ELECTRICAL AND COMPUTER ENGINEERING
Graduate Programs

PROGRAM OVERVIEW

The Division of Electrical & Computer Engineering is a leader in research, teaching, and service in a field that is crucial to the world's economy. It is the largest and most active electrical and computer engineering division at both the undergraduate and graduate levels in Louisiana. It offers both a Master of Science and Doctor of Philosophy in Electrical Engineering and has 18 full-time faculty who are leading experts in their fields, providing hands-on research experience and mentoring you throughout your graduate studies.

PROGRAM HIGHLIGHTS

- Our students conduct cutting-edge research and are published in premier journals and conferences.
- Our students receive financial support from various scholarships, fellowships, and assistantships.
- Graduate students consistently receive job offers with salaries above the national average.
- Graduate students are working at companies such as Google, Microsoft, Intel, Cisco, Qualcomm, Garmin, Entergy, and numerous universities in the United States and abroad.
- Many of our graduates are business owners, CEOs, and/or vice presidents of major corporations.

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FACILITIES AND RESOURCES

- Entergy Smart Grid & Renewable Power Lab: Synchronous generators, solar panels, and smart grid equipment for microgrid analysis and control purposes.
- Cognitive Radio Lab; Wireless communication, coding, and information theory; security in wireless networks; and signal and image processing.
- Computer Architecture Lab: High-performance, energy-efficient, reliable, and secure computer design.
- Electronic Material and Device Lab: Semiconductor material growth and characterization, device fabrication and device measurements.
- Graphic & Visual Computing Lab: Three-dimensional computer graphics, vision, and visualization research.
- Information Sensing, Learning, and Security Lab: Information processing, transmission, and security.
- Micro-Biomedical Lab: Development and application of microscaled devices based on MEMS and microfluidic technology.
- PreSonus Digital Signal Processing Lab: Biomedical and ultrasonic signal processing, speech processing, wireless networking, and algorithm design.
- Center for Advanced Microstructures and Devices: Synchrotron radiation source in the UV and X-ray regions. Micro/nano fabrication facility.

FACULTY RESEARCH AREAS

Theda Daniels-Race (tdrace@lsu.edu)
Nanotechnology: synthesis and characterization of hybrid nanoelectronic materials and structures; custom-designed apparatus for thin-film deposition; experimental observation and testing of electro-optical phenomena; development of next-generation solid-state electronic devices

Mehdi Farasat (mfarasat@lsu.edu)
Grid integration of renewable energy and energy storage systems, with the focus on grid-feeding and grid-forming inverters, Intelligent energy management techniques in renewable energy and electrified transportation systems, vehicle-to-grid (V2G) and grid-to-vehicle (G2V) applications, wireless power transfer for high-voltage, high-power applications

Guoxiang Gu (ggu@lsu.edu)
Networked control systems and consensus control; estimation, detection, and security for distributed sensor networks; robust, optimal, and adaptive control with industrial applications

Amin Kargarian (kargarian@lsu.edu)
Power systems operation and planning, decentralized/distributed optimization, decision-making in smart grids, renewable energy and energy storage integration, infrastructure interdependency analyses in future power systems

David Koppelman (koppel@ece.lsu.edu)
Computer architecture and computational accelerators including those for machine learning, graph-analytic, scientific, graphical, and other workloads such as GPUs (graphical processing units), TPUs (tensor processing units of all kinds), and FPGA accelerators

Xue-Bin Liang (xbliang@lsu.edu)
Coding theory and number theory, algorithm and complexity, wireless communications, information theory

Shahab Mehraeen (smehraeen@lsu.edu)
Power systems stability; renewable energies; smart grid; energy conversion; and nonlinear, adaptive, and decentralized control

Xiangyu Meng (xmeng5@lsu.edu)
Control theory and applications, perception, planning, control, and coordination for autonomous agents, connected and autonomous vehicles, electric vehicles, and intelligent transportation systems

Morteza Naraghi-Pour (naraghi@lsu.edu)
Wireless communications, communication theory, telecommunication networks, signal and image processing, machine learning

Kidong Park (kidongp@lsu.edu)
Novel bioreactor for biopharmaceutical and tissue engineering, bio-MEMS and microfluidic devices, single cell analysis, cellular biomechanics, resonant MEMS devices, bioanalytic instrumentation

J. (Ram) Ramanujam (jxr@ece.lsu.edu)
Optimizing compilers, high-performance computing, embedded systems, low-power computing, computer architecture

Jerry Trahan (jtrahan@lsu.edu)
Algorithms, models of parallel computation, theory of computation, RFID protocols, and robot algorithms

R. (Vaidy) Vaidyanathan (vaidy@lsu.edu)
Algorithms, distributed and parallel computing, autonomous robot swarm coordination, education research

Georgios Veronis (gveronis@lsu.edu)
Theory and simulation of photonic materials and devices, nanoscale photonic devices, plasmonics, computational electromagnetics

Shuangqing Wei (swei@lsu.edu)
OFDMA networks, multiple antenna systems, communications

Hsiao-Chun Wu (hwu1@lsu.edu)
Statistical signal processing, wireless communications, topological and graph data analysis, high-dimensional data inference, artificial intelligence and machine learning, localization and tracking, human machine interface, bioinformatics and biomedical engineering, indoor radar technology, computational science

Jian Xu (jianxu1@lsu.edu)
Biomedical instrumentation, bio-nanoelectronics, image-guided surgery, biomedical imaging

Xiangwei Zhou (xwzhou@lsu.edu)
Wireless communications, statistical signal processing, coexistence of wireless systems, Internet of Things, and machine learning for intelligent communications