

# Engineering Research at the University of South Alabama

## Chemical and Biomolecular Engineering

Dr. Grant Glover [glover@outhalabama.edu](mailto:glover@outhalabama.edu)

- z Adsorbent materials including metalorganic framework (MOF) carbons, and composites
- z Fibers functionalized with nanostructures and quantum dots
- z Surface chemistry

Dr. Silas Leavesley [leavesley@outhalabama.edu](mailto:leavesley@outhalabama.edu)

- z Develop biomedical and clinical imaging and detection methods
- z Illumination technologies in imaging
- z Hyperspectral imaging and analysis
- z Microscopy, endoscopy, and small animal fluorescence imaging

Dr. Brooks Rabideau [brabideau@outhalabama.edu](mailto:brabideau@outhalabama.edu)

- z Predicting thermodynamic and transport properties of ionic liquids
- z Molecular simulations of biomass dissolution
- z Binary adsorption in metalorganic framework using molecular simulation
- z Yield stress determination using squeezing flow
- z Noninvasive imaging of paste extrusion using MRI velocimetry
- z Self-assembly of nanoparticle superlattices

Dr. Nicholas Sylvester [nsylvest@outhalabama.edu](mailto:nsylvest@outhalabama.edu)

- z Microcontinuum fluid mechanics
- z Multicomponent adsorption
- z



# Engineering College Research

## **Dr. John Cleary** [cleary@southalabama.edu](mailto:cleary@southalabama.edu)

- z Post-disaster structural evaluation and investigation
- z Forensic analysis, investigation, and evaluation
- z Large and small scale structural testing (including in-service)
- z Construction vibration evaluation and investigation
- z Concrete testing, experimentation, and evaluation

## **Dr. Trung Do** [trungdo@southalabama.edu](mailto:trungdo@southalabama.edu)

- z Hurricane wind, wave, and surge
- z



## College of Engineering

### Points of contact:

#### Dean

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#### Associate Dean, Research

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#### Chemical and Biomolecular Engineering

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Interim Chair  
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#### Civil, Coastal, and Environmental Engineering

Dr. John Cleary, Chair  
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#### Electrical and Computer Engineering

Dr. Yusef El-Sharkh,  
Interim Chair  
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#### Mechanical, Aerospace and Biomedical Engineering

Dr. Anh-Vu Phan,  
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#### Systems Engineering

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## Engineering

### Coastal Engineering

#### Dr. Nigel Temple [natemple@southalabama.edu](mailto:natemple@southalabama.edu)

- z Coastal resilience, vulnerability, and adaptation
- z Nature-based shore protection including living shorelines
- z Coastal mapping, monitoring, and measurement studies
- z Biological responses to physical processes (e.g., waves)
- z Low-cost environmental sensing
- z Citizen science, stakeholder-driven coastal research

#### Dr. Kaushik Venkiteshwaran [kvenkiteshwaran@southalabama.edu](mailto:kvenkiteshwaran@southalabama.edu)

- z Chemical and biological wastewater treatment
- z Advanced oxidation targeting organic contaminant and pathogen destruction
- z Developing bio-adsorbents for nutrient recovery and contaminant removal
- z Modelling microbial interactions in natural and engineered environments
- z Relating microbes to biological process performance
- z Developing novel microbial cultures for wastewater treatment

#### Dr. Bret Webb [bwebb@southalabama.edu](mailto:bwebb@southalabama.edu)

- z Coastal resilience, vulnerability, and adaptation
- z Highways and bridges in the coastal environment
- z Natural hazards including coastal storms and sea level rise
- z Nature-based shore protection including living shorelines
- z Coastal mapping, monitoring, and measurement studies

#### Dr. Kevin McE [kwhite@southalabama.edu](mailto:kwhite@southalabama.edu)

- z Drinking water, wastewater, & storm water treatment
- z Constructed wetlands for wastewater and storm water treatment
- z Onsite and small-community wastewater technologies and management
- z Decentralized wastewater technologies and concepts
- z Micro-pollutants (pharmaceuticals, etc.) in wastewater & their treatment
- z Low-impact development (storm water management) practices

#### Dr. Shenghua Wu [shenghuawu@southalabama.edu](mailto:shenghuawu@southalabama.edu)

- z Asphalt technology and pavement engineering
- z Smart, resilient and green pavement materials characterization and design
- z Advanced laboratory characterization for asphalt binders and mixtures
- z Pavement recycled materials, rehabilitation and maintenance, and sustainability
- z Pavement performance and modeling, mechanistic-empirical pavement design

# Engineering Research at the University of South Alabama

## Electrical and Computer Engineering

### Dr. Yousef El-Sharkh [yelshark@uthalabama.edu](mailto:yelshark@uthalabama.edu)

- z Smart grid
- z Distributed generation
- z Renewable and alternative energy systems and virtual power plants
- z Integration of renewables with smart grid
- z Phasor measurement units and wide area monitoring systems
- z Multiagent systems and distributive control
- z Energy storage systems
- z Power system planning and control, power quality, and power electronics
- z Artificial intelligence (intelligent optimization techniques) in power system problems

### Dr. Na Gong [nagong@uthalabama.edu](mailto:nagong@uthalabama.edu)

- z Artificial intelligence (AI) technology
- z Intelligent data-enabled computing circuits and systems
- z Wearable mobile systems
- z Multilevel (device/circuit/architecture/application) efficient and privacy-preserving IC circuits and systems
- z Energy-efficient computing
- z Memory systems for video, vision, and deep learning
- z Neuromorphic computing
- z Embedded vision

### Dr. Aurangzeb Khan [akhan@uthalabama.edu](mailto:akhan@uthalabama.edu)

- z Multijunction super high efficiency solar cells (GaAs/Si)
- z Single-junction solar cells on low-cost Si and Ge substrates
- z Defects in optoelectronic devices
- z Microelectronics, design of integrated circuits, low-voltage/low-power MEMS simulation
- z Radiation-hard electronic materials; nanostructures, nanoelectronics, solid state sensors for space applications
- z Advanced materials for PhotoElectroChemical (PEC) hydrogen production, nanocomposites, carbon nanotubes and nanofibers

### Dr. Hulya Kirkici [hkrci@uthalabama.edu](mailto:hkrci@uthalabama.edu)

- z Electrical insulation
- z Pulsed power engineering
- z Breakdown characteristics of dielectrics
- z Compact plasma switches
- z Pulsed plasmas
- z Laser and lidar systems

### Dr. Saeed Latif [slatif@uthalabama.edu](mailto:slatif@uthalabama.edu)

- z Antennas and sensors for biomedical devices
- z Large-scale antenna arrays for wireless systems
- z Metasurfaces for millimeter wave applications
- z Miniaturized antennas for satellite applications
- z z





