Ryan Nguyen

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Technical Skills

- Proficient in Python, Javascript, Java, C++, and R
- Familiar with building full-stack websites using MongoDB, ReactJS, and MaterialUI
- Experience developing CNN models using Tensorflow

Projects

OpenBias August 2023

- Crowd-sourced platform using a website and web-extension developed to inform users of a news article's political bias. NLP model to pre-filter websites based on web-scraped data. Pushes user ratings and NLP filters onto cloud-based backend. Created during Hack the 6ix hackathon.

RNA-seq Based Convolutional Neural Network For Cancer Detection *Feb 2023 - June 2023*

- Developed and deployed on a website a convolutional neural network able to predict whether a patient's RNA-seq data is likely to be representative of cancer tissue, with the aim of improving the success rate of early cancer detection in a cost-effective manner.
- React frontend, Flask backend hosting the CNN (2.4M parameters, 98.7% accuracy, able to identify 4 types of cancer). Integrated with MongoDB database: user login and storing user predictions.

Thrust Vector Controlled Rocket *Sep 2022 - June 2023*

- Developed the software for an actively controlled rocket (thrust vector control, TVC)
- Features: attitude estimation from advanced sensor-fusion algorithms (Kalman filter, Madgwick filter) using quaternions, PID control, and live wireless flight data transmission.
- Designed PCB and assembled rocket flight computer using SMD soldering

Experience

Research Student (Paid), Ottawa Hospital Research Institute *July 2022 - Current*

Crawley Lab (Principal Investigator: Dr. Angela Crawley)

- Developed and pitched a research abstract in immunology, competing against 570 undergraduate students across Canada. Published in 2022 URNCST Journal: https://doi.org/10.26685/urncst.353
- Assisted 2 PhD projects in cancer immunology: NK cell dysfunction and MDSC expansion in the perioperative environment with PBMC isolation, flow cytometry analysis, and RNA-seq analysis.
- HIV Immunology research project: In Vitro Generation of Antigen Inexperienced Memory CD8+ T Cells by IL-15. Techniques: advanced flow cytometry, CD8+ T cell isolation, cytokine cell culturing.

Education

Bachelor of Software Engineering, *University of Waterloo,* Waterloo, Canada *2023 - 2028*

Ontario Secondary School Diploma, *Earl of March Secondary School,* Ottawa, Canada *2019 - 2023*

- *Academs: 95%* average, 1520 SAT, 5 on AP Chemistry, AP Physics 1, AP Calculus AB.
- *Activities:* Rocketry club, SHAD McGill (2021), provincial level swimming.

Awards and Honors

1st Alternate on Canadian International Chemistry Olympiad (IChO) Team *2022*

3x National Finalist (top 3%) in the Canadian Chemistry Olympiad *2021-2023*

- Gold Medal (2022), 5th place

***2x* National Finalist (top 5%) in the Canadian Biology Olympiad** *2021-2022*

- Gold Medal (2022), 9th place