Kelsey Horace-Herron

Gainesville, FL USA | khoraceherron@ufl.edu | linkedin.com/in/kelsey-h-45376b186

EDUCATION

UNIVERSITY OF FLORIDA Gainesville, FL
Ph.D., Computer Engineering Aug 2020 – Present
Dissertation title: *Non-invasive substances authentication using Nuclear Quadrupolar Resonance Spectroscopy*

UNIVERSITY OF FLORIDA Gainesville, FL
Master of Science in Computer Engineering 2020 – 2021

JACKSON STATE UNIVERSITY Jackson, MS
Bachelor of Science in Computer Engineering 2016 – 2020

PROFESSIONAL RESEARCH EXPERIENCE

GRADUATE RESEARCHER, RISING LAB Aug 2020 - Present
University of Florida Gainesville, FL

- Built Nuclear Quadrupolar Resonance (NQR) spectroscopy benchtop setup to test and detect a variety of substances.
- Created matching network and PCB coil for NQR system.
- Accomplished detecting harmful psychoactive drug Benzocaine in mail packaging utilizing NQR benchtop.

RESEARCH INTERN June 2022 – Aug 2022
Air Force Research Laboratory Albuquerque, NM

- Assisted with research for Drone Navigation using Machine Learning and sonar. Worked in MATLAB and Jupyter Notebook.
- Applied Linear Regression to analyze leaf audio using NumPy, for 70% accuracy.
- Managed and formatted dataset of <20000 data samples.
- Presented research during end of summer poster and PowerPoint presentations.

RESEARCH INTERN June 2020 – Nov 2020
Naval Research Laboratory Virtual

- Worked with map-reduce frameworks to perform intensive offline calculations across large amounts of data.
- Wrote services to train machine learning models from stored data and provide real-time scoring client services.

- Provide web-based interface to give high-level control over the machine-learning system to non-technical users.
- Updated and rewrote old code to reduce technical debt and improve service performance, scalability, and reliability.

UNDERGRADUATE RESEARCH INTERN May 2019 – Aug 2019
University of Florida – SURF Program Gainesville, FL

- Utilized portable handheld Near Infrared Region (NIR) Spectroscopy device to detect harmful ingredients.
- Developed skills in formal presentation, data analysis, and research methodologies.

UNDERGRADUATE RESEARCH INTERN June 2018 – Aug 2018
University of California – Berkeley Berkeley, CA

- Worked alongside Ph.D. mentor on project that was based on back-end-of-line nanotechnology reconfigurable interconnects.
- Formed SF_6 and O_2 etch recipe on a 65nm node chip to release movable beam at UC Berkeley nanofabrication laboratory.
- Collected images of 65nm node chip after etching process using scanning electron microscope (SEM).
- Tested node chip on vacuum probe station by applying voltage to find device properties.

AWARDS & FUNDING

- Graduate School Preeminence Award Fellowship Aug 2019
- Best Poster Award Oct 2022

Publications

Journal publications

- Sikder, U., Horace-Herron, K., Yen, T., Usai, G., Hutin, L., Stojanović, V.M., & Liu, T.K. (2021). Toward Monolithically Integrated Hybrid CMOS-NEM Circuits. *IEEE Transactions on Electron Devices*.
- Shomaji, S.; Masna, N.V.R.; Ariando, D.; Deb Paul, S.; Horace-Herron, K.; Forte, D.; Mandal, S.; Bhunia, S. Detecting Dye-Contaminated Vegetables Using Low-Field NMR Relaxometry. *Foods* **2021**, *10*, 2232.
- U. Sikder, G. Usai, T. -T. Yen, K. Horace-Herron, L. Hutin and T. -J. K. Liu, "Back-End-of-Line Nano-ElectroMechanical Switches for Reconfigurable Interconnects," in IEEE Electron Device Letters, vol. 41, no. 4, pp. 625628, April 2020, doi: 10.1109/LED.2020.2974473.

Posters

- Illegal Substance Detection using Nuclear Quadrupolar (NQR) Spectroscopy
- Non-Invasive Authentication of Mail Packaging using Nuclear Quadrupolar Spectroscopy

PROFESSIONAL MEMBERSHIPS

- GradNSBE
- A3EECE