LAWRENCE TSAI

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HIGHLIGHTS OF QUALIFICATION

· Incoming SWE Intern at **Capital One** (NYC, Summer 2023), Ex-SWE Intern at **Promise Robotics**, Current 4th Year student at **UofT**
· Lighthearted problem solver with full stack industry/extracurricular experience and proficiency in **Python, Java, MATLAB, and Django**
· Eager learner that is working towards mastery of **C, C++, and Machine Learning** along with advanced studies in **Math and Physics**

EDUCATION

University of Toronto - Trinity College September 2020 - Present
Honours Bachelors of Science Candidate- Mathematics (Specialist-with Physics Applications), Computer Science (Minor), Chemistry (Minor)
Toronto, ON, Canada

· **Relevant Coursework:**
Computer Science: Software Tools & Systems Programming, Software Design, Computation Theory, Computer Organization
Physics: Computational Physics, Dark Matter & Energy, Electricity & Magnetism, Classical & Quantum Mechanics
Math: Real Analysis, Groups & Symmetry, Complex Variables, ODEs & PDEs, Linear Algebra, Abstract Mathematics
Chemistry: Graduate Level Bioinorganic Chemistry, Analytical/Physical(Thermo & Quantum)/Inorganic Chemistry
Other: Philosophy of Physics & Science, Human Physiology I, Sociology, Latin I

Council Rock High School North August 2016 - June 2020
Diploma with Distinguished Honours in Gifted Program GPA: 4.283/4.0 SAT: 1580/1600 ACT: 35/36 *Newtown, PA, USA*

PROFESSIONAL/RELEVANT EXPERIENCE

Promise Robotics May 2022 - August 2022
Software Engineer *Edmonton, AB, Canada*

· 4 month internship in software **(Python, Django, React, Node.js, Docker, Databases, Robotics, CAD)**; https://promiserobotics.com/
· Top intern contributor in creating algorithms for robotic preprocessing/sequencing with applied Physics and **ML** for automated construction
· Developed and reviewed full-stack integrations with databases, security, & 3D manipulation **(Open CASCADE, Ifc, Quaternions)**

University of Toronto Biology Information Technology Department September 2022 - Present
Information Technology Support Assistant *Toronto, ON Canada*

· Maintaining and optimizing the security and robustness of internal servers, hardware, and architecture of 3 biological science departments
· Working with **Linux** environments, **TCP/IP** Protocols, & **Bash** scripting to create embedded systems for the department

Blue Sky Solar Racing May 2021 - Present
Senior Strategy Engineer *Toronto, ON, Canada*

· Optimized the construction, telemetry, & performance of our solar car for the American and World Solar Competition along with fabrication
· Conducted research on the implementation of bifacial solar cells and created simulations of cell output from weather and geographic data
· Created a parallel computed simulation **(MATLAB, Python, Ansys, CAD)** in a StratApp for future gens; http://blueskysolar.utoronto.ca/

University of Toronto Aerospace Team May 2022 - Present
Space Systems Optics Team Member *Toronto, ON, Canada*

· Development of a hyperspectral imaging CubeSat to measure anthropogenic gas emissions across Ontario, Canada. Set to launch in 2024.
· Numerical analysis **(Python)** and R&D for optical components (grisms and holographic gratings); Github: https://github.com/spacesys-finch
· Leading a team of 2 to design test plans for the optical bench (imaging, components, MTF) for the satellite; https://www.utat.ca/space-systems

PROJECTS

Quick Ocular Movements Detection July 2022-August 2022

· A webcam screening tool to detect strabismus (eye misalignment) for Dr. Etienne Benard-Seguin and Jeremy Moreau (University of Calgary)
· Used **Python, OpenCV, MediaPipe, React, Node.js, CSS, HTML, Figma** to give results at 4 mm tolerance at 95% confidence
· Conducted medical research and pitched to Neurotech professionals; Github: https://github.com/lt77777/Quick-Ocular-Movements-Detection

Amigos Friend Making Webapp September 2021-December 2021

· A webapp built using **Java, Spring Framework, Javascript, CSS, HTML, Figma** to find matches in a database of potential friends
· Implemented a weighted matching algorithm using user metadata to be used through **Thymeleaf** generated webpages deployed on **Azure**
· Designed the entire software model and frontend design to achieve an A in the course; Github: https://github.com/lt77777/Amigos-App

OTHER EXPERIENCE

L & S Landscaping March 2019 - Present
Chief Executive Officer and Founder *Lower Bucks County, PA, USA*

Started a company in high school with 25+ Employees catering 100+ customers in a 35 kilometer radius while responsible for financials, quoting, and marketing. Grossed $10,000s in revenue; https://ls-landscaping.business.site/

SKILLS

Software Skills **Python, Java, MATLAB, Django, Docker, Figma, C, C++, Open CASCADE, OpenCV, NumPy**
Certifications Self Driving Cars 4-Course Specialization by the University of Toronto (in progress)