

# LAWRENCE TSAI

Email: [Ltsai62@gmail.com](mailto:Ltsai62@gmail.com)   [Linkedin: www.linkedin.com/in/lawtsai](https://www.linkedin.com/in/lawtsai)   [Github: https://github.com/lt77777](https://github.com/lt77777)   [Website: https://lt77777.github.io/](https://lt77777.github.io/)

## EDUCATION

### University of Illinois Urbana-Champaign

MCS Candidate, cGPA: 4.00

January 2024 - Present

Urbana-Champaign, IL, USA

· **Graduate Coursework:** Applied Machine Learning, Text Information Systems, Data Cleaning, Data Visualization

### University of Toronto - Trinity College

HBSc - Math (Major), Physics (Major), Computer Science (Minor) with Distinction

September 2020 - December 2023

Toronto, ON, Canada

· **Graduate Coursework:** K-Theory & C\* Algebras, High Energy Physics, Formal Methods in Software Design

### Council Rock High School North

Diploma with Distinguished Honours in Gifted Program GPA: 4.283/4.0 SAT: 1580/1600 ACT: 35/36

August 2016 - June 2020

Newtown, PA, USA

## PROFESSIONAL/RELEVANT EXPERIENCE

### Capital One

Senior Associate Software Engineer

February 2025 - Present

Manhattan, New York City, NY, USA

- Building 2 **Distributed REST APIs** in **Golang** to determine decisioning experience and enroll **XX thousand card applications daily**
- Working with many downstream APIs to design/implement features to onboard new cards, create end-to-end tests, and support production
- Improving performance and converting the decisioning service into a configurable low-code solution while maintaining legacy decisioning service

### Capital One

Associate Software Engineer

February 2024 - January 2025

Manhattan, New York City, NY, USA

### Capital One

Software Engineer Intern

June 2023 - August 2023

Manhattan, New York City, NY, USA

- On the **Payments Intelligence** Team working on migrating transaction cache data from **Redis** to **DynamoDB** for our **gRPC API**
- 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

Information Technology Support Assistant

September 2022 - April 2023

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

Software Engineer Intern

May 2022 - August 2022

Edmonton, AB, Canada

- Company's first intern working with **Python**, **Django**, **Robotics**, **CAD**, **Databases** over 16 weeks; <https://promiseroobotics.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

Space Systems Optics Team Member

May 2022 - May 2023

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

Senior Strategy Engineer

May 2021 - April 2023

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  
Certifications

GoLang, Python, AWS, Java, C, MATLAB, Jenkins, GraphQL, Django, Distributed Systems  
AWS Solutions Architect - Associate, Bloomberg Market Concepts