

# RYAN TSE

Engineer, researcher, mathematician

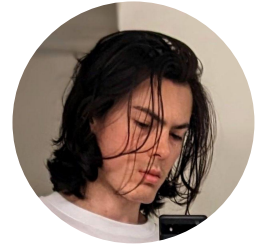
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Interested in novel applications of “pure” math to real-world problems, particularly in control theory, machine learning, and signal processing. Graduate student applying differential geometry and machine learning methods to control. Incoming research engineer at Matician, an indoor robotics startup. Former radar signal processing engineer at Nuro, a self-driving car startup.

## WORK EXPERIENCE

### Matician

Research Engineer

June 2023

Mountain View, CA

Incoming research engineer at Matician.

### Nuro

Intern (Radar)

June 2020 – August 2021

Mountain View, CA

Developed, simulated, and implemented digital signal processing algorithms for radars on self-driving delivery vehicles.

### Intelligent Automation Incorporated

Intern (Communications, Localization)

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.

### Naval Research Laboratory

Intern (Communications)

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.

### Naval Research Laboratory

Intern (Localization)

June 2017 – August 2017

Washington, DC

Researched deep learning-based approaches to vehicle trilateration, working with regression models and reinforcement learning agents. Co-author of Publication [2].

## TOOLS

Experienced:

Python

C

Matlab

Java

Git

LaTeX

Linux

Familiar:

C++

Rust

GNURadio

PyTorch

Tensorflow

OpenCV

Verilog

KiCAD

Cadence

Novice:

Simulink

JAX

ROS

AWS+GCP

JS/HTML/CSS

ARM ASM

MIPS ASM

## EDUCATION

### University of Maryland

Undergraduate Student

Aug 2019 – May 2022

College Park, MD

Double degree in mathematics and electrical engineering.

### University of Maryland

Masters Student

Aug 2022 – Present

College Park, MD

Masters degree in electrical and computer engineering, currently pursuing a thesis.

## PUBLICATIONS

- [1] 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.
- [2] 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.