AREAS OF RESEARCH

COMMUNICATIONS, SIGNAL PROCESSING, AND NETWORKING

- Investigation and development of communication and signal processing theories
- Algorithms and systems for wireless and network communications
- Video and multimedia technologies

INTELLIGENT SYSTEMS

- Theoretical foundations and applications of computer vision, machine learning, and pattern recognition
- Cyber-physical and autonomous systems
- Intelligent transportation systems, multimedia technologies, and image/video bioinformatics

COMPUTER ENGINEERING

- Design and implementation of hardware and software systems
- Computer architecture, VLSI design, real-time and embedded systems
- Networked systems from small scales (e.g. Internet of Things) to large scales (e.g. data centers)
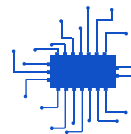
NANOTECHNOLOGY, ADVANCED MATERIALS, AND DEVICES

- Theoretical, computational, and experimental investigation of nanostructures
- Development of new bio- and opto-electronic materials, devices and circuits
- MEMS and photonics

CONTROL AND ROBOTICS

- Theories and methods of modeling, identification and design of highly complex control systems
- Planning and analysis of motion, navigation and control of autonomous vehicles and robotic systems
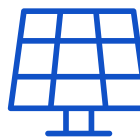
POWER SYSTEMS AND SMART GRID

- Development and demonstration of smart grid applications
- Power system analysis and optimization
- Electricity market design
- Renewable energy integration
- Power system security