



UNIVERSITY OF
SOUTH CAROLINA
Office of Research

2019 Summer Research Symposium

Thursday, August 1, 1:30 – 3:00 pm, Hollings Program Room in the Thomas Cooper Library

Sponsored by the Office of the Vice President for Research

SC Advancing Diversity in Aging Research Program

1 - Is Grandma still Smoking Cigarettes? Detect Smoking Events using AI in Smartwatch Technology

Alaina Smith, Claflin University, Orangeburg, SC, Computer Science-Junior

Mentors: Dr. Homayoun Valafar, USC Columbia, Computer Science and Engineering

Mr. Chrisogonas Odhiambo, USC Columbia, Computer Science and Engineering

2 - Automated Fall Detection Using Artificial Intelligence with Smartwatch Data

Jasmine McKenzie, Claflin University, Orangeburg, SC, Computer Science-Junior

Mentors: Dr. Homayoun Valafar, USC Columbia, Computer Science and Engineering

Mr. Chrisogonas Odhiambo, USC Columbia, Computer Science and Engineering

3 - Test-Retest Reliability of a Measure of Structural Integrity of Interhemispheric Motor Pathways in Chronic Stroke

Kiariah Muller, Claflin University, Orangeburg, SC, Biology-Senior

Mentors: Dr. Jill Stewart, USC Columbia, Columbia, SC, Physical Therapy Program, Exercise Science

Alli Lewis, USC Columbia, Physical Therapy Program, Exercise Science

4 - Barriers that may Negatively Affect Cervical and Colorectal Cancer Prevention and Interventions Among Rural Health Care Providers

Chesni Cobb, Claflin University, Orangeburg, SC, Biology-Junior

Mentor: Dr. Jan Eberth, USC Columbia, Epidemiology and Biostatistics

5 - Health status of older Hispanic populations in South Carolina

Monai Mitchell, Claflin University, Orangeburg SC, Biology-Senior

Mentor: Dr. Myriam Torres, USC Columbia, Public health

6 - The Investigation of Resveratrol Regulated Gene Expression in the Gut (Small Intestine and Colon) in Mice with EAE

Zhane Chandler, Claflin University, Orangeburg, SC, Biology-Senior

Mentor: Dr. Narendra Singh, USC School of Medicine, Pathology, Microbiology and Immunology

7 - Influence of socioeconomic and financial factors on the use of adjuvant hormonal therapy among older adults diagnosed with breast cancer

Terika Williams, Claflin University, Orangeburg, SC, Biology-Senior

Mentor: Dr. Tisha Felder, USC Columbia, Columbia, SC, Nursing

8 - Privacy and Security for Telehealth Devices

London Thompson, Claflin University, Orangeburg, SC, Computer Engineering-Junior

Mentor: Dr. Csilla Farkas, USC Columbia, Computer Science and Engineering

9 - The Effect of Ing4 Knockdown on Hematopoiesis

Eden Wiggins, Claflin University, Orangeburg, SC, Biology-Junior

Mentor: Dr. Katie Katherein, USC Columbia, Biological Sciences

10 - Influence of obesogenic diets on adipose and ovarian tissue aging in drosophila melanogaster

Kristin Tolbert, Claflin University, Orangeburg, SC, Biology-Junior

Mentor: Dr. Alissa Armstrong, USC Columbia, Biological Sciences

Summer Research Internship

11 - Depletion of serotonin regulates leptin's ability to reduce food intake

Katie Jimenez, College of Charleston, Charleston, SC, Psychology-Senior

Mentors: Dr. Claudia Grillo, USC School of Medicine, Pharmacology, Physiology, and Neuroscience

Dr. Lawrence Reagan, USC School of Medicine, Pharmacology, Physiology, and Neuroscience

12 - The Effect of Intranasal Leptin Administration on feeding behavior and neuronal activation

Jeseca Crawford, College of Charleston, Charleston, SC, Biology-Senior

Mentors: Dr. Claudia Grillo, USC School of Medicine, Pharmacology, Physiology & Neuroscience

Dr. Lawrence Reagan, USC School of Medicine, Pharmacology, Physiology & Neuroscience

McNair Junior Fellows Program

13 - Autonomous 3D Coverage of Underwater Structures

James Johnson, USC Columbia, Computer Engineering-Sophomore

Mentors: Dr. Ioannis Rekleitis, USC Columbia, Computer Science and Engineering

Ms. Nare Karapetyan, USC Columbia, Computer Science and Engineering

14 - Detection of CRISPR Mediated Nucleic Acids using Biological Nanopore

Roberto Gambarini, USC Columbia, Biomedical Engineering-Senior

Mentor: Dr. Chang Liu, USC Columbia, Biomedical Engineering

15 - Assessing the ability of resveratrol releasing scaffolds to support healthy dietary changes as a treatment strategy for type 2 diabetes

Hayley Hall, USC Columbia, Biomedical Engineering-Junior

Mentor: Dr. Michael Gower, USC Columbia, Biomedical Engineering

16 - Sustainable healthy building design

Lisa Falta, USC Columbia, Civil Engineering-Senior

Mentor: Dr. Shamia Hoque, USC Columbia, Civil and Environmental Engineering

17 - Examining Photoactive Properties of Polymer-Metal Composites for Solar Energy Harvesting

Natalie Duprez, USC Columbia, Chemical Engineering-Senior

Mentor: Dr. Kenneth Roberts, USC Columbia, Chemical Engineering

18 - Data Driven Composites

Andrew Anderson, USC Columbia, Mechanical Engineering-Junior

Mentor: Dr. Ramy Harik, USC Columbia, Mechanical Engineering

19 - Development of an open source, customizable, 3D printed mini quadcopter

Andrew Re, USC Columbia, Mechanical Engineering-Senior

Mentor: Dr. Nikos Vitzilaios, USC Columbia, Mechanical Engineering

20 - 3D evaluation and optimization of gas diffusion layers (GDL) for PEM fuel cells through computational fluid dynamics (CFD)

John Weiss, USC Columbia, Chemical Engineering-Junior

Mentor: Dr. John Weidner, USC Columbia, Chemical Engineering

21 - Vulnerability Assessment of Storm Water Management Ponds to Sea Level Rise in Coastal Regions of South Carolina

Carly Lawyer, USC Columbia, Civil & Environmental Engineering-Senior

Mentor: Dr. Erfan Goharian, USC Columbia, Civil and Environmental Engineering

22 - Learning Bayesian Network Structures using Curriculum Learning

Tristan Klintworth, USC Columbia, Computer Science-Senior

Mentors: Prof. Pooyan Jamshidi, USC Columbia, Computer Science

Mr. Mohammad Javidian, USC Columbia, Computer Science

23 - An Experimental Investigation to the plastic flow and strain hardening of Aluminum alloy using 3D digital image correlation

Andrew Campbell, USC Columbia, Mechanical Engineering-Senior

Mentor: Dr. Michael Sutton, USC Columbia, Mechanical Engineering

Mrs. Farzana Yasmeen, USC Columbia, Mechanical Engineering

24 - Influence of Tannic Acid on A β Oligomer-Induced Inflammation Associated with Alzheimer's Disease

Taylor Bauman, USC Columbia, Biomedical Engineering-Junior

Mentor: Dr. Melissa Moss, USC Columbia, Biomedical Engineering

25 - Viscoelastic Response of Thermoplastic - Carbon Fiber Specimen PEEK/AS4

Elsa Compton, USC Columbia, Mechanical Engineering-Senior

Mentors: Dr. Michael Sutton, USC Columbia, Mechanical Engineering

Mr. Sreehari Rajan, USC Columbia, Mechanical Engineering

26 - Characterization of NO $_x$ formation in the hydrocarbon post-flame zone

Lucas Dull, USC Columbia, Mechanical Engineering-Senior

Mentor: Dr. Sang Hee Won, USC Columbia, Mechanical Engineering

27 - Sustainable, Healthy Building Design, Part II: Effects of Ventilation Design on Bacterial Transport

Shilpkumar Patel, USC Columbia, Civil Engineering-Senior

Mentor: Dr. Shamia Hoque, USC Columbia, Civil and Environmental Engineering

28 - Hierarchical State Estimation of an Underwater Robot

Hunter Damron, USC Columbia, Computer Science and Mathematics-Junior

Mentor: Dr. Ioannis Rekleitis, USC Columbia, Computer Science and Engineering

Also supported by SCHC SURF Grant

29 - Synthesis of Core-Shell Structures for Carbon Dioxide and Hydrogenation

Eboni Brown, USC Columbia, Chemical Engineering-Sophomore

Mentor: Dr. Erdem Sasmaz, USC Columbia, Chemical Engineering

Also supported by SC Alliance for Minority Participation

30 - Leak detection while composite tube undergoes flexure testing

Omari Adams, USC Columbia, Mechanical Engineering-Junior

Mentor: Dr. Xinyu Huang, USC Columbia, Mechanical Engineering

Also supported by SC Alliance for Minority Participation

31 - Channel configuration

Brandon Fryson, USC Columbia, Civil engineering-Senior

Mentor: Dr. Enrica Viparelli, USC Columbia, Civil and Environmental Engineering

Also supported by SC Alliance for Minority Participation

Integrated Academia-Industry REU in Smart Structure Technologies

32 - Optimization of Speckle Patterns for Digital Image Correlation on Prestressed Concrete

Margaret Morgan, University of Kansas, Lawrence, KS, Architectural Engineering -Sophomore

Inzamamdeen Kassim, CUNY City College of New York, New York City, NY, Civil Engineering-Junior

Mentor: Dr. Juan Caicedo, USC Columbia, Civil and Environmental Engineering

33 - Augmented Reality for Structural Component Identification

Nicole Russo, University of Maryland, College Park, MD, Civil Engineering-Junior

Julia Bulaw, University of Alabama, Tuscaloosa, AL, Civil Engineering-Senior

Mentors: Dr. Juan Caicedo, USC Columbia, Civil Engineering

Dr. Zhaoshuo Jiang, San Francisco State University, San Francisco, CA-Civil Engineering

REU in Applied Computational Robotics

34 - Comparison of Open-Source LiDAR Data Reconstruction Packages

Ulunma Egwim, Spelman College, Atlanta, GA, Computer and Information Sciences-Senior

Mentors: Dr. Ioannis Rekleitis, USC Columbia, Computer Science & Engineering

Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering

35 - Development of Different Motion Patterns for Underwater Navigation

Micah Crumpton, USC Columbia, Computer Engineering-Senior

Mentors: Dr. Ioannis Rekleitis, USC Columbia, Computer Science & Engineering

Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering

36 - Aggregating large populations of simple robots in piecewise-algebraic environments

Rachel Moan, Winthrop University, Rock Hill, SC, Computer Science and Math-Sophomore

Mentor: Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering

37 - A Warm Restart Framework for 3D Underwater Motion Planning

Amy O'Connell, Vassar College, Poughkeepsie, NY, Computer Science-Senior

Mentors: Dr. Ioannis Rekleitis, USC Columbia, Computer Science & Engineering

Mr. Marios Xanthidis, USC Columbia Computer Science & Engineering

38 - Activity Recognition with Sparse Sensors and Wild Bodies

Christopher Clement, Florida International University, Miami, FL, Computer Science-Senior

Mentor: Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering

39 - Planning trajectories for Dubins-constrained cinematic robots

Jonathan Rietveld, Trinity Christian College, Palos Heights, IL, Computer Science and Mathematics-Senior

Mentor: Dr. Jason O'Kane USC Columbia, Computer Science & Engineering

40 - Transformation as a Defense to Adversarial Attacks against Deep Neural Network
Rabina Phuyel, Berea College, Berea, KY, Computer Science and Mathematics-Junior
Mentor: Dr. Pooyan Jamshidi, USC Columbia, Computer Science and Engineering

41 - Action plans with guaranteed coverage using unreliable robots
Jacob McCullough, University of New Mexico, Albuquerque, NM, Computer Science-Senior
Mentor: Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering

42 - Transfer Learning for Policy Adaptation to Altered Environments
Joshua Ravishankar, Middlebury College, Middlebury, VT, Computer Science-Senior
Mentors: Dr. Pooyan Jamshidi, USC Columbia, Computer Science and Engineering
Dr. Jason O'Kane, USC Columbia, Computer Science and Engineering
Mr. Jianhai Su, USC Columbia, Computer Science

SC Alliance for Minority Participation Program

43 - Whole Earth Book Catalog: A Topography of Global Book History
Vasco Madrid, USC Columbia, Computer Science-Junior
Mentor: Dr. Colin Wilder, USC Columbia, History

44 - Digital Twin Development - Desalination System
Jalen Williams, Midlands Technical College, Columbia, SC, Mechanical Engineering-Sophomore
Mentor: Ms. Rhea Matthews, USC Columbia, McNAIR Aerospace Center

45 - Measurement of Bromide and Iodide in South Carolina Rivers
Terrica Bowers, Midlands Technical College, Columbia, SC, Chemistry-Senior
Mentor: Dr. Susan Richardson, USC Columbia, Chemistry and Biochemistry

46 - Straight-party voting and its effects on down ballot participation
Garrison Davis, USC Columbia, Computer Science-Sophomore
Mentor: Dr. Duncan Buell, USC Columbia, Computer Science and Engineering

47 - Bed Form Geometry Development
Jeffrey Okeke, USC Columbia, Civil Engineering-Senior
Mentor: Dr. Enrica Viparelli, USC, Columbia, Civil and Environmental Engineering

48 - Field and Lab Evaluation of the Pavement Subsurface in the South Carolina Road Network
William Dunton, Midlands Technical College, Columbia, SC, Science-Sophomore
Mentors: Dr. Charles Pierce, USC Columbia, Civil and Environmental Engineering
Dr. Sarah Gassman, USC Columbia, Civil and Environmental Engineering

49 - Heat Transport Enhancement during water condensation using different Hydrophobic Coatings
Lakerri Adams, USC Columbia, Chemical Engineering-Junior
Mentors: Dr. Xinyu Huang, USC Columbia, Mechanical Engineering
Dr. Myoungseok Lee, USC Columbia, Mechanical Engineering

SMART Program

50 - The role of family support incarcerated youth prior to incarceration
Courtney Black, USC Beaufort, Bluffton, SC, Human Services-Junior
Mentor: Dr. Dawn Robinson, USC Beaufort, Bluffton, SC, Human Services

51 - Examining the baseline demographic characteristics and the perceived affect of stress due to food security and food insecurity in the Nutritious Eating With Soul (NEW Soul) Study

Mikayla Nelson, USC Columbia, Public Health-Senior

Mentors: Dr. Brie Turner-McGrievy, USC Columbia, Health, Promotion, Education and Behavior

Ms. Mary Wilson, USC Columbia, SC, Health, Promotion, Education and Behavior

52 - How does art and film impact immigration trends in European crossroads?

Binyamen Washington, USC Beaufort, Beaufort, Studio Art-Senior

Mentor: Dr. Juanita Alvarez, USC Beaufort, Humanities

STEM

53 - Population Study of Large Bacteriophages from Rocky Branch Creek

Quill Thomas, USC Columbia, Biochemistry and Molecular Biology-Senior

Mentor: Dr. Bert Ely, USC Columbia, Biological Sciences

54 - Flame Synthesis of Pd/CeO₂ Catalysts for Reforming and Oxidation Reactions

Jackson Jordan, USC Columbia, Chemical Engineering-Junior

Mentors: Dr. Erdem Sasmaz, USC Columbia, Chemical Engineering

Mr. Musa Najimu, USC Columbia, Chemical Engineering

55 - ALGE3D: Verification Test and Input Files for a 3-D transport model

Tristan Richardson, USC Columbia, Civil Engineering-Senior

Dr. Grace Maze, Savannah River National Laboratory, Aiken, SC, Atmospheric Technologies Group

Health Sciences

56 - Prospective Relation between Periodontal Disease and Gestational Diabetes

Craig Correia, USC Columbia, Public Health -Senior

Mentor: Dr. Anwar Merchant, USC Columbia, Epidemiology and Biostatistics

Social Sciences

57 - The Changing Political Economy of Electricity in the United States

Ben Garris, USC Columbia, Political Science & Environmental Studies-Junior

Mentor: Dr. Conor Harrison, USC Columbia, Geography

58 - Anyone Can Learn at Any Age

Tamara Nurse, USC Columbia, Integrated Information Technology-Senior

Mentor: Ms. Gina Spence, USC Columbia, USC Connect

59 - Exploring the Relation between Experimental and Naturalistic Social Looking in Preschoolers with Autism Spectrum Disorder

Felicia McGill, USC Columbia, Mathematics-Sophomore

Angelica Walker, Yale College, New Haven, CT, Neuroscience-Junior

Dr. Jane Roberts, USC Columbia, Psychology

Ms. Carla Wall, USC Columbia, School Psychology