Ryan Tse

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EDUCATION

UNIVERSITY OF MARYLAND
Newly Admitted Student
Electrical Engineering

MONTGOMERY BLAIR HIGH SCHOOL
Senior STEM Magnet Student
2015-2019 | Silver Spring, MD

COURSEWORK

Intro to Complex Analysis
Multivariable Calculus
Differential Equations
Linear Algebra
Senior Seminar in Statistical Research
Applied Statistics

Mathematical Physics
Intro to Quantum Physics

Analysis of Algorithms
Intro to Computational Methods

SKILLS

EXPERIENCED
Python • C • Java • Git • Linux
GNURadio • Autodesk Inventor

FAMILIAR
C++ • Matlab • R • Tensorflow • Keras
OpenAI Gym • OpenCV • LaTeX

NOVICE
Slurm • ROS • JavaScript • Groovy
Google Cloud Platform • AutoCAD

LEADERSHIP

blair3sat President
- 19 person, 4 subteam group

blair3sat RF Instrument Lead
- 4 person subteam

FRC Team 449 Software and Controls Subteam Lead
- 5 person subteam

Troop 1449 Senior Patrol Leader
- 35 person, 4 patrol troop

LINKS

GitHub:// **github.com/rytse**
LinkedIn:// **linkedin.com/in/rytse0**
Devpost:// **devpost.com/rytse**

PERSONAL SUMMARY

High school senior and Eagle Scout spearheading the development of an innovative high school CubeSat mission. Works with digital signal processing, control, and machine learning. Admitted to study electrical engineering at the University of Maryland.

WORK EXPERIENCE

NAVAL CENTER FOR SPACE TECHNOLOGY
Summer 2018 | Naval Research Laboratory | Intern
Developed an efficient bursty satellite ranging protocol in GNURadio. Applied control loops to correct for channel impairments and implemented packet protocols.

LABORATORY FOR AUTONOMOUS SYSTEMS RESEARCH
Summer 2017 | Naval Research Laboratory | Intern
Researched deep learning-based approaches to vehicle trilateration, working with regression models and reinforcement learning agents in Tensorflow. Simulated and tested robotic agents with Gazebo and robots running ROS. Author of Publication [1].

EXTRACURRICULARS

BLAIR3SAT
2017 – Present | President, Founder, and RF Payload Engineer
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].

MBHS SYSTEMS
2017 – Present | Student Researcher
Developing a reinforcement learning agent to solve incompressible flows more quickly by running RANS, LES, and DNS on different subsets of a partitioning of the simulation domain.

FIRST ROBOTICS CHALLENGE
2015 - 2017 | FRC Team 449 | Software and Controls Lead
Developed drivetrain control and automation software, lead the 2017 software team.

SCOUTING
2012 - 2018 | Boy Scout Troop 1449
Eagle Scout, served as Senior Patrol Leader, Troop Quartermaster, and Patrol Leader.

COMPETITIONS

- Bitcamp 2019, built *Open Weapon Site Finder*, won *Best Digital Forensics Hack*, runner up for *Best Machine Learning Hack*
- Kaggle's Google Cloud & NCAA 2019 ML Competition, placed 37th out of 866

PUBLICATIONS

[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.