Architectures for Energy Storage
- Nano/Micro Hierarchically Structured Porous Metal Oxides for Lithium-Ion Batteries

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Center for Bioengineering Research

The Center for Bioengineering Research (CBR) is the focus of research activities of the Department of Bioengineering in cooperation with other UC Riverside engineering and science departments. CBR has outreach activities with biomedical research units at other regional and cooperating institutions. CBR also serves as the research arm for the Bioengineering Interdepartmental Graduate Program (BIG) and provides extraordinary additional interdisciplinary research opportunities for students.

CBR is being organized in technical divisions the first of which is the Biomolecular Imaging Research and Technology Group. The focus of the team is on developing new cutting-edge biophotonic technologies, utilizing a large array of advanced optical tools. Some current projects include the development of nanoparticles for laser treatment of cancer, mechanism of hearing, and studies on the mechanism of charge transfer in biological systems, non-invasive monitoring of neurological systems and microfluidic devices for detection of infectious agents.



Jerome S. Schultz

Distinguished Professor & Director

jerome.schultz@ucr.edu

827-2111



Hong Xu

Associate Development Engineer

hong.xu@ucr.edu

827-7235

**For additional information, please call
(951) 827-4303
(951) 827-6416 (fax)**

Bourns College of Engineering

Center for Environmental Research & Technology (CE-CERT)



Matthew Barth

Director, CE-CERT

Yeager Families Chair of Engineering

barth@ece.ucr.edu

(951)781-5782

BCOE's Center for Environmental Research & Technology (CE-CERT) is a recognized leader in environmental education, a collaborator with industry and government to improve the technical basis for regulations and policy, a creative source of new technology, and a contributor to a better understanding of the environment. CE-CERT is committed to furthering education and research for the next generation of engineers. Our students not only receive an excellent education, but unprecedented opportunities to be intimately involved in the research enterprise. Maintaining abroad-based industry network requires that research at the Center remains on the cutting edge of technology. The Center has created partnerships between UCR and the community-at-large. Inside the CE-CERT laboratories, engineers and scientists explore a wide-ranging research agenda that encompasses:

- Developing intelligent transportation systems for the future;
- Converting biomass such as yard waste into vehicle fuel;
- Measuring air pollutants and modeling how they react in the atmosphere;
- Using computer models to evaluate the impact of roadway improvement on air quality and global climate change;
- Measurement of emissions from on-road and off-road mobile and stationary sources;
- Development and evaluation of innovative solar energy systems; and

Exploring fundamentals and applications in energy generation, storage, and distribution.

Bourns College of Engineering

CE-CERT Administration

	Position	Email	Telephone
Matthew Barth	Director	barth@cert.ucr.edu	(951) 781-5782
Nicole Davis	Deputy Director	ndavis@cert.ucr.edu	(951) 781-5744
J. Wayne Miller	Associate Director	wayne@cert.ucr.edu	(951) 781-5579
Katie Dell	Financial Manager	katie@cert.ucr.edu	(951) 781-5745
Todd Ambriz	Facilities Manager	tambriz@cert.ucr.edu	(951) 781-5758
Carolyn Ray	Receptionist/Travel	cray@cert.edu	(951) 781-5791
Briana Moreno	Contracts & Grants	bmoreno@cert.ucr.edu	(951) 781-5635
Valerie Thomas	Purchasing Assistant	valerie@cert.ucr.edu	(951) 781-5729
Kathy Vang	Marketing & Outreach Specialist	kathyv@cert.ucr.edu	(951) 781-5730
Alta Vasquez	Institute Coordinator	avasquez@cert.ucr.edu	(951) 781-2432
Berenice Murillo-Quintana	Assistant III	bmurillo@cert.ucr.edu	(951) 781-5718

Atmospheric Processes

	Position	Email	Telephone
Akua A. Asa-Awuku	Associate Professor	Akua@cert.ucr.edu	(951) 781-5785
Kelley Barsanti	Assistant Professor	kbarsanti@cert.ucr.edu	(951) 781-5743
Kurt Bumiller	Sr. Development Engineer	Bumiller@cert.ucr.edu	(951) 781-5796
Bill Carter	Research Chemist	carter@cert.ucr.edu	(951) 781-5797
David Cocker	Professor & Leader	dcocker@cert.ucr.edu	(951) 781-5695
Dennis Fitz	Researcher	dfitz@cert.ucr.edu	(951) 781-5781
Wendy Goliff	Assistant Researcher	wendyg@cert.ucr.edu	(951) 827-5665
John Pisano	Sr. Development Engineer	jtpisano@cert.ucr.edu	(951) 781-5646

Bourns College of Engineering

Emissions & Fuels Research

	Position	Email	Telephone
Tom Durbin	Research Engineer	durbin@cert.ucr.edu	(951) 781-5794
Kent Johnson	Associate Research Engineer	kjohnson@cert.ucr.edu	(951) 781-5786
Heejung Jung	Associate Professor	heejung@cert.ucr.edu	(951) 781-5742
George Karavalakis	Associate Research Engineer	gkaraval@cert.ucr.edu	(951) 781-5799
J. Wayne Miller	Leader	wayne@cert.ucr.edu	(951) 781-5579
Edward O'Neil	Assistant Development Engineer	eddie@cert.ucr.edu	(951) 781-5684
Robert Russell	Asst. Research Engineer	rrussell@cert.ucr.edu	(951) 781-5723
Mark Villela	Junior Development Engineer	mvillela@cert.ucr.edu	(951) 781-5791

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Sustainable Energy

	Position	Email	Telephone
Charles Cai	Assistant Research Engineer	ccai@cert.ucr.edu	(951) 781-5791
Rajeev Kumar	Asst. Research Engineer	rkumar@cert.ucr.edu	(951) 781-5668
Chan Seung Park	Associate Research Engineer	cspark@cert.ucr.edu	(951) 781-5771
Arun Raju	Asst. Research Engineer	arun@cert.ucr.edu	(951) 781-5686
Charles E. Wyman	Ford Motor Company Professor	cewyman@cert.ucr.edu	(951) 781-5703

Transportation Systems Research

	Position	Email	Telephone
Matthew Barth Yeager Families Professor	Leader	barth@cert.ucr.edu	(951) 781-5782
Kanok Boriboonsomsin	Associate Research Engineer	kanok@cert.ucr.edu	(951) 781-5792
Daniel Sandez	Junior Development Engineer	dsandez@cert.ucr.edu	(951) 581-5620
George Scora	Assistant Project Scientist	gscora@cert.ucr.edu	(951) 781-5044
Mike Todd	Principal Development Engineer	mike@cert.ucr.edu	(951) 781-5751
Alexander Vu	Junior Development Engineer	alexvu@cert.ucr.edu	(951) 781-5656
Guoyuan Wu	Asst. Research Engineer	gywu@cert.ucr.edu	(951) 781-5630

Bourns College of Engineering

Center for Nanoscale Science & Engineering (CNSE)

Alex Balandin

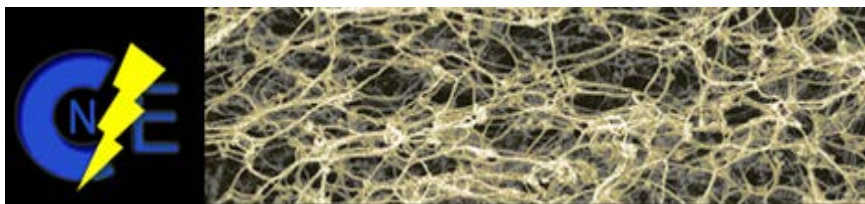
University of California Presidential Chair Professor
Department of Electrical and Computer Engineering
Interim Director, CNSE
Fellow of MRS, APS, IEEE, OSA, SPIE, AAAS, IOP, IOM3
(951) 827-2357



The Center for Nanoscale Science and Engineering (CNSE) brings together scientists from the disciplines of chemistry, physics, biology and electrical engineering.

The current research thrusts are devoted to next generation electronics with an emphasis on spintronics and 3D-electronics, new magnetic and electronic devices and advanced materials including carbon nanotubes, graphene and organics

As part of CNSE, a nanofabrication facility provides clean room and semiconductor processing facilities for micro- and nano-device fabrication.



Bourns College of Engineering

CNSE – Administration

Alex Balandin, Interim Director

University of California Presidential Chair Professor

Department of Electrical and Computer Engineering

Fellow of MRS, APS, IEEE, OSA, SPIE, AAAS, IOP, IOM3

(951) 827-2357

CNSE – Faculty

Faculty	Phone	email
Alex Balandin	(951) 827-2351	alexander.balandin@ucr.edu
Ward Beyermann	(951) 827-3947	ward.beyermann@ucr.edu
David Bocian	(951) 827-3660	david.bocian@ucr.edu
Marc Bockrath	(951) 827-5331	marc.bockrath@ucr.edu
Roland Kawakami	(951) 827-5343	roland.kawakami@ucr.edu
Jeanie Lau	(951) 827-7197	jeanie.lau@ucr.edu
Jianlin Liu	(951) 827-7131	jianlin.liu@ucr.edu
Nosang Myung	(951) 827-7710	nosang.myung@ucr.edu
Cengiz Ozkan	(951) 827-5016	cengiz.ozkan@ucr.edu
Mihri Ozkan	(951) 827-2900	mihri.ozkan@ucr.edu
Jing Shi	(951) 827-1059	jing.shi@ucr.edu
Harry Tom	(951) 827-2818	harry.tom@ucr.edu

CNSE – Staff

Staff	Phone	email
Evangeline Barriga Administrative Assistant	(951) 827-3059	eva.barriga@ucr.edu
Mark Heiden Pr. Development Engineer	(951) 827-2551	mheiden@engr.ucr.edu
Dexter Humphrey Sr. Development Engineer	(951) 827-6264	dhumphrey@engr.ucr.edu
Nancy Jahr, Administrator	(951) 827-2233	nancy.jahr@ucr.edu
Nadine Okuns Administrative Assistant	(951) 827-3058	nadine.okuns@ucr.edu
Dong Yan Sr. Development Engineer	(951) 827-6265	dongyan@engr.ucr.edu

Bourns College of Engineering

Phonon Optimized Engineered Materials (POEM)

Alex Balandin

University of California Presidential Chair Professor
Department of Electrical and Computer Engineering
Director, Phonon Optimized Engineered Materials
(POEM)

Fellow of MRS, APS, IEEE, OSA, SPIE, AAAS, IOP, IOM3
(951) 827-2357



The Phonon Optimized Engineered Materials (POEM) Center is a unique research establishment created with the seed funds provided by the Bourns College of Engineering (BCOE) and UC Riverside. Its operation is supported by the federal research grants and industry contracts. Most recent technological developments indicate that engineering of phonons is becoming the next big revolution, which will lead to a further increase in the integration density in computer chips and efficiency of energy generation and storage. Phonons – quanta of crystal lattice vibrations – reveal themselves in all electrical, thermal and optical phenomena in materials. Phonons carry heat in semiconductors and simultaneously limit their electrical conductivity. Heat removal became the main road blocks for continuous downscaling, increasing



speed and integration density of electronic circuits. From the other side, the advent of nanostructures and two-dimensional materials such as graphene created possibilities for better control of phonon properties.

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The mission of the POEM Center is to use the full scope of phonon engineering approaches for optimizing materials for applications in electronics, optoelectronics, thermoelectric and photovoltaic energy generation, battery technology, and biomedical applications. The POEM Center offers a unique set of experimental equipment for various aspects of phononics research. The facilities include Raman and Brillouin spectrometers, thermal conductivity and diffusivity measurement systems, and nanometrology tools. Among accomplishments of the POEM Center researchers are the discovery of the exceptional heat conduction properties of graphene and pioneering development of the phonon confinement approach for increasing efficiency of the thermoelectric energy conversion.

Participating Faculty

Reza Abbaschian (ME & MSE)

Javier Garay (ME & MSE)

Elaine Haberer (ECE & MSE)

Alexander Khitun (ECE & MSE)

David Kisailus (CEE & MSE)

Roger Lake (ECE & MSE)

Ming Liu (ECE & MSE)

Lorenzo Mangolini (MSE & ME)

Ashok Mulchandani (CEE & MSE)

Jing Shi (Physics)



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UCR Center for Advanced Neuroimaging

The center is a newly established core facility and research center at UC Riverside that focuses on magnetic resonance imaging/spectroscopy based approaches for studying the brain. Its mission consists of methodological development, application-oriented research, and training/education of magnetic resonance imaging/spectroscopy techniques for imaging the brain and other organs.



Xiaoping Hu

Director, CAN

(951) 827-2925

xhu@engr.ucr.edu

Bourns College of Engineering

Center for Research in Intelligent Systems (CRIS)



The Center for Research in Intelligent Systems (CRIS), established in 1998, is developing technology to create computers and robotic systems that are flexible, adaptive and intelligent. The interdisciplinary center involves faculty members and researchers from departments across the UCR campus: Electrical & Computer Engineering, Computer Science & Engineering, Bioengineering, Mechanical Engineering, Chemical Engineering, Statistics, Mathematics, Cell Biology and Neuroscience, Botany and Plant Sciences, Biomedical Sciences, Plant Pathology and Microbiology, Nematology, Entomology. Psychology, Economics and Management.

The goal of the center is to perform research in the development of autonomous and semiautonomous systems with sensing capabilities that can communicate and interact with other intelligent systems, both human and artificial.

CRIS has many active interdisciplinary projects supported by various funding agencies. Representative projects are: NSF IGERT on Video Bioinformatics; Activity and Human Recognition in Distributed Video Sensor Networks for Surveillance and Monitoring; Analysis and Synthesis for Video Mining; Learning Morphological Concepts in Image Databases; Biologically Inspired Computational Models for Perception; Predictive Theory of Object Recognition and Multi-modal Human/Vehicle Identification.

Graduate students have outstanding opportunities to work on interdisciplinary projects with faculty from different research areas. Ph.D. students have interdisciplinary qualifying and dissertation committees and take graduate courses in appropriate departments.

Bourns College of Engineering

Faculty within Bourns College of Engineering

Bir Bhanu, Director of CRIS

Distinguished Professor of Electrical &
Computer Engineering
Department of Electrical & Computer
Engineering
bhanu@cris.ucr.edu
(951) 827-3954

Matthew Barth, Director of CE-CERT

Department of Electrical & Computer
Engineering
barth@ece.ucr.edu
(951) 781-5782

Gerardo Beni (Emeritus)

Department of Electrical & Computer
Engineering
beni@ece.ucr.edu
(951) 827-6317

Jay Farrell

Department of Electrical & Computer
Engineering
farrell@ece.ucr.edu
(951) 827-2159

Susan Hackwood

Department of Electrical & Computer
Engineering
hackwood@ece.ucr.edu
(951) 827-5652

Amit K. Roy-Chowdhury

Department of Electrical & Computer
Engineering
amitrc@ece.ucr.edu
(951) 827-7886

Yingbo Hua

Department of Electrical & Computer
Engineering
yhua@ece.ucr.edu
(951) 827-2853

Ertem Tuncel

Department of Electrical & Computer
Engineering
ertem@ece.ucr.edu
(951) 827-7718

Mihri Ozkan

Department of Electrical & Computer
Engineering
mihri@ece.ucr.edu
(951) 827-2900

Tao Jiang

Department of Computer Science &
Engineering
tao.jiang@ucr.edu
(951) 827-2991

Eamonn Keogh

Department of Computer Science &
Engineering
eamonn.keogh@ucr.edu
(951) 827-2032

Vassilis Tsotras

Department of Computer Science &
Engineering
tsotras@cs.ucr.edu
(951) 827-2888

Bourns College of Engineering

Chinya Ravishankar

Department of Computer Science &
Engineering
Associate Director C.R.I.S.
Associate Dean, Student Academic
Affairs
ravi@cs.ucr.edu
(951) 827-5318

Stefano Lonardi

Department of Computer Science &
Engineering
stefano.lonardi@ucr.edu
(951) 827-2203

Jerome Schultz

Department of Bioengineering
jssbio@engr.ucr.edu
(951) 827-2111

Dimitrios Morikis

Department of Bioengineering
dmorikis@engr.ucr.edu
(951) 827-2696

Victor Rodgers

Department of Bioengineering
vrodgers@engr.ucr.edu
(951) 827-6241

Valentine Vullev

Department of Bioengineering
vullev@engr.ucr.edu
(951) 827-6239

Kambiz Vafai

Mechanical Engineering
vafai@engr.ucr.edu
(951) 827-2135

Cengiz Ozkan

Mechanical Engineering
cengiz.ozkan@ucr.edu
(951) 827-5016

John Heraty

Entomology
john.heraty@ucr.edu
(951) 827-6351

John Andersen

Department of Psychology
john.andersen@ucr.edu
(951) 827-4383

Michael A. Erickson

Department of Psychology
michael.erickson@ucr.edu
(951) 827-3298

Subir Ghosh

Department of Statistics
subir.ghosh@ucr.edu
(951) 827-3781

Zhenbiao Yang

Botany and Plant Science
zhenbiao.yang@ucr.edu
(951) 827-7351

Katherine Borkovich

Botany and Plant Science
katherine.borkovich@ucr.edu
(951) 827-2753

Bourns College of Engineering

Other Faculty at UCR

**Natasha Raikhel, Director for
CPCB**

Distinguished Professor of Plant
Cell Biology
Botany and Plant Science
nraikhel.edu
(951) 827-6370

David Carter

Botany and Plant Science
dcarter@ucr.edu
(951) 827-2694

Thomas Girke

Botany and Plant Science
thomas.girke@ucr.edu
(951) 905-5232

Venugopala Reddy

Botany and Plant Science
venug@ucr.edu
(951) 827-3482

Prue Talbot

Cell Biology & Neuroscience
talbot@ucr.edu
(951) 827-3768

Leah T. Haimo

Biology
leah.haimo@ucr.edu
(951) 827-5632

Kathryn DeFea

Biomedical Science
katie.defea@ucr.edu
(951) 827-2871

John Shyy

Biomedical Science
john.shyy@ucr.edu
(951) 827-3863

Aman Ullah

Department of Economics
aman.ullah@ucr.edu
(951) 827-1591

Bourns College of Engineering

Center for Ubiquitous Communication by Light (UC-Light)



Albert Wang

Professor, Electrical & Computer Engineering
Director, UC Light

(951) 827-2555

aw@ece.ucr.edu

The mission of the UC-Light center is to enable wireless communications by embedding signals into the light emitted by next-generation LEDs in systems for illumination, traffic control, advertising, and other purposes.

Funded from the Multicampus Research Program and Initiatives (MRPI) competition within the University of California (UC) system and under assistance of Founding Director, Zhengyuan Xu, the UC-Light center is situated in a modern engineering complex at UC Riverside. The Center research comprehensively and uniquely covers three thrust areas pertinent to LED lighting – efficient lighting, communication, and navigation – with significant potential for creating new technological innovations, economic activity, and energy savings benefits. Developed protocols and sub-systems are further integrated into modern architecture design and ASIC chips to ultimately deliver deployable systems and transfer technologies. The iterative experimentation, modeling, design, validation, and multi-dimensional feedback constitute a unified coherent framework to ensure Center success.

The Center closely interacts with a large community, from communication to lighting industries, standardization organizations, peer researchers, funding agencies, and general public. Additionally, the Center plans to assist industry in commercializing technologies that can revolutionize LED communication and navigation, which will in turn stimulate demands for LED lighting. It also welcomes new advisory board members and industry partners through its partnership programs to support and reshape the Center program. All of them jointly contribute to the next generation LED-based technologies and benefit the society at large, and are warmly welcome to participate in Center's annual technical review and industry-day events.

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Faculty



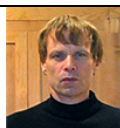
Albert Wang, Director
UC Riverside

The UC-Light Center Director and a Professor of Electrical Engineering at UCR. His research centers on RF/Analog/Mixed-Signal Integrated Circuits (IC), Advanced on-Chip ESD (Electrostatic Discharge) Protection for ICs, Systems-on-a-Chip (SoC), IC CAD and Modeling, Nano and Emerging Devices and Circuits.



Jay Farrell
ECE Professor (UCR),
expertise is in
estimation and control

for nonlinear dynamic systems. Current research includes adaptive approximation based control systems, aided navigation systems and autonomous vehicles. He is Vice General Chair of the 2011 and General Chair of the 2012 IEEE Conference on Decision and Control



Michael Siminovitch
Director of the
California Lighting
Technology Center at

UC Davis, and a Professor in the UC Davis Design Program. His work entails research and development in new residential and commercial lighting technologies. Among his innovations are high performance torchiere, high efficiency sulfur lamp, and fiber optic illuminators.



Francis Rubinstein
Staff Scientist at the
Lawrence Berkeley
National Laboratory,
where he leads the

Building Technology Department's Lighting Research and Principal Investigator for the Lighting Research Group. He is an internationally-recognized expert in advanced lighting controls research.

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Yehuda E. Kalay

Professor of Architecture at UCB, he is a pioneer in exploring the applications (and implications) of New Media (computing and telecommunication technologies) on architectural design methods, process, and products. He is a founding member of the Berkeley Center for New Media and of ACADIA (Association for Computer Aided Design in Architecture).



Srikanth Krishnamurthy

CSE Professor (UCR), where he works on wireless and mobility problems such as routing protocols and algorithms, resource and service location protocols, mechanisms to improve throughput over wireless links, and mechanisms to provide seamless mobility between different interfaces in heterogeneous networks.



Konstantinos Papamichael

Professor of Design Program at UCD where he is also Co-

Director of the California Lighting Technology Center. His research centers on energy efficiency strategies and technologies for buildings, focusing on fenestration systems and daylighting, as well as the integration of electric lighting and fenestration controls. He also designs computer-based tools that facilitate energy and environmental impact considerations for building design and operation decision-making.



Patrick Yue

ECE Professor at UC Santa Barbara. Since July 2010, he has been on sabbatical leave to the Hong Kong University of Science and Technology as a Visiting Professor in ECE. His technical expertise is in the area of high-frequency modeling for transistor, passive components and IC packages; ESD protection devices and schemes for RFICs; CMOS wireless and wireline communication circuits; and CAD and design methodology for RFICs.

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Roland Winston

Professor in the UC
Merced School of
Natural Sciences and

School of Engineering and Director
of its Energy Research Institute. His
research interests include solar
power and renewable energy,
elementary particle physics, and
non-imaging optics.



Gang Chen

Associate Adjunct
Professor of
Electrical and
Computer
Engineering at
UCR, where his

research areas are free space optics
(FSO) communication technologies
and their applications in
outdoor/indoor high speed wireless
optical communication, battlefield
covert non-line-of-sight (NLOS)
ultraviolet communication, and
indoor lighting LED based
communication and navigation. The
researched optical wavelengths
cover ultraviolet (UV), visible and
infrared optical band.

Bourns College of Engineering

Southern California Research Initiative for Solar Energy (SC-Rise)



Alfredo Morales Martinez
Managing Director
alfmart@cert.ucr.edu
1200 Columbia Avenue
Riverside, CA 92507
(951) 781-5652
<http://www.scrise.ucr.edu>

The Southern California Research Initiative for Solar Energy (SC-RISE) is a partnership of industry members, government agencies, public and private utilities, trade organizations, and academic institutions. In a collaborative environment based at UCR's College of Engineering-Center for Environmental Research and Technology, the Initiative is developing materials for solar energy, new photovoltaic devices, solar-thermal technologies and theoretical models to simulate the performance of novel device structures.

The vision of SC-RISE is to serve as an "honest broker," providing reliable, unbiased information and advice on all aspects about solar energy. SC-RISE provides a focal point for public education, demonstration projects and faculty and graduate research.

SC-RISE is a vertically integrated solar initiative with a threefold mission:

Conduct research in collaboration with government agencies and industry to advance the state of technology in photovoltaic electricity and other renewable energy concepts;

Demonstrate and assess new technologies, and help end users identify the best applications of solar energy to their needs; and

Train electrical technicians, end users, college students, and the public about solar energy concepts, installations, maintenance, and operations.

Because of its nature and scope, SC-RISE is the first of its kind – establishing alliances with complementary institutions to enhance credibility and avoid redundancy. This Initiative is filling a critically needed role as a trusted resource for information on the state of solar technology, the technical and economic feasibility of solar installations, and the benefits of solar technology.

Bourns College of Engineering

Faculty

Other Staff	Title	Email	Telephone
Alfredo Martinez Morales	Managing Director	alfmart@cert.ucr.edu	(951) 781-5652
Sadrul Ula	Researcher	sula@cert.ucr.edu	(951) 781-5676
Faculty	Department	Email	Telephone
Alex Balandin	Electrical & Computer Engineering	balandin@ece.ucr.edu	(951) 827-2351
Matthew Barth	Electrical & Computer Engineering	barth@ece.ucr.edu	(951) 827-2992
Mitch Boretz	Dean's Office	mitch@engr.ucr.edu	(951) 827-7069
Jay Farrell	Electrical & Computer Engineering	farrell@ece.ucr.edu	(951) 827-2159
Elaine Haberer	Electrical & Computer Engineering	haberer@ece.ucr.edu	(951) 827-7174
David Kisailus	Chemical & Environmental Engineering	david@engr.ucr.edu	(951) 827-2260
Roger Lake	Electrical & Computer Engineering	rlake@ece.ucr.edu	(951) 827-2122
Ping Liang	Electrical & Computer Engineering	liang@ece.ucr.edu	(951) 827-2261
Cengiz Ozkan	Mechanical Engineering	cozkan@engr.ucr.edu	(951) 827-5016
Mihri Ozkan	Electrical & Computer Engineering	mihri@ece.ucr.edu	(951) 827-2900
Masaru Rao	Mechanical Engineering	mprao@engr.ucr.edu	(951) 827-5870
Sheldon Tan	Electrical & Computer Engineering	stan@ece.ucr.edu	(951) 827-5413
Kambiz Vafai	Mechanical Engineering	vafai@engr.ucr.edu	(951) 827-2135
Valentine Vullev	Bioengineering	vullev@engr.ucr.edu	(951) 827-6239

Winston Chung Global Energy Center (WCGEC)

This new center will advance solutions for today's energy storage demands, while developing far-sighted energy storage research and energy-use strategies for tomorrow's applications. Bridging the gap between industry and academia, the center will contribute to the economic, social and environmental health of communities around the world. This innovative center will:

- Foster a premier academic environment of research and discovery in sustainable energy, with a focus on storage issues;
- Educate a diverse and distinguished engineering workforce that is dedicated to addressing global energy needs;
- Offer tools and training that will increase the capacity of public and private planners, architects, engineers, utilities and developers to design and build energy-efficient community projects;
- Reach out to global organizations and businesses as a partner in fostering clean energy storage solutions; and
- Inspire leadership and community action to address energy storage issues in California and the world.

A Vision for Global Energy Storage

Energy, the motive force of civilization, will be more efficiently and sustainably employed through advanced technologies which integrate its generation, storage and distribution.

Goals of the Winston Chung Global Energy Center

- Advance solutions for today's energy storage demands;
- Develop far-sighted energy storage research and energy-use strategies for tomorrow's applications;
- Foster a premier academic environment of research and discovery in sustainable energy, with a focus on storage issues;
- Educate a diverse and distinguished engineering workforce that is dedicated to addressing global energy needs;

Bourns College of Engineering

- Offer tools and training that will increase the capacity of public and private planners, architects, engineers, utilities and developers to design and build energy-efficient community projects;
- Reach out to global organizations and businesses as a partner in fostering clean energy storage solutions; and
- Inspire leadership and community action to address energy storage issues in California and the world.



Reza Abbaschian, Director

Winston Chung Global Energy Center

Bourns Hall A203
Riverside, CA 92521

(951) 827-2942

Henry Rolando Gomez, Research Development Engineer

hgomez@cert.ucr.edu

(951) 781-2562



Winston Chung
Global Energy Center

Bourns College of Engineering

UC Riverside Holiday Calendar

	FALL 2016	WINTER 2017	SPRING 2017
Academic and Administrative Holidays	November 11	January 16	March 31
	November 24-25	February 20	May 29
Winter Break	December 10-31		
Spring Break		March 27-31	
Commencement		June 16-19	June 16-19

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Bourns College of Engineering

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We Engineer Excellence

