Ryan Tse

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EDUCATION

UNIVERSITY OF MARYLAND
Freshman Electrical Engineering Major
2019-Present | College Park, MD

- Partial Differential Equations

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

- Intro to Complex Analysis
- Multivariable Calculus
- Differential Equations
- Linear Algebra
- 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
AWS • GCP • 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

Freshman electrical engineering major at the University of Maryland. Founder and former president and RF instrument engineer of an innovative high school CubeSat team. Currently pursuing advanced undergraduate research opportunities in the fields of digital signal processing, control, and machine learning. Eagle Scout for life.

WORK EXPERIENCE

Intelligent Automation Incorporated
Summer 2019 | Sensors, Signals and Systems Division | Intern
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 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. 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].

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.