WESLEY J. LEWIS

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EDUCATION

University of Virginia *August 2020 - May 2024*
B.S. Computer Science

PUBLICATIONS & PRESENTATIONS

Journal and Conference Publications

Nathaniel Hanson*, **Wesley Lewis***, Kavya Puthuveetil*, Donelle Furline Jr, Akhil Padmanabha, Taskin Padir, and Zackory Erickson,"SLURP! Spectroscopy of Liquids Using Robot Pre-Touch Sensing" IEEE International Conference on Robotics and Automation (ICRA), 2023

Wesley Lewis, Kavya Puthuveetil, Akhil Padmanabha, and Zackory Erickson,"Container Invariant Classification of Substrates Using Spectroscopy" RISS Working Papers Journal, 2022

Workshops

Luis Felipe R. Murillo, Teagan Le, **Wesley Lewis**, Mirella Shaban,"Community-Driven Environmental Sensing: From Data Acquisition to Visualization" University of Virginia School of Data Science Datapalooza, 2021

Presentations

Wesley Lewis, Kavya Puthuveetil, Akhil Padmanabha, and Zackory Erickson,"Container Invariant Classification of Substrates Using Spectroscopy" Robotics Institute Summer Scholar Poster Showcase, Carnegie Mellon University, 2022

RESEARCH EXPERIENCE

Engineers for Exploration, University of California San Diego Feb 2022 – Present
Research Assistant, Radio Telemetry Tracker Project

- Assisted in the development of a low-powered drone to conduct radio telemetry tracking missions of wildlife radio collars used for monitoring animal movement patterns.
- Developed firmware for the serial drivers of a low-powered drone using the STM32 platform.
- Wrote Ground Control Station software to change the configuration and connection timeout of the Radio Telemetry Tracker Drone.
- Assisted in the development of sleep period scheduler for Radio Telemetry's tower deployments by writing methods for timed ensemble function execution and state machine unit tests.

Link Lab, University of Virginia Jan 2022 – Present
Research Assistant, Collaborative Robotics Lab
Advisor: **Professor Tariq Iqbal**.

- Proposed and developed multi-agent learning environments with Issacgym to train agents to perform assembly tasks with cooperative reward.
- Benchmarked reinforcement learning models for continuous action spaces to log performance in simulation in preparation for Sim2Real transition.

Robotics Institute, Carnegie Mellon University May 2023 - Aug 2023
Research Intern, Robotic Caregiving and Human Interaction Lab
Advisor: **Professor Zackory Erickson**.

- Led collaborative effort with RIVeR Lab led by Professor Taskin Padir at Northeastern University using a multi-modal (spectroscopy and visual-tactile sensing) approach for robot manipulation tasks such as precision pouring and squeezing.
- Contributed to the planning and execution of a follow to SLURP! By writing out the research questions, high-level data collection steps, and demo.
- Wrote and documented action primitive controls, automated data collection scripts, serial drivers, and Arduino firmware for data collection.

University of Virginia School of Architecture Oct 2022 - Apr 2023
Research Assistant, Networked Public Spaces
Advisor: **Professor Andrew Mondschein**.

- Investigated the integration of IoT systems in public spaces for community-driven environmental sensing.
- Assisted in the deployment of a wireless sensor network in Richmond, Virginia, for environmental monitoring.
- Documented instructions for low-code visualization of particulate matter.
- Developed firmware for low-powered wireless sensors to enable low-code connections via MQTT and WiFi.

Robotics Institute, Carnegie Mellon University May 2022 - Aug 2022
Fellow in CMU@Robotics Institute Summer Scholars (RISS) Program (REU), Robotic Caregiving and Human Interaction Lab
Advisor: **Professor Zackory Erickson**.

- Wrote code to interface with two spectrometers via serial, one on the near-infrared + visual spectrum and the other on the near-infrared spectrum.
- Collected an open dataset consisting of 13 containers of varying opacity and 13 substrate (liquid and granular) combinations.
- Collaborated with RIVeR Lab led by Taskin Padir at Northeastern University and Prepared manuscript after three months, leading to a publication in ICRA.

University of Virginia School of Data Science June 2021 - Jan 2022
Research Assistant
Advisor: **Professor Luis Felipe Murillo**.

- Assisted in the development of embedded systems to integrate environmental sensors (including particulate matter, CO2, temperature, and air pressure).
- Performed SMD soldering and assembly of environmental sensor kits.
- Set up a LoRa-based, low-power wireless sensor network for the acquisition of environmental data.

WORK EXPERIENCE

University of Virginia Security Operations Center Mar 2021 – Present
Junior Analyst

- Utilized Splunk Processing Language (SPL) and investigative techniques to defend accounts and network and identify threats.
- Assisted with improving Splunk Dashboards and query automation.

TECHNICAL SKILLS

Programming Languages	C/C++, Python, Java, SQL
Software & Tools	ROS, MoveIt, Issacgym, Arduino, STM32, KiCad, ARM-Cortex
Skills	Sensor Integration, Embedded Software, Machine Learning