Dear Prospective Graduate Student,

We are very pleased that you are considering the UIC Department of Electrical and Computer Engineering to pursue your advanced studies. Our department offers programs of study leading to master's and doctoral degrees which educate and prepare students for rewarding careers in research, education and industry.

Electrical and Computer Engineers continue to stay in demand in the job market and remain the drivers for innovation. Our students are exposed to and trained in a very multidisciplinary research with collaborations within other engineering areas and across colleges in health sciences areas. In order to meet the demands of a rapidly evolving field, we are highlighting four innovative thrust areas: Biotechnology, Nanotechnology, Information Technology and Infrastructure and Energy Technology.

ECE graduate students benefit from individualized attention from their academic advisors; the ratio of PhD students to faculty is low. Our students find positions that lead to satisfying careers after graduating, sometimes even before. Our department consists of 27 tenure-track faculty members, 504 undergraduate and 168 graduate students.

Our faculty has a broad range of expertise, and many professional achievements:

- Eight have received the prestigious CAREER and Young Investigator awards from the National Science Foundation and other federal agencies
- Many of our faculty have served as presidents or editors of various IEEE societies
- Sixteen of our faculty are IEEE Fellows
- The majority are also Fellows of other peer societies
- Two are UIC Distinguished Professors
- Several have received IEEE and Peer Society named awards

We invite you to explore the exciting opportunities available to you. Learn about our programs, visit the department and discover our interdisciplinary research topics. I hope that you will discover that ECE offers the research environment, instruction and curriculum to significantly contribute to your professional development.

Sincerely,

Rashid Ansari, Professor and Interim Head
Graduate Programs

The UIC Department of Electrical and Computer Engineering offers graduate programs leading to the following degrees:

- Master of Science, Electrical and Computer Engineering
- Doctor of Philosophy, Electrical and Computer Engineering

Course Offerings

**Bioelectronics and Biomimetics:**
Biomedical Imaging, Biomedical Instrumentation, Biomedical Sensors, Biomedical Signal Processing, Computational Biology, Intelligent and Adaptive Systems, Rehabilitation Engineering, and Surgical Intervention

**Computer Engineering:**

**Electromagnetics, Device Physics and Electronics:**
Electromagnetics, MEMS and Nanotechnology, Microelectronics, Optoelectronics, Power Electronics, and Solid-State Electronics

**Information Systems:**

Admissions, Policies and Regulations

Prospective students must submit an online application. Applicants who seek a research assistantship should write directly to faculty members in their area of interest after they are admitted to the MS or PhD program by the department. All international applicants are required to submit scores from the Graduate Record Examinations for admission. The GRE is recommended of all applicants seeking financial aid.
INTERDISCIPLINARY RESEARCH

Nanotechnology

Professors Dutta, Feinerman, Ghosh, Metlushko, Shi, Stroscio and Z. Yang

The goals of the Nanotechnology area are to study new concepts and to utilize and develop novel nanoscale devices and systems. Nanotechnology involves the manipulation and use of matter at the scale of atoms and molecules. On such a small scale, quantum effects cause the properties of materials to change quickly and dramatically. The resulting materials can exhibit greater strength, conductivity, elasticity or reactivity when synthesized on the nanoscale. The research is sponsored by National Science Foundation, Office of Naval Research, NASA, Army Research Office, Air Force Office of Scientific Research and Defense Advanced Research Projects Agency.

Thin Films Research

Electrical, optical, thermal and magnetic properties of various semiconducting and insulating material are explored by Professor Ghosh and his students. Type II strained layer InAs/GaSb superlattice (SLS) heterostructure infrared detectors are studied by extensive 14 band k.p modeling of the SLS bandstructure the properties explored with varying SLS dimensions. Novel passivation techniques for longer wavelength infrared materials are explored via surface preparation techniques and atomic layer deposition (ALD) of sulfide layers. The interest in passivation stems from our recent work on developing high performance avalanche photodiodes operating in MWIR for single photon counting. Complex oxides are also studied by various techniques for multiferroic microwave devices and thermoelectric applications.

Oxide Research for Optoelectronics

Professor Zheng Yang and his students are exploring ZnO optoelectronic and photovoltaic devices such as light emitting diodes (LEDs) and solar cells in ZnO thin film by growth, doping, and bandgap engineering with a plasma-assisted oxide molecular beam epitaxy (MBE) system. ZnO LEDs are attractive, potentially a cheaper alternative for GaN LEDs towards solid-state lighting. Correlated oxide epitaxial thin films such as vanadium oxides will be grown using MBE. The device physics of correlation effect in oxide thin films of the correlated oxides such as phase transition field effect transistors are being studied.

Integration of Semiconductor Nanocrystals

Numerous manmade semiconducting nanostructures have been synthesized and integrated semiconductor quantum dots have been assembled in nanocomplexes that include biomolecules. In addition, their interactions are modeled in the Nanoengineering Research Laboratory of Professors Dutta and Stroscio. A key goal is integration of semiconductor nanostructures in functional electronic and optoelectronic networks.

Nanoscale Concepts and Devices

Electron transport and carrier scattering processes are being studied in carbon nanotubes, DNA and other biomolecules, as well as in quantum dots and wires in materials with bandgaps ranging from the ultraviolet to the infrared. A primary application of these studies is for the realization of novel electronic and optoelectronic devices. Among the scattering processes modeled for nanostructures – including quantum wells, quantum wires, and quantum dots – are polar-optical-phonon-electron interactions, piezoelectric interactions, and deformation potential interactions. These modeling efforts take into account both the confinement of charge carries and phonons. In addition, the effects of phonon confinement on thermal transport are modeled. The graduate students in the Nanoengineering Research Laboratory are pursuing both experimental and theoretical research.
Biotechnology

Professors Dutta, Graupe, Lin, Metlushko, Schonfeld, Stroscio, Tuninetti and Zefran

The mission of the Biotechnology area is to develop new ways to detect and treat disease through advanced diagnostic techniques. Our relationship with the University of Illinois Medical Center at Chicago facilitates many unique research endeavors. The research is sponsored by federal agencies including the National Science Foundation, National Institutes of Health and the Army Research Office.

3-D Nano-Fabrication for Engineering and Bio-Medical Applications

Professor Metlushko’s research group works across several science and engineering disciplines including electrical engineering, bio-engineering research, cell and molecular biology, and nano and micro-fabrication. The direct writing on the surface is the most fundamental step in any nano and micro-structure fabrication in science and engineering. The e-beam lithography (EBL) system is flexible and high-resolution equipment for direct writing. It is a perfect solution for the patterning of any surfaces in engineering, bio, medical, micro-optics, micro fluidics, sensors and all other applications that require resolution better than 100nm. All fabrication is performed by faculty, graduate, undergraduate and high-school students in the UIC’s Nanotechnology Core Facility (NCF).

Communicating Through Physical Interaction

Under a project aimed at developing robot assistants for the elderly, Professor Zefran and his collaborators are studying how humans convey their intent when they physically interact with other humans. Haptics, the science of touch, is part of a broader research agenda in the Robotics Laboratory, where other projects include a haptic dental simulator used by dentistry students to learn how to perform dental procedures such as caries detection and tartar removal.

Integrating Nanostructures with Biological Structures

Professors Stroscio and Dutta have developed techniques to bind manmade nanostructures to biological structures. Biological cell membranes are around eight nanometers thick. A semiconductor quantum dot is attached to a transmembrane protein (an integrin), which spans the cellular membrane. A biomolecule is utilized to bind the integrin to the quantum dot. The ultimate goal is monitoring and controlling biological processes, and possibly treating diseases such as cancer.

Chemical and Biological Toxin Detectors

Chemical and biological toxin sensors are being investigated by Professors Stroscio and Dutta to develop sensors that can detect single molecules of chemical and biological toxins. Fluorescent semiconductor quantum dots are functionalized with aptamers to selectively detect bacteria, biomarkers and chemical toxins and heavy metals.

Closed Loop Deep Brain Stimulation (DBS)

Certain degenerative neurological disorders, such Parkinson’s Disease and Essential Tremor, can be treated with DBS which delivers a high-frequency electrical stimulation to target neurons in the brain. Currently the stimulation is delivered uninterruptedly, (open loop). Professors Graupe and Tuninetti, with UIC neurosurgeon Dr. K.V. Slavin, showed that DBS stimulation need not be continuous for patients to experience improvements. Thus the design of next generation of ‘closed loop’ DBS systems where the stimulation adapts automatically and continuously to the patient’s instantaneous condition is now possible.

RF Tomography

Professor Erricolo conducts research on a novel remote sensing system called RF tomography, which employs a set of low-cost configurable electromagnetic transmitters and receivers placed around a region of interest. RF Tomography uses waveform diversity in various dimensions, including space, time, frequency, and polarization. As an example, RF tomography was proposed to provide images of underground objects.
Information Technology

Professors Ansari, Ben-Arie, Devroye, Dutt, Erricolo, Khokhar, Liu, Rao, Schonfeld, Tuninetti, Wu, Zefran and Zhu

The Information Technology area focuses on identifying opportunities to apply a broad range of knowledge to challenges in the areas of parallel computing, signal and image processing, and VLSI/CAD and computer architectures. This research is sponsored by the National Science Foundation, Air Force Office of Scientific Research, U.S. Department of Energy, and a number of Industries.

Neural Dynamic Programming for Automatic Engine

The complexity of both modern automobile engines and the fuel combustion process make vehicle emissions difficult to control. Professor Liu leads a team of researchers in developing algorithms that can simultaneously control engine torque and engine air-fuel ratio. These algorithms will be capable of learning and subsequently adjusting to different environments.

Human Motion Recognition

Professor Ben-Arie has developed an innovative method for human activity recognition from videos. It was extended to a multidimensional Vector Array Recognition by Indexing and Sequencing (VARIS), which is currently being used for recognition of: speech, gestures, faces and objects. VARIS has many potential applications and is being employed in a NSF funded research on multimodal communication with robotic assistant for the elderly using speech, gestures and haptics.

Multimedia Communications

Graduate students and faculty collaborate with industry leaders—such as Motorola, NTT DoCoMo, Neomagic and R2 Technology—to improve global multimedia mobile communications. Projects involve video tracking, retrieval, foveation, networks, processors and security.

Routing Algorithms of FPGA and VLSI Circuits

Two of the most pressing issues in modern day nano-scale CMOS VLSI chip design are: (a) power dissipation, and (b) lithography and manufacturing problems leading to appreciable variability in the physical and electrical parameters of fabricated logic devices and interconnects. Also, it is not enough to just optimize them (i.e., minimize power or maximize chip yield in the presence of variability). A host of other issues need to be simultaneously tackled, such as satisfying circuit speed constraints, and addressing reliability in the form of crosstalk constraints. Modern chip design is thus an extremely complex problem, and new algorithmic techniques are needed in CAD tools that can obtain high-quality designs in reasonable amounts of time. Professor Dutt and his students are currently developing new optimization algorithms, including “discretized network flow” that they have recently pioneered, that can be applied effectively and efficiently to modern chip design problems. Their efforts have already yielded a tool that can obtain between 15-20% power reduction in chips compared to the best current industry tools. His group also works in the related areas of trusted chip design, fault and defect tolerant designs, combinatorial optimization and parallel processing.

Scalable Memory Architecture

Computer systems with many-core processors have increasing demands on memory performance, capacity and energy-efficiency. Professor Zhu and her students are working on scalable memory architectures that can efficiently support next-generation memory devices for high performance, large capacity and low power consumption.

Design for Reliability for Nanoelectronic Systems

Professor Rao works on addressing the reliability challenge in emerging electronic systems based on nanoscale devices. Her research focuses on coming up with novel defect and fault tolerant computational paradigms, and the approaches range from computer architecture to logic gate level. Her other research interests include VLSI Test and Computer Aided Design.
Infrastructure and Energy Technology

Professors Erricolo, Devroye, Li, Mazumder, Tuninetti, Uslenghi and H. Y. Yang

Infrastructure and energy technology creates new developments in wireless and wired networks, power and sensor networks, and information assurance.

Research sponsors include the Office of Naval Research, Department of Defense and the Air Force Office of Scientific Research.

Next Generation Power Electronics

Power-electronics innovations supported by federal organizations and industry are being developed by Professor Mazumder and his graduate and undergraduate students. They are devising:

(a) next-generation high-frequency-link power topologies for photovoltaic, wind, fuel-cell, and energy-storage systems using smart switching, wide-bandgap devices, and nanocrystalline magnetics;
(b) optically-switched high-voltage wide-bandgap devices and power converters; and
(c) novel switching-sequence and switching-transition control for system control of power converters at device level.

Energy Conservation Research

Thermal Conservation Technologies, a UIC-ECE start-up by Professor Feinerman, is developing a ½” thick vacuum insulation panel (VIP) which can achieve an R50, and will cost about $4/square foot. It uses tensile structural elements as thermal impedances and has a puncture resistant stainless steel foil exterior. It is based on a recently allowed UIC patent.

Management in Wireless Networks

That wireless networks are interference limited is at the core of the design of current networks, where resources are divided among users so as to avoid interference. Recently bandwidth saturation has contributed to the realization that this paradigm is incorrect and leads to a severe spectrum inefficiency. Professor Tuninetti studies novel methods of interference management in wireless networks, including user cooperation, relaying and cognitive radio.

Cognitive Radio

Wireless spectrum is at present rigidly divided among services and spectrum bands are licensed to service providers with exclusive use. However, certain bands are utilized only for small fraction of time. This opens up the possibility for ‘smart’ unlicensed users to utilize these bands. Professors Devroye and Tuninetti are actively studying the fundamental limits of cognitive radio technology -- a novel paradigm that aims to determine fundamental performance tradeoffs of wireless networks where ‘smart’ unlicensed users coexist with ‘oblivious’ legacy users so as to achieve optimal spectrum utilization.

Two Way Communications

While communication between computers, between cellular devices, and between people is naturally two-way in nature -- two parties usually want to exchange messages -- current technology treats the two streams of data to be exchanged independently, which is known to be sub-optimal in general. Professor Devroye works towards determining the fundamental limits of networks which carry two-way data streams by treating them together, thereby seeking to answer questions such as when and whether treating two-way streams independently is optimal, and if not, what is?

Student Testimonial

Alex Dyto, PhD Student (student with D. Tuninetti and N. Devroye)

I had a fantastic and productive research experience as an UIC undergraduate. My desire to be at the forefront of research and technology, to obtain a profound understanding of an area, and to have a positive effect on the global community by enhancing our knowledge base has led me to go pursue my Ph.D. degree at UIC. I particularly enjoy the close interaction with faculty and their passion for research, which keeps me motivated and enthusiastic about my research work. My ultimate goal is to stay in academia to help produce well qualified engineers ready to take on many of the world problems.
RESEARCH FACILITIES

Department Research Laboratories

Andrew Electromagnetics Laboratory
*Professors Erricolo, Li, Uslenghi and H.Y. Yang*
The anechoic room of the Andrew Electromagnetics Lab is equipped for antenna measurements between 2 GHz and 26.5 GHz. Automated radiation pattern measurements are available with a network analyzer connected to a PC.

Computational Intelligence Laboratory
*Professor Liu*
Computational Intelligence Laboratory research programs bring together the results of academic research in the field of computational intelligence and the problems encountered in engineering practice. Current application areas include traffic control management in telecommunication networks and learning control methodologies for automotive engines.

Design Automation and Reconfiguration Technology Laboratory
*Professor Dutt*
The Design Automation, Reconfiguration and Testing Lab facilitate automation projects and the computer-aided design and testing of FPGA and VLSI circuits.

Laboratory for Energy and Switching Electronics Systems
*Professor Mazumder*
Prof. Mazumder LESES leads power-electronics research with focus on interactive power-electronics/power networks, smart grid, and energy storage; Renewable and alternative energy based power electronics systems for distributed generation and microgrid; SiC and GaN based high-frequency, high-temperature, and high-voltage power electronics; and optically triggered wide-bandgap power-electronic device and control technologies.

Multimedia Communications Laboratory
*Professors Ansari and Schonfeld*
The Multimedia Communications Lab is focused on the analysis and processing of multimedia signals in emerging multimedia communication applications. Research spans the areas of speech, image and video processing, and communications. Projects are devoted to multimedia storage, retrieval, wireless communication and sensor networks, data hiding and watermarking, and image, video, and multimedia signal analysis, with emphasis on multidisciplinary research.

Machine Vision Laboratory
*Professor Ben-Arie*
The Machine Vision Laboratory researches machine perception in image understanding, motion analysis and auditory perception, using methods based on Image Processing, Computer Vision and Pattern Recognition disciplines. Presently, the lab has a network of 2D and 3D cameras installed for activity and object recognition. An interactive GUI of the human motion composition system and other demos are accessible at http://vision.ece.uic.edu.

Multimedia Systems Laboratory
*Professor Khokhar, Ansari and Schonfeld*
Computing resources in the Multimedia Systems Lab include a terabyte storage cluster and a Beowulf cluster. Projects involve content-based storage and retrieval for multimedia applications and distributed multimedia database systems and networks.

Nanoengineering Research Laboratory
*Professors Dutta and Stroscio*
The Nanoengineering Research Laboratory involves the study of nanostructures including carbon nanotubes, graphite-based microstructures with nanoscale thicknesses, and graphene-bases thin films. In addition, a parallel component of research
focuses on nanoscale modifications of DNA and creation of semiconductor nanocrystals. Properties of quantum dots suspended in solution are studied. Atomic force microscopes, fluorescence microscopes and lasers are available to aid in these studies.

**Nanophotonics Research Laboratory**  
*Professors Li, Erricolo, Uslenghi and H.Y. Yang*

Nanometer scale devices provide unprecedented opportunities to manipulate light at sub-wavelength scale. They are widely used for integrated communication and imaging systems, molecule and particle manipulation, bio-sensors, etc. Challenge exists in how to overcome the diffraction limit. The research of this lab focuses on optics at micro- and nano-meter scale. Specific topics include integrated planar optics for imaging and sensing applications, optical antennas and other plasmonic devices for light harvesting and bio-sensing, numerical electromagnetics, etc. The research scope also extends to the interdisciplinary area of optics, mechanics and bio-medicine. The lab received donations of several laser systems and related peripheral instruments from HP Research Labs.

**Robotics Laboratory**  
*Professor Zefran*

The focus of the Robotics Laboratory is on interdisciplinary research in the areas of human-robot interaction, robot networks and safety-critical cyber-physical systems. Resources include a pair of Puma 560 manipulators, a number of mobile robots and several haptic devices.

**Wireless Communications Laboratory**  
*Professors Tuninetti and Devroye*

Research efforts in the Wireless Communications Lab include the pursuit of the ultimate performance limits of interference channels, cooperative communications, relaying systems, two-way communication networks, and cognitive radio. A state-of-the-art software defined radio platform, under the direction of Professor Devroye, serves as a testbed for these future wireless technologies.

**Campus Research Centers**

**Nanotechnology Core Facility**  
*Professor Metlushko*

The Nanotechnology Core Facility is versatile MEMS/Nano facility and is accessible to nonprofit and industrial researchers. Equipment is available for: photolithography, thin film deposition (metals, semiconductors, and dielectrics) and etching, sample characterization (electrical, optical, and surface), dicing and lead attachment, and computer aided design workstations. The facility also contains a microfabrication laboratory with a 3,000 squarefoot Class 100/1000 clean room that enables a broad spectrum of innovative multidisciplinary research. There is also a microfluidics center for studying properties of nanodrops. The NCF provides access and hands-on training that allows our users to pattern structures as small as 25nm on a wide range of substrates ranging from Si and glass to polymers and bio-compatible materials.

**Research Resource Center**

The Research Resources Center maintains and supports high-technology scientific equipment, addressing a wide range of problems for chemical, biological and structural characterization. In addition, the availability of computational and statistical services for data handling, interpretation of experimental results and data transfer, together with the accessibility of electronic and mechanical shops further enhance the RRC's mission of contributing to research at UIC.
FACULTY

• Sixteen Fellows of IEEE among our faculty
• Nine Fellows of 10 additional peer societies
• Eight National Science Foundation and other agency CAREER award recipients
• Two UIC Distinguished Professors

Lo’ay Abu Salah, Lecturer, PhD, University of Illinois at Chicago, 2006
Wireless Sensor Networks, Computer Networking, and Interdisciplinary Product Development

Rashid Ansari, Professor, PhD, Princeton University, 1981
Image and video analysis, compression, communication; digital signal processing; filter banks, wavelets.

Jezekiel Ben-Arie, Professor, PhD, The Technion-Israel Institute of Technology, 1986
Computer Vision, Pattern, Speech, Human and Motion Recognition, Image Processing, Video Analysis

Wolfgang-Martin Boerner, Emeritus Professor, PhD, University of Pennsylvania, 1967
Electromagnetics, wave propagation, direct and inverse scattering; radar, microwave imaging

David E. Borth, Professor, PhD, University of Illinois at Urbana-Champaign, 1979
Wireless communication systems, digital communication systems, digital signal processing applications

Vahe Caliskan, Lecturer, PhD, Massachusetts Institute of Technology, 2000
Power electronics, analog circuit design, automotive electronics and computer-aided modeling/simulation

Natasha Devroye, Assistant Professor, PhD, Harvard University, 2007
Multi-user information theory, cognitive and wireless networks, adaptive radar, and two-way communications

Shantanu Dutt, Professor, PhD, University of Michigan, 1990
VLSI CAD, fault-tolerant computing, testing, parallel computing and computer architecture

Mitra Dutta, Distinguished Professor and Department Head, PhD, University of Cincinnati, 1981
Solid-state electronics, optoelectronics, nanostructures for sensors, bioelectronics and energy applications

Danilo Erricolo, Associate Professor, PhD, University of Illinois at Chicago, 1998
Electromagnetic scattering and measurements; wireless communications, magnetic resonance imaging; and, radar

Alan D. Feinerman, Associate Professor, PhD, Northwestern University, 1987
High efficiency and compact thermal insulation, microfluidics, and microfabrication

Kimberly Fitzgerald, Lecturer, MS, University of Illinois at Chicago, 2008
Communications, signal processing, image processing

Siddhartha Ghosh, Associate Professor, PhD, University of Michigan, 2003
MBE of compound semiconductors and multifunctional oxides; high-performance optoelectronic devices

Daniel Graupe, Emeritus Professor, PhD, University of Liverpool, 1963
Control systems, signal processing, biomedical control, neural networks, blind adaptive filtering, and wavelets

Ning Jin, Lecturer, PhD, University of Illinois at Chicago, 2011
Adaptive Dynamic Programming and Reinforcement Learning, Intelligent Control, Neural Networks

Ashfaq Khokhar, Professor, PhD, University of Southern California, 1993
Multimedia systems, networks and applications; parallel and high-performance computing
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution, Date</th>
<th>Research Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharad R. Laxpati</td>
<td>Emeritus Associate Professor, PhD</td>
<td>University of Illinois</td>
<td>Wireless and satellite communication electromagnetics: radiation; propagation;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at Urbana-Champaign,</td>
<td>scattering; and array antennas</td>
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<tr>
<td>Gyungho Lee, Professor</td>
<td></td>
<td>University of Illinois</td>
<td>Computer architecture, microprocessor and networking hardware design, compiler</td>
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<td></td>
<td></td>
<td>at Urbana-Champaign,</td>
<td>optimization, comp. security</td>
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<tr>
<td>Jingjing Li, Assistant</td>
<td></td>
<td>University of Pennsylvania, Philadelphia, 2007</td>
<td>Integrated micro- and Nano- optics, optical antenna, plasmonics and</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td></td>
<td>metamaterials, opto-mechanics</td>
</tr>
<tr>
<td>James C. Lin, Professor</td>
<td></td>
<td>University of Washington, 1971</td>
<td>Electromagnetics in biology and medicine, electromagnetic imaging and sensing,</td>
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<tr>
<td></td>
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<td></td>
<td>telemedicine</td>
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<tr>
<td>Derong Liu, Professor</td>
<td></td>
<td>University of Notre Dame, 1994</td>
<td>Adaptive Dynamic Programming and Reinforcement Learning, Complex Systems,</td>
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<tr>
<td></td>
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<td>Intelligent Control, Neural Networks</td>
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<tr>
<td>Sudip Mazumder, Professor</td>
<td></td>
<td>Virginia Tech, 2001</td>
<td>Power electronics, smart grid, renewable energy, power semiconductor devices,</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>controls, cyberphysical systems</td>
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<tr>
<td>Vitali Metlushko, Professor</td>
<td></td>
<td>Moscow State University, 1990</td>
<td>Advanced recording media, new magnetic materials and nanotechnology</td>
</tr>
<tr>
<td>Roland Priemer, Emeritus</td>
<td></td>
<td>Illinois Institute of Technology, 1969</td>
<td>Optimal and adaptive digital signal processing; neural networks; speech and</td>
</tr>
<tr>
<td>Associate Professor</td>
<td></td>
<td></td>
<td>image processing</td>
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<tr>
<td>Wenjing Rao, Assistant</td>
<td></td>
<td>University of California, San Diego, 2008</td>
<td>Reliability, Defect / Fault Tolerance, Nanoscale System Architecture, VLSI</td>
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<tr>
<td>Professor</td>
<td></td>
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<td>Test, Computer Aided Design</td>
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<tr>
<td>Dan Schonfeld, Professor</td>
<td></td>
<td>The Johns Hopkins</td>
<td>Signal Processing, Image and Video Analysis, Multimedia Systems, Genomics</td>
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<tr>
<td></td>
<td></td>
<td>University, 1990</td>
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<tr>
<td>Junxia (Lucy) Shi,</td>
<td></td>
<td>Cornell University, 2009</td>
<td>Power-converting devices, and photovoltaic materials and devices</td>
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<tr>
<td>Assistant Professor</td>
<td></td>
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<tr>
<td>Michael Stroscio,</td>
<td></td>
<td>Yale University, 1974</td>
<td>Nanoelectronics; optoelectronics; quantum transport; phonons in nanostructures;</td>
</tr>
<tr>
<td>Richard and Loan Hill</td>
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<td>and bioengineering</td>
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<td>Professor</td>
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<tr>
<td>R. Michael Tanner, Emeritus</td>
<td></td>
<td>Stanford University,</td>
<td>Information and communication theory; theory of algorithms and computational</td>
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<tr>
<td>Professor</td>
<td></td>
<td>1971</td>
<td>complexity</td>
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<tr>
<td>Daniela Tuninetti,</td>
<td></td>
<td>Ecole Nationale</td>
<td>Information and coding theory; applications in multiuser networks and wireless</td>
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<tr>
<td>Associate Professor</td>
<td></td>
<td>Supérieure des</td>
<td>communications</td>
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<td></td>
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<td>Télécommunications, 2002</td>
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<tr>
<td>Piergiorgio L. E. Uslenghi,</td>
<td></td>
<td>University of Michigan, 1967</td>
<td>Electromagnetics, optics, microwaves, scattering theory, radar imaging,</td>
</tr>
<tr>
<td>Distinguished Professor</td>
<td></td>
<td></td>
<td>metamaterials, nanoelectronics, applied mathematics</td>
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<tr>
<td>Kaijie Wu, Assistant</td>
<td></td>
<td>Polytechnic University, 2004</td>
<td>VLSI CAD, cryptanalysis countermeasures, secure communications acceleration</td>
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<tr>
<td>Professor</td>
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<tr>
<td>Hung-Yu Yang, Professor</td>
<td></td>
<td>University of California, Los Angeles, 1988</td>
<td>Electromagnetics applications to microwave circuits and antennas</td>
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<tr>
<td>Zheng Yang, Assistant</td>
<td></td>
<td>University of California, Riverside, 2009</td>
<td>Electronic materials and devices; semiconductor thin films and nanostructures</td>
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<tr>
<td>Professor</td>
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<tr>
<td>Milos Zefran, Associate</td>
<td></td>
<td>University of Pennsylvania, 1996</td>
<td>Robotics, control of hybrid systems, haptics, humanrobot interfaces,</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td></td>
<td>rehabilitation devices</td>
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<tr>
<td>Zhichun Zhu, Associate</td>
<td></td>
<td>College of William and Mary, 2003</td>
<td>Computer architecture, parallel and distributed computing, performance</td>
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<tr>
<td>Professor</td>
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<td>The Johns Hopkins University, 1990</td>
<td>Signal Processing, Image and Video Analysis, Multimedia Systems, Genomics</td>
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Your Kind of Town

Chicago is:

• The third largest city in the United States with nearly 3 million in population and more than 9 million people residing in the greater metropolitan area
• An affordable big city, ranking eighth in the cost of living index
• A city of diverse neighborhoods representing many nationalities from around the world
• 29 miles of lakeshore with Lake Michigan and its beaches adjacent to downtown
• A city known for its great nightlife, restaurants, shopping, culture, museums and sports
• The home to 30 of the Fortune 500 companies including Baxter International, Boeing, Motorola, Abbott Laboratories and Exelon

UIC is:

• Home to a College of Engineering that takes pride in its academic excellence and its 121 outstanding faculty, including one member of the National Academy of Engineering, 45 Fellows of professional societies and 25 National Science Foundation award recipients
• The engineering school of choice for 2098 undergraduate and 969 graduate students
• The largest university in the Chicago area with 25,000 students, 15 colleges and more than $290 million in annual research expenditures
• The home of the Great Cities Commitment in which students join faculty and staff in community, corporate, government and civic partnerships to improve the quality of life around the world
• Among the top 50 universities in federal research funding
• Located within walking distance of the vibrant Chicago Loop business district providing distinct ties with many companies hiring UIC graduates

www.ece.uic.edu

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