

FACULTY



COMMUNICATIONS, SIGNAL PROCESSING, AND NETWORKING

Salman Asif
Bir Bhanu
Roman Chomko
Basak Guler
*Yingbo Hua

Hamed Mohsenian-Rad
Samet Oymak
Amit Roy-Chowdhury
Ertem Tuncel

*Lead Faculty



INTELLIGENT SYSTEMS

Nael Abu-Ghazaleh
Salman Asif
*Matt Barth
Bir Bhanu
Jay Farrell
Basak Guler

Konstantinos Karydis
Hyoseung Kim
Hamed Mohsenian-Rad
Samet Oymak
Shaolei Ren
Amit Roy-Chowdhury
Nanpeng Yu

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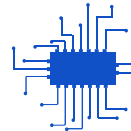


COMPUTER ENGINEERING

Nael Abu-Ghazaleh
Hyoseung Kim
Shaolei Ren
*Sheldon Tan
Hung-Wei Tseng

Albert Wang
Daniel Wong

*Lead Faculty



NANOTECHNOLOGY, ADVANCED MATERIALS, AND DEVICES

*Alexander Balandin
Xi Chen
Ran Cheng
Shane Cybart
Elaine Haberer

Sasha Korotkov
Roger Lake
Jianlin Liu
Ming Liu
Mihri Ozkan

*Lead Faculty

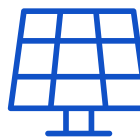


CONTROL AND ROBOTICS

Matt Barth
Bir Bhanu
Roman Chomko
Jay Farrell
Konstantinos Karydis
Anastasios Mourikis

*Wei Ren
Amit Roy-Chowdhury

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POWER SYSTEMS AND SMART GRID

Matt Barth
*Hamed Mohsenian-Rad
Shaolei Ren
Nanpeng Yu

*Lead Faculty

[Nael Abu-Ghazaleh](#) (University of Cincinnati): Computer systems (computer architecture support for security, networking, and distributed systems). Parallel computing.

[Salman Asif](#) (Georgia Institute of Technology): Compression sensing. Computational and medical imaging. Machine learning.

[Alexander Balandin](#) (University of Notre Dame): Graphene properties and applications. Nanoelectronics. Thermal transport nanoscale phonon engineering; Photovoltaics. Thermoelectronics.

[Matthew Barth](#) (UC Santa Barbara): Transportation systems and automation technology, and their relationship with energy and air quality issues.

[Bir Bhanu](#) (University of Southern California): Video networks and bioinformatics. Computer vision. Machine Learning and pattern recognition. Image and Video databases. Robotics. Artificial Intelligence.

[Xi Chen](#) (University of Texas at Austin): Nanoscale materials, devices, and circuits. Advanced materials and devices for spin caloritronics, thermoelectrics, thermal management, and lithium ion batteries.

[Ran Cheng](#) (University of Texas at Austin): Fundamental physics and innovative applications in antiferromagnetic thin films and nanostructures.

[Roman Chomko](#) (University of Miami): Atmospheric correction of ocean color imagery: use of Junge power-law size distribution. Communications and Signal Processing. Control and Robotics.

[Shane Cybart](#) (UC San Diego): Nanoscale materials, devices, and circuits. Basic science and research applications of Josephson devices.

[Jay Farrell](#) (University of Notre Dame): Aided inertial navigation for highway applications. Adaptive approximation-based control systems. Online planning and system performance optimization.

[Basak Guler](#) (Pennsylvania State University): Developing scalable, privacy-preserving, and context-aware communication and information processing frameworks for large-scale distributed networks.

[Elaine Haberer](#) (UC Santa Barbara): Bio-template materials for electronic, optoelectronic, and energy applications. Design and fabrication of micro- and nano- cavities on low threshold and sensing applications. Photoelectrochemical and etching processes.

[Yingbo Hua](#) (Syracuse University): Signal processing, wireless communications, and sensor networks.

[Konstantinos Karydis](#) (University of Delaware): Modeling and control of nonlinear uncertain and stochastic systems, uncertainty quantification and probabilistic model validation. Motion planning, navigation, and control of underactuated legged and aerial robots under uncertainty.

[Hyoseung Kim](#) (Carnegie Mellon University): Multi-Core OS and virtualization for Embedded and Cyber-Physical systems.

[Alexander Korotkov](#) (Moscow State University): Quantum computing with superconducting qubits. Quantum measurements. Nanoelectronics.

[Roger Lake](#) (Purdue University): Nanoelectronics, molecular electronics, photovoltaics, and sensing. Electron transport through nanostructured materials and interfaces. Electronic functionality from atomistic structure.

[Jianlin Liu](#) (UC Los Angeles): Zinc-Oxide based semiconductors and Van der Waals 2D materials system. Nanophotonic Light Sources (Zinc-Oxide LEDs and lasers, Nanolasers). Nonvolatile memories.

[Ming Liu](#) (UC Berkeley): Near-field scanning optical microscopy. 2D material Optoelectronics. Modified PDMS-stamp transfer for 2D fabrication. Plasmonics.

[Hamed Mohsenian-Rad](#) (University of British Columbia): Power systems: transmission, distribution, and resource management. Smart Grid: sensors, controls, and communications. Electricity market. Optimization Theory and Applications. Game Theory and Applications.

[Anastasios Mourikis](#) (University of Minnesota): Autonomous vehicle localization. Multi-robot systems. Estimation in mobile sensor networks; vision-aided inertial navigation. Simultaneous localization and mapping.

[Samet Oymak](#) (California Institute of Technology): Principled algorithms with a solid theoretical foundation with good trade-offs between speed, accuracy, scalability, and data-efficiency.

[Mihri Ozkan](#) (UC San Diego): Molecular electronics and non-Si based electronics. Bio-nanotechnology for cancer treatment and imaging. Hybrid electronic and optoelectronic devices.

[Shaolei Ren](#) (UC Los Angeles): Security for IT and IT for Security by enhancing the security of computer systems and leveraging computer systems to make cyber-physical systems more secure.

[Wei Ren](#) (Brigham Young University): Cooperative control algorithm design. Networked cyber-physical systems. Autonomous vehicles. Distributed sensor networks. Object-oriented multiple ground robot and UAV experiments.

[Amit Roy-Chowdhury](#) (University of Maryland): Computer Vision and Image Processing. Statistical Signal Processing and Pattern Recognition. Face and soft biometrics. Vision sensor networks. Machine learning. Multimedia. Biomedical image processing.

[Sheldon Tan](#) (University of Iowa): Modeling and analysis for Accelerated Aging Effects for Copper Interconnect ICs. VLSI reliability, resilience, fault-tolerant computing and dynamic reliability management. Dynamic thermal management for multi-core 3D microprocessors.

[Hung-Wei Tseng](#) (UC San Diego): Computer Engineering. Computer Architecture. Storage Systems. Research projects include intelligent data storage, building efficient heterogeneous computers, and machine learning assisted data storage.

[Ertem Tuncel](#) (UC Santa Barbara): Information theory, distributed source coding in sensor networks. Source-channel coding. Retrieval from high-dimensional databases and limits of retrieval performance.

[Albert Wang](#) (SUNY at Buffalo): RF/analog/mixed-signal integrated circuits (IC), design for reliability and ESD protection. System-on-a-chip (SoC). IC CAD and modeling. Nano devices and circuits.

[Daniel Wong](#) (University of Southern California): Computer architecture, spans data centers, micro architecture, parallel architecture and embedded systems.

[Nanpeng Yu](#) (Iowa State University): Smart grid technology. Big data applications in power distribution systems. Restructured electricity market. Renewable energy integration.