

2018 Summer Research Symposium

Friday, July 27, 10:00 – 11:30 am, Thomas Cooper Library's Hollings Program Room

*Sponsored by the Office of the Vice President for Research
at the University of South Carolina*

Social Sciences

1 - Translation, Not Correction: The Value and Benefits of Teaching Young African-American Students to Maneuver Between African American Language and Standardized English

Chelsea Jimenez, USC Columbia, Early Childhood Education – Senior (McNair Scholars Program)

Mentors: Dr. Florencia Cornet, USC Columbia, Opportunity Scholars Program

Dr. Susi Long, USC Columbia, Early Childhood Education and Language and Literacy

Dr. Sharon White, USC Columbia, Ronald E. McNair Program

2 - Effects of Socioeconomic Status and Levels of Acculturation on the Participation Disparities of Hispanic Families in Outdoor Recreational Activities

Pinita Tovar, USC Columbia, Marketing & Finance - Senior (McNair Scholars Program)

Mentor: Dr. Florencia Cornet, USC Columbia, SC, TRIO Programs

Biological and Marine Sciences

3 - Analysis of microplastic accumulation in marine bivalves influenced by PVC coated lobster traps in Frenchman's Bay, Maine

Laura Snyder, USC Columbia, Marine Science – Junior (Magellan Scholar Program)

Mentors: Mr. Campbell Scott, Winter Harbor, ME, Marine Science

Ms. Victoria Mangus, USC Columbia, Marine Science

4 - Analysis of Bacteriophage that infect *Caulobacter crescentus* from Rocky Branch Creek

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

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

Health Sciences

5 - Regulation of food intake and neuronal activation following intranasal leptin administration

Donzelle Benton, USC Columbia, Experimental Psychology – Sophomore (Summer Internship for Undergraduates)

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

6 - Effect of Intranasal Leptin Administration upon Food Intake and Serotonin Turnover in the Rat Brain

Dylan Vaughan, College of Charleston, Charleston, SC, Biology – Senior (Summer Internship for Undergraduates)

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

7 - Early Language and Literacy Acquisition in Children with Hearing Loss

Brianna Harris, USC Columbia, Public Health – Senior (SMART Program)

Brianna Childs, USC Columbia, Public Health – Senior (SMART Program)

Mentor: Dr. Krystal Werfel, USC Columbia, Communication Sciences and Disorders

8 - Automatic Separation of Vowels in Aphasic and Apraxic Speakers

Angelica Hutchinson, USC Columbia, Biology/Psychology – Recent Graduate

Dr. Dirk den Ouden, USC Columbia, Communication Sciences and Disorders

9 - Developing a mobile website application to promote breastfeeding among pregnant African American women

McKenzie Isreal, USC Columbia, Public Health – Junior (SMART Program)

Mentor: Dr. Tisha Felder, USC Columbia, Nursing

10 - Preliminary Findings from a Pilot Study Assessing the Narrative Characteristics of an HIV Prevention Story

Morgan Leggette, College of Charleston, Charleston, SC, Public Health - Senior

Chelsea Perry, University of South Carolina, Columbia, Public Health – Senior (Magellan Scholar Program)

Mentor: Dr. Alyssa Robillard, USC Columbia, Public Health

11 - Differences in Trends of Discrimination Among Older Adults

Cedasia McQueen, USC Columbia, Public Health, Recent Graduate

Mentor: Dr. Kellee White, USC Columbia, Epidemiology & Biostatistics

12 - Examining the relationship between self-efficacy for healthy diets and fruit and vegetable intake from the NEW Soul study

Mikayla Nelson, USC Columbia, Public Health - Senior

Mentor: Dr. Gabrielle Turner-McGrievy, USC Columbia, Health Promotion, Education and Behavior

Engineering

13 - Monolithic $\text{Cu}_2\text{ZnSnS}_4$ (CZTS) thin-film heterojunction solar cell arrays fabricated by a low-cost spray pyrolysis route

Sterling Reese, USC Columbia, Electrical Engineering – Senior (SMART Program)

Mentors: Dr. Krishna C. Mandal, USC Columbia, SC, Electrical Engineering

Mr. Towhid A. Chowdhury, USC Columbia, SC, Electrical Engineering

14 - Comparison of Synthesis Methods for Pt-Ru Catalysts in Direct Methanol Fuel Cells (DMFC)

John Weiss, USC Columbia, Chemical Engineering - Sophomore (Science Undergraduate Research Fellowships)

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

Research Experiences for Undergraduates: Applied Computational Robotics

15 - Path Planning for Autonomous Survey Boats in Rivers

Adam Braude, University of Puget Sound, Tacoma, WA, Computer Science - Junior

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

16 - Assessing the Viability of Mobile Routers

Lacie Covington, Northeastern Technical College, Cheraw, SC, Computer Programming – Sophomore

Mentors: Dr. Srihari Nelakuditi, USC Columbia, Computer Science and Engineering

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

17 - Three-Dimensional Underwater Navigation for the AQUA Robot

Chris DeGuira, Georgia College and State University, Milledgeville, GA, Computer Science – Senior

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

18 - Guaranteed Coverage with a Blind Unreliable Robot

Daniel Feshbach, Haverford College, Haverford, PA, Computer Science - Junior

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

Mr. Jeremy Lewis, USC Columbia, Computer Science and Engineering

19 - Parallelized RRTs for Dubins Vehicles

Austin Gray, New College of Florida, Sarasota, FL Computer Science - Senior

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

20 - Comparison of Open Sourced Visual-Inertial State Estimation Algorithms

Alan Hernandez, MiraCosta College, Oceanside, CA, Computer Science – Sophomore

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

21 - Mapping of River Using Velodyne LiDAR Sensor

Keleigh Romine, Winthrop University, Rock Hill, SC, Computer Science - Senior

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

Dr. Alberto Quattrini Li, USC Columbia, Computer Science and Engineering

Ms. Sharmin Rahman, USC Columbia, Computer Science and Engineering

22 - Order-flipping for efficient repair of multi-robot coordination plans

Amanda Seasholtz, Valdosta State University, Valdosta, GA, Computer Science – Junior

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

23 - Testing of the Software Functionality of Robots

Anna Swanier, Claflin University, Orangeburg, SC, Computer Science - Junior

Mentors: Dr. Jason O'Kane, USC Columbia, Computer Science

Dr. Gregory Gay, USC Columbia, Computer Science

24 - Deep Learning for Pose Estimation for Cooperative Underwater Robotics

Oscar Youngquist, Rose-Hulman Institute of Technology, Terre Haute, IN, Computer Science and Computational Science - Junior

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

Mr. Md Modasshir, USC Columbia, Computer Science and Engineering

Research Experiences for Undergraduates: Chemical Engineering

25 - Investigation of CuMn_2O_4 Performance in Chemical Looping with Oxygen Uncoupling (CLOU)

Dave Chun, The Cooper Union for the Advancement of Science and Art, New York, NY, Chemical Engineering - Senior

Mentors: Dr. Bihter Padak, USC Columbia, Chemical Engineering

Ms. Turna Barua, USC Columbia, Chemical Engineering

26 - Effect of SO_2 poisoning on NiCe@SiO_2 yolk-shell nanotube catalyst during Tri- reforming of methane with simulated flue gas

Orlando Mendible, Universidad de Puerto Rico Mayagüez, Chemical engineering - Junior

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

Dr. Bihter Padak, USC Columbia, Chemical Engineering

27 - Investigating the Evolution of Modeling Parameters As NMC/Graphite Li-Ion Batteries Age

Seth Reed, Syracuse University, Syracuse, NY, Chemical Engineering - Sophomore

Mentors: Dr. Bill Mustain, USC Columbia, Chemical Engineering

Mr. Benjamin Ng, USC Columbia, Chemical Engineering

28 - Hydrogenation of 2-methyl-3-butyn-2-ol over Pd/CaCO_3 catalyst to investigate the mass transfer within a homebuilt batch reactor

Gerardo Rivera-Castro, University of Puerto Rico, Mayagüez, PR, Chemical Engineering - Senior

Mentor: Dr. Jochen Lauterbach, USC Columbia, Chemical Engineering

29 - Size-controlled Synthesis of Pt on Different Oxides and Carbon

Nicole Shannon, North Greenville University, Tigerville, SC, Mathematics- Senior

Mentors: Dr. John Monnier, USC Columbia, Chemical Engineering

Dr. John Weidner, USC Columbia, Chemical Engineering

Dr. Aili Wang, USC Columbia, Chemical Engineering

30 - Surface phase diagram of bimetallic catalyst Pt/Sn using constrained ab initio Thermodynamics

Celine Tesvara, Penn State University, University Park, PA, Chemical Engineering - Senior

Mentor: Dr. Andreas Heyden, USC Columbia, Chemical Engineering

South Carolina Advancing Diversity in Aging Research Program

31 - Communicative Function in Aphasia

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

Mentors: Dr. Julius Fridriksson, USC Columbia, Communication Sciences and Disorders

Dr. Alexandra Basilakos, USC Columbia, Communication Sciences and Disorders

32 - Exploring the Role of Nuclear Lamin A in the Regulation of Stress Response Using a Cell Culture Model of Aging

Jasmine Carter, Claflin University Orangeburg, SC, Biology - Junior

Mentors: Dr. Rekha Patel, USC Columbia, Department of Biological Sciences

Ms. Benedicth Ukhueduan, USC Columbia, Department of Biological Sciences

33 - The Effect of Resveratrol on the Expression of Genes in Epithelial Cells of Mice of EAE

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

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

34 - Barriers to Lung Cancer Screening: Insights from Primary Care Physicians and Nurse Practitioners

Shantavia Edmonds, Claflin University, Orangeburg, SC, Biochemistry – Junior

Mentors: Dr. Karen McDonnell, USC Columbia, Nursing

Mr. David Gallerani, USC Columbia, Nursing

35 - Effect of Resveratrol on microRNAs regulation in gut epithelial cells of mice with Experimental Autoimmune encephalomyelitis (EAE)

Nneora Ezeanya, Allen University, Columbia, SC, Biology - Senior

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

36 - The Influence of Amyloid- β^2 Protein on Cellular P-glycoprotein Expression

Ishawn Francis, Claflin University, Orangeburg, SC, Biology - Senior

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

Mrs. Hope Holt, USC Columbia, Biomedical Engineering

37 - Developing a Visual Model of User Interface Components for Assistive Technology for Older Adults

Hana Hailu, Benedict College, Columbia, SC, Computer Engineering - Senior

Dr. Neset Hikmet, USC Columbia, Integrated Information Technology

38 - Procedures of hospitalized dementia patients in South Carolina

Thaddeus Holiday, Claflin University, Orangeburg, SC, Biochemistry - Junior

Dr. Neset Hikmet, USC Columbia, Integrated Information Technology

39 - Effects of Aging on DNMT1 Expression in *Daphnia pulex* and *Daphnia pulicaria*

Syeda Madiha, Claflin University, Orangeburg, SC, Biology - Senior

Dr. Jeff Dudycha, USC Columbia, Biological Sciences

Mr. Trenton Agrelius, USC Columbia, Biological Sciences

40 - Health Status of Older Hispanic Populations in the United States

Monai Mitchell, Claflin University, Orangeburg, SC, Biology and Psychology - Junior

Mentor: Dr. Myriam Torres, USC Columbia, Epidemiology and Biostatistics

41 - Chronic Traumatic Encephalopathy: A Perspective from the South Carolina Alzheimer's Disease and Related Dementias Registry

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

Mentor: Dr. Maggi C. Miller, USC Columbia, Epidemiology and Biostatistics

42 - Analysis of Patient Reported Outcomes and Prediction of Effectiveness of Surgery by Use of Machine Learning

Rajendra Neupane, Benedict College, Columbia, SC, Biological Sciences - Senior

Mentors: Dr. Benjamin Schooley, USC Columbia, Integrated Information Technology

Dr. Neset Hikmet, USC Columbia, Integrated Information Technology

43 - An assessment of Elderly People with Dementia: South Carolina's Case

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

Mentors: Dr. Neset Hikmet, USC Columbia, Integrated Information Technology

Dr. Benjamin Schooley, USC Columbia, Health Information Technology

South Carolina Alliance for Minority Participation

44 - External Compression Test of Composite Nuclear Fuel Rods

Omari Adams, USC Columbia, Mechanical Engineering - Sophomore

Ethan Wagner, USC Columbia, Mechanical Engineering – Junior (externally funded research program)

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

45 - DNA Repair and Cancer Chemotherapy

Victory Agho, USC Columbia, Biological Sciences - Senior

Mentor: Dr. Michael Wyatt, USC Columbia, Drug Discovery and Biomedical Sciences

46 - Analyses of the ASB bacteria strain and Phage PSAA and bioinformatics of the CB2 gene

Angel Brown, USC Columbia, Biochemistry and Molecular Biology - Sophomore

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

47 - Investigating Interactions Between Human Tumor Cells and Associated Bacteria

Jared (JD) Dawson, USC Columbia, Exercise Science - Sophomore

Mentors: Dr. Traci Testerman, USC School of Medicine Columbia, Pathology, Microbiology and Immunology

Ms. Yvonne Hui, USC School of Medicine Columbia, Pathology, Microbiology and Immunology

48 - Application of Computational Geometry to Automatic Assistance for Art and Architecture

Nathaniel Egot, Midlands Technical College, Columbia, SC, Computer Engineering - Junior

Mentor: Dr. Francisco Blanco-Silva, USC Columbia, Mathematics

49 - Impact of Doxorubicin on fertility in mouse ovaries

Gbemisola Feko, USC Columbia, Biological Sciences - Senior

Mentor: Dr. Shuo Xiao, USC Columbia, Environmental Health Sciences

50 - Refining the chronostratigraphy of a deep-sea sediment core in the Antarctic Southern Ocean using Sr isotope stratigraphy

Jose Guzman-Cruz, USC Columbia, Geological Sciences - Sophomore

Mentor: Dr. Howie Scher, USC Columbia, School of the Earth, Ocean, and Environment

51 - Corannulene-Integrated Covalent-Organic Frameworks (COFs)

Rebecca Heugh, USC Columbia, Chemistry - Senior

Mentor: Dr. Natalia Shustova, USC Columbia, Chemistry and Biochemistry

52 - Assistive Technologies for College Students with Disabilities: A Survey of Availability, Awareness, and Barriers

Kristin Jackson, USC Columbia, Integrated Information Technology - Senior

Mentor: Dr. Ismahan Arslan-Ari, USC Columbia, Educational Studies

53 - Asymmetric Trifluoromethylation

Mia Jeanty, USC Columbia, Chemistry - Senior

Mentor: Dr. Sheryl Wiskur, USC Columbia, Chemistry and Biochemistry

54 - Experimental Investigation of Defects in Automated Fiber Placement

Kenneth Legette, USC Columbia, Mechanical Engineering - Senior

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

Mr. Roudy Wehbe, USC Columbia, Mechanical Engineering

55 - Effects of Pramlintide on Breast Cancer Cell Proliferation and Signaling

Briana Lewis, USC Columbia, Exercise Science – Junior

Mentors: Dr. Hexin Chen, USC Columbia, Biological Sciences

Mr. Mithil Soni, USC Columbia, Biological Sciences

56 - Dynamic structure calculation of proteins using RDC data and machine learning

Caleb Parks, USC Columbia, Computer Science - Senior

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

57 - ALGE3D: Input files for a three- dimensional transport model

Sydney Sanders, USC Columbia, Civil Engineering - Senior

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