

CONNECT. COLLABORATE. INNOVATE.

Andrew E. Byrd

Director | OCIC

andrewbyrd@southalabama.edu

Michael Chambers

Assistant VP | Research Innovation

michaelchambers@southalabama.edu

Lynne Chronister

VP | Research and Economic Development

lchronister@southalabama.edu

251.460.7932

southalabama.edu/ocic

775 N University Blvd, Suite 150 | Mobile, AL 36608



**CORE RESEARCH
COMPETENCIES**

COMPUTING

Critical Infrastructure Protection

Computer systems and risk analysis for protecting the nations critical infrastructure (e.g. electrical grids, traffic signals and control devices)

Advanced Persistent Threats

Prevention of what may be the greatest single threat to internet use, APTs

Cyber Situational Awareness and Risk Assessment

Identifying threats, quantifying risk and creating solutions critical to business functioning optimally in the face of internet threats

Internet of Things

Increasing connectivity to ensure efficient communication and interaction across various platforms

Big Data and Cloud Computing

Advancing techniques to identify correlations in large databases leading to improvements in medical research and healthcare

Supervisory Control and

Data Acquisition (SCADA)

Expanding remote monitoring and control through advanced human-machine interfaces

Health Informatics

A research center for risk assessment of healthcare data and systems

Insider Threats

Studying technology and man-machine interface sciences to prevent, detect, and respond to attacks made by trusted parties

Computing Forensics and Digital Investigations

Preventing, detecting and illuminating malicious activity in information systems and networks

Secure Software Development

Investigating techniques to improve rigor in software development to prevent computing system threats

ARTS AND SCIENCES

Ionic Liquids

Researching use of ionic liquid in greenhouse gas capture, thiol-ene chemistry, as well as their properties such as thermal behavior and biomass processing

Bio and Computational Chemistry

Discovering drugs and enzyme interactions through computational modeling

Organic Compounds

Studying the effects of non-classical energy forms on organic reactions as well as the structure of organometallic compounds using NMR and crystallography

Forecasts

Studying hurricane modeling, sea breezes, and improved techniques for the use of surface-based in-situ meteorological instruments

Geographic Information Sciences

Using geographic information systems and 3D modeling to analyze health, water quality, urban land use, hazards, and climatology

Evolutionary Processes

Investigating evolutionary biology, herpetology, systematics, and fossil plants in Mobile and Baldwin County

Ecosystems

Studying stress tolerance of the biome in the Mobile Tensaw Delta

Center for the Study of War and Memory

Founded in 2012, USA Center for the Study of War and Memory is the only academic center in the world focused specifically on the phenomenon of collective memory in relation to armed conflict.

MEDICINE

Neonate and Infant Monitoring

Developing leads to assess accurate heart rate and body temperature in the delivery room

DNA Vaccine

Studying DNA vaccines that generate both a humoral and a cytotoxic immune response

Cardiovascular Disease Treatment

Identifying novel strategies to treat cardiovascular disease utilizing humanized enzymes

Metabolomics, Proteomics & Molecular Oncology

Focusing on cellular mechanisms of DNA repair, DNA damage and DNA metabolism in cancer development and for cancer treatment

Cancer Biology

Studying cancer stem cells, cancer biomarkers for detection and progression and molecular mechanisms of cancer progression

Cancer Control and Prevention

Reducing the risk, incidence and mortality from cancer and enhance the quality of life of cancer survivors

Chemoprevention and Experimental Therapeutics

Synthesizing novel compounds with potential for highly selective anti-cancer activity

ENGINEERING

Silver Nanoparticles

Examining green manufacturing of silver nanoparticles (AgNPs) and their application in multiple industry sectors

Polymer Composite Materials

Establishing manufacturing processes for polymer composite materials (RTM, VARTM)

Molecular Imaging and Microscopy

Developing hyperspectral imaging fluorescence microscopy technologies that allow detection of cells and proteins within tissues

Additive Manufacturing

Researching novel 3D print techniques and devices for complex and curved shapes

Biometric Security Solutions

Designing liveness detection systems utilizing energy in a persons face for security solutions

Task Specific Ionic Liquids

Developing uses of custom tailored ionic liquids in areas including batteries and carbon capture and sequestration

Solid State Drive Algorithm

Identifying novel load balancing algorithms for increased data retention of DVRs

WE ARE INNOVATORS