# WESLEY J. LEWIS

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## EDUCATION

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

## PUBLICATIONS & PRESENTATIONS

### Journal and Conference Publications

**SLURP! Spectroscopy of Liquids Using Robot Pre-Touch Sensing**
IEEE International Conference on Robotics and Automation (ICRA), 2023
Nathaniel Hanson*, Wesley Lewis*, Kavya Puthuveetil*, Donelle Furline Jr, Akhil Padmanabha, Taskin Padir, Zackory Erickson
doi: 10.1109/icra48891.2023.10161084

### Workshops

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

## RESEARCH EXPERIENCE

**Robotics Institute, Carnegie Mellon University** Aug 2022 - Present
*Research Assistant, The Robotic Caregiving and Human Interaction Lab*

Advisor, Professor Zackory Erickson.

- Continued collaboration with Professor Taskin Padir at Northeastern University on developing new sensing methods for robotic perception and manipulation of liquid and granular media.
- Investigated Generative models (CGAN and SGAN) using TensorFlow Keras for generating synthetic spectral signals for model training.

**Engineers for Exploration, University of California San Diego** May. 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.

**Link Lab, University of Virginia** Jan. 2022 – Present
*Research Assistant, Human-Robot Collaboration Lab*

Advisor, Professor Tariq Iqbal.

- Created multi-agent learning environments with Issacgym to train agents to perform assembly tasks with cooperative reward.
- Trained actor critic (A2C) models for continuous action spaces to log performance in simulation in preparation for Sim2Real transition.

**University of Virginia School of Architecture** Oct. 2022 - Apr 2023
*Research Assistant, Networked Public Spaces*

Advisor, Professor Andrew Mondschein.

- Investigated how IoT systems can be integrated into public for community driven environmental sensing.
- Assisted in the design of environmental sensors for deployment in Richmond Virginia.
- Wrote documentation of environmental sensor kit for visualization of community driven environmental sensing.
- Developed the firmware for environmental sensor connection to the internet via MQTT and WiFi.

**Robotics Institute, Carnegie Mellon University** May 2022 - Aug 2022
*Fellow in CMU@Robotics Institute Summer Scholars (RISS) Program (REU), RCHI Lab*

Advisor, Professor Zackory Erickson.

- Explored the application of NIR spectroscopy in robotics for the classification of materials in enclosed containers.
- 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 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.

- Research assistantship for the "Networked Public Spaces" project at the School of Data Science
- Aided in Embedded systems development to integrate environmental sensors (particulate matter, CO2, temperature, air pressure, etc.).
- SMD Soldered and assembled environmental sensor kits.
- Configured LoRa-based, low-power wireless sensor network for environmental data acquisition.

## WORK EXPERIENCE

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

- Identified security threats and safeguard information by eliminating or blocking threats.
- Utilized SPL and investigative techniques to defend accounts and network.
- Assisted with improving Splunk Dashboards and query automation.

## TECHNICAL SKILLS

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|---|---|
| **Programming Languages** | C/C++, Python, Java |
| **Software & Tools** | ROS, Issacgym, Arduino, STM32, Jupyter Notebook |
| **Skills** | Sensor Integration, Embedded Software |