LAWRENCE TSAI

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EDUCATION

University of Illinois Urbana-Champaign January 2024 - Present
MCS Candidate *Urbana-Champaign, IL, USA*

University of Toronto - Trinity College September 2020 - December 2023
HBSc - Math (Major), Physics (Major), Computer Science (Minor) *Toronto, ON, Canada*

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

Capital One February 2024 - Present
Software Engineer *Manhattan, New York City, NY, USA*

· On the **Real Time Decisions** Team working on a **Backend API** that processes Credit Card Applications inputs and decisions

Capital One June 2023 - August 2023
Software Engineer Intern *Manhattan, New York City, NY, USA*

· On the **Payments Intelligence** Team working on migrating transaction cache data from **Redis** to **DynamoDB** to save **$100,000+** annually
· **Redesigning** & **Implementing** the database for millisecond(s) latency for our ML model for over **240 billion transactions** annually
· Working with a **gRPC API** with **Jenkins** and utilizing **AWS** Products such as **DynamoDB, EC2, ECS, Fargate, S3, Boto3**
· First Place out of 36 teams in Intern Hackathon, created a Slackbot to summarize messages using **NLP** and **ML** over a weekend

University of Toronto Biology Information Technology Department September 2022 - April 2023
Information Technology Support Assistant *Toronto, ON Canada*

· Working with **Linux** environments, **TCP/IP** Protocols, & **Bash** scripting to create embedded systems for the department
· Maintaining department hardware and conducting **Penetration Tests** to find vulnerabilities in for 3 biological science departments

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

· 16 week internship working with **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 the **full-stack API** with UI and robotic code outputs to run physical demonstrations of our **MVP for seed investors**

University of Toronto Aerospace Team May 2022 - May 2023
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 2025.
· Numerical analysis **(Python)** and R&D for optical components (grisms and holographic gratings); Github: https://github.com/spacesys-finch
· Leading a team to design test plans for the optical bench (imaging, components, MTF) for the satellite; https://www.utat.ca/space-systems

Blue Sky Solar Racing May 2021 - April 2023
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/

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

SKILLS

Software Skills **Python, Java, GoLang, C, AWS, Databases, Git, Bash, MATLAB, Django, Docker, Linux, Figma**
Certifications **Bloomberg Market Concepts**, AWS Solutions Architect (In Progress)