RYAN TSE

Electrical Engineering and Math Student

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Sophomore electrical engineering and math student at the University of Maryland interested in the intersections of math and engineering, particularly in control theory, machine learning, and signal processing. Founder and former president and RF instrument engineer of a high school CubeSat team. Currently working on radar signal processing at Nuro, a self-driving delivery vehicle startup.

EXPERIENCE

Intern: Radar

Nuro

June 2020 – January 2021 | Remote

Developing, simulating, and implementing digital signal processing algorithms for radars on self-driving delivery vehicles.

Intern: Communications, Localization

Intelligent Automation Incorporated

June 2019 – August 2019 | Rockville, MD

Assisted in the hardware implementation of a bursty space-time continuous phase modulation receiver by analyzing quantization error. Assisted in developing indoor positioning system technology by modifying tracking filters to include IMU data.

Intern: Communications

Naval Research Laboratory

May 2018 – August 2018 | Washington, DC

Developed an efficient bursty satellite ranging protocol in GNURadio. Applied control loops to correct for channel impairments and implemented packet protocols.

Intern: Localization

Naval Research Laboratory

June 2017 – August 2017 | Washington, DC

Researched deep learning-based approaches to vehicle trilateration, working with regression models and reinforcement learning agents. Author of Publication [1].

Team Founder, President, and RF Payload Engineer

blair3sat

2017 – 2019 | Rockville, MD

Developing a CubeSat to measure 3D ionospheric charge density profiles by receiving ground-based ionospheric sounders from space. Performing DSP for the instrument and leading the team in spacecraft engineering and fund seeking in an executive capacity. Secured $6,000 of funding and two corporate partnerships in 6 months. Author of Publication [2].

EDUCATION

Undergraduate in Electrical Engineering, Mathematics

University of Maryland

Aug 2019 – Present

Select Completed Courses:

- Linear Algebra
- Multivariable Calculus
- Differential Equations
- Probability Theory
- Advanced Calculus
- Partial Differential Equations
- Differential Forms
- Electrodynamics and Modern Physics
- Signals and Systems Theory

Select Courses In Progress:

- Optimization for Control
- Computer Organization
- Device Physics
- Digital Circuits and Systems Laboratory
- Analog and Digital Electronics

TOOLS

Experienced:

Python | C | Matlab | Java | Git | Linux

Familiar:

C++ | Julia | R | Tensorflow | Keras | OpenCV | OpenAI Gym | LaTeX | Rust

Novice:

Verilog | ROS | AWS | GCP | JS/HTML/CSS

PUBLICATIONS

References

[1] D. Lofaro, C. Taylor, R. Tse, and D. Sofge, “Wearable Interactive Display for the Local Positioning System (LPS),” In 19th ACM International Conference on Multimodal Interaction (ICMI 2017) Demonstration Session, ACM, 2017.

[2] R. Tse, L. Cui, P. Kim, S. Swain, B. Cohen, and G. Das. “Space-based Ionosonde Receiver and Visible Limb-viewing Airglow Sensor (SIRVLAS): A CubeSat Instrument Suite for Enhanced Ionospheric Charge Density Measurements,” Proceedings of the AIAA/USU Conference on Small Satellites, SSC19-WP2-14.