

NGES University Research Focus Areas

Research Area	Technology Focus or Interest
Advanced Electronics and Materials	Explore advanced circuit designs, novel semiconductor materials and devices (improved dielectrics, nanomaterials, metal systems, magnetic, ferroelectric), new approaches for surface treatments, and improved interfaces
Agile Lasers	Investigate the fundamental physics and novel approach for wide spectral range, higher optical power, and inherent thermal control of quantum cascade lasers (QCL).
Atomic/Quantum PNT Sensors	Fundamental and applied research in atomtronics (quantum physics and quantum state manipulation of atoms) and high dynamics and rugged quantum sensing systems for inertial sensors and highly stable clocks
Cognitive Processing and Machine Learning	Explore machine learning and decision aiding algorithms including biomorphic approaches (exploiting analog physical basis functions for computation). Develop cognitive processing and sensing concepts
Multiband EO/IR Detectors	Develop novel concepts for MWIR and LWIR detectors leading to high sensitivity, non-cryocooled focal plane arrays
Quantum Sensing and Processing	Broad based investigation of free space quantum sensing, quantum information processing algorithms, and quantum simulation
Science of Test	Investigate methodologies for machine learning algorithm and cognitive system validation and verification (V&V)
Software Safety	Explore novel methods and methodologies for designing and testing software intensive systems which are inherently safe.