

UDC RESEARCH WEEK 2023
Serving our Community Through Research
School of Engineering & Applied Sciences Research Expo
Friday, April 07, 2023 from 10:00 AM –2:30 PM
Widows Lounge, Bldg. 38 Suite 207, 4200 Connecticut Av.



| Time | Research Project Title | Presenter (s), Advisor (s) |
|------------------|--|---|
| 10:00 – 10:05 AM | Welcome – Dr. Victor McCrary, Vice President for Research | Dr. Victor McCrary |
| 10:05 – 10:10 AM | Event Coordinator Welcome and Introduction | Dr. Pradeep Behera |
| 10:10 – 10:15 AM | Welcome – Dr. Devdas Shetty, Dean, SEAS | Dr. Devdas Shetty |
| 10:15– 10:20 AM | Welcome – Dr. Lawrence Potter, CAO | Dr. Lawrence Potter |
| 10:20 – 10:30 AM | Study on Molecular Dynamics Simulation with boiling water and Platinum for different nanostructured surfaces (Research supported by NASA) | Tanjee Afreen [B.S. Mechanical Engineering] Advisor: Dr. Jiajun Xu |
| 10:30 – 10:40 AM | Security Analysis and Governance of Internet of Things (Research supported by NSF) | Antione Searcy [Ph.D. Candidate, CSIT] Advisor: Dr. Anteneh Girma |
| 10:40 – 10:50 AM | Moving towards PdNA Demonstration at Blue Plains AWWTP using Primary Sludge Fermentate (Research supported by DC Water) | Stephanie Fuentes [Ph.D. Student Civil Engineering.] Advisor: Dr. Hossain Azam |
| 10:50 – 11:00 AM | Novel solar cell made with earth abundant magnetic materials (Research supported by NSF) | Marzieh Savadkoobi [Ph.D. Candidate} Claudia Bahamon Lopez [MS Mechanical Engineering Advisor: Dr. Pawan Tyagi |
| 11:00 – 11:10 AM | Counterfactual Regret Minimization based Multiagent Decision Planning (Research supported by DOD] | Alexander-Reindorf, Nii-Emil [Ph.D. Candidate CSIT] Advisor: Dr. Paul Cota |
| 11:10 – 11:20 AM | Aquaponics with Scavenging Materials to Support Life Off Earth (Research supported by NASA) | Jonas Lee [MS Civil Engineering] Advisor:: Dr. Hossain Azam |
| 11:20 – 11:30 AM | Experimental Investigation of Capillary Performance of Additively-Manufactured Lattice Structures for Fluid Wicking Applications (Research supported by NASA) | Chance Eden & Ryan Walker [BS Mech Engineering] Advisor: Dr. Jiajun Xu |
| 11:30 – 11:40 AM | Ultrasound elastography evaluation of age-related muscle atrophy: An ex vivo study (Research supported NIH] | Bushira Musa [B.S., Biomedical Engineering] Advisor: Dr. Max Denise |
| 11:40 – 11:15 AM | Chemical sensing with molecule scale nanostructures (Research supported by NSF) | Pius Suh [Ph.D., Candidate.Mechanical Engineering Advisor: Dr. Pawan Tyagi |
| 10:50 – 12:00N | Fabrication and Testing of Helium-Ion Machined Fluidic Nanochannels (Research supported by NASA and NSF) | Jana Catuche [MS in Mechanical Engineering] Advisor: Dr. Kate Klein |
| 12:00- 12:10 PM | Unmanned Surface Vehicle for Bathymetric Mapping of Shallow Water Basins | Stephanie Sougre Rouamba, Obiara Mbanefo, Shavonne Fraley, and Steve Tagheu [B.S. Electrical & Mechanical Eng.] Advisors: Drs. Esther Ososanya and Dr. Devdas Shetty |
| 12:10 - 12:20 PM | Security Analysis of Drone Communication Methodologies and Mitigating their Risk (Research supported by | Kymani Brown [M.S. Comp. Science] Advisor: Dr. Anteneh Girma |

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| 12:20 - 12:30 PM | Wind-induced noise estimation of wind speed and direction within urban microspaces: Characterizing flow condition of urban environments | Lirane Mandjoupa [M.S. Civil Engineering Advisor: Dr. Max Denise |
| 12:30 - 12:40 PM | Trends Of Drone Security (Exploring the Effectiveness of Counter-Drone Technologies in Mitigating Security Threats <i>(Research supported by</i> | Adine barrette [M.S. Comp. Science] Advisor: Dr. Anteneh Girma |
| 12:40 - 12:50 PM | Gunshot detection from audio excerpts of urban sounds using transfers learning <i>(Research Supported by</i> | Jamelia Ancel [B.S., Mechanical Engineering Advisor: Dr. Max Denise |
| 12:50 – 1:00 PM | Using Machine Learning to predict the melt-pool depth using structural melt pool length data in Laser Powder Bed Fusion <i>(Research supported by NASA)</i> | Surya Arikatla & Feiyang Bai [GR CSIT] Advisor: Dr. J. Xu |
| 1:00 – 1:10 PM | Performance enhancement of current bio-mediated ground improvement techniques with alternative mineral precipitation <i>(Research supported by NSF)</i> | Andrae Harris [MS. Civil Eng.] Advisor: Dr. Hossain Azam |
| 1:10 – 1:20 PM | Electromagnetic radiation absorption with multilayers <i>(Research supported by NSF)</i> | Betelhiem Magesha, Arnold Feutumba, and Juan Estevez Hernandez, [BS Mechanical Engineering] Advisor: Dr. Pawan Tyagi |
| POSTER PRESENTATIONS | | |
| 1:30-2:30 PM | Development of Nano-Enhanced Micro-Encapsulated Phase-Change Materials for Passive Thermal Management and Storage surfaces <i>(Research supported by NASA)</i> | Patrick Adegbaye [UG Mech Eng.] Advisor: Dr. Jiajun Xu |
| | Life Cycle Sustainability Assessment (LCSA) of Aquaponic and Hydroponic farming systems <i>(Research supported by USDA)</i> | Assefa Tadesse [GR. Civil Eng.] Advisor: Dr. H. Azam |
| | Presentation 04: Life Cycle Sustainability Assessment (LCSA) of Aquaponic and Hydroponic farming systems <i>(Research supported by USDA)</i> | Nazia Nowshin, Michael Somersall [MS Civil Engineering] Advisor: Dr. Hossain Azam |
| | Utilizing Game Theory to Optimize Decisions for Climate Change Uncertainties in Coastal Communities <i>(Research supported by NSF)</i> | Karla Dimitri { MS CSIT} Advisor: Dr. Bryan Higgs |
| | | John Irungu Advisor: Dr. Max Denise |
| | | Dorian Davis Advisor: Dr. Max Denise |
| | | Samba Gaye Advisor: Dr. Max Denise |
| | | BME Capstone Team: Aliyah Newby, Javaun Harriot, and Glacia Martin Advisor: Dr. Max Denise |

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| | | Juan Estevez Hernandez Advisor: Dr. Max Denise |
| | | Telha Abdulbasit Advisor: Dr. Max Denise |
| | | Herve Sandja Tchamba Advisor: Dr. Max Denise |
| | | Hans Matthew Baes Advisor: Dr. Max Denise |
| | | Justin An Advisor: Dr. Max Denise |
| | Wireless Chemical pollution levels Monitoring system in Aquaponic system and water depth | Kaieem Anderson, Seriphap Phomsavath, and Jennifer Dail Advisors: Dr. Esther Ososanya and Dr. Tolessa Deksissa |
| | Design, building, and testing of nanoscale meta-material-based energy sensors | Arnold Feutmba and Bailey Garfield Advisors: Dr. Esther Ososanya and Dr. Pawan Tyagi |
| | Autonomous 'GREEN' MOWER' | Devon Newman, Temeche Sisaye, and Phillip Wrigh Advisors: Dr. Esther Ososanya |
| | Acoustic Tracking of Pulsed Sources | Vance M. Warren, Jr., and Javar Dougall Advisors: Dr. Esther Ososanya and Dr. Max Denis |
| | Portable Harness Ambulatory System | Quoc Nguyen Advisors: Drs. Esther Ososanya and Dr. Devdas Shetty |
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