

Caellum Yip Hoi-Lee

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EDUCATION

University of Toronto

Honours Bachelor of Science — Computer Science Admission Program

Toronto, ON

Sep 2025 – Apr 2029

- Currently in Year 1, planning to enroll in the Computer Science Specialist Program.

EXPERIENCE

Junior Developer, U of T Blueprint

University of Toronto

Sep 2025 – May 2026

Toronto, ON

- Collaborating with a non-profit organization developing software for social change.
- Developed a JWT Authentication/Middleware system with **Django REST** and **React** for the Museum of Art and Digital Entertainment in California.

Owner and Software Lead, Bronze Bat Studio

Independent Game Studio

Aug 2023 – Present

- Founded and led a small game development studio focused on **Lua** and **C#**.
- Published titles achieving over **3 million plays** and generating approximately **\$2,000** in revenue on Steam and Roblox.

Head of Programming / Co-founder, RHHS Game Design

Richmond Hill High School

Sep 2023 – June 2025

Richmond Hill, ON

- Developed and taught interactive Unity lessons in **C#** guiding members through creating a Flappy Bird-style game.
- Implemented gameplay mechanics in lessons to teach programming concepts such as conditionals, functions, and Unity physics.

Head of IT, RHHS Computer Science Club

Richmond Hill High School

Sep 2022 – June 2025

Richmond Hill, ON

- Led troubleshooting at competitive programming events and maintenance of the club's website (**TypeScript**, **SCSS**).

SKILLS AND CERTIFICATIONS

Programming Languages: Java, Python, C#, C++, Lua, R; strong in DSA and OOP

Web & Mobile Development: React, React Native, Django REST Framework, Streamlit

AI & Machine Learning: Scikit-learn, Hugging Face, Gemini AI, Moorcheh AI, Kaggle

Tools & Platforms: Git, Linux, Postman, Firebase, Jupyter Notebook, Quarto MD

Database & Concepts: SQLite3, JSON Web Tokens (JWT)

Languages: English, French, Spanish

Certifications: Ontario Secondary School Diploma (AP Student, 97% Avg), Royal Conservatory of Music — Piano Level 8

Awards: RHHS English Subject Course Award; RHHS Gold Band Certificate of Merit

PROJECTS

Apogee AI | Python, Streamlit, Scikit-learn, Gemini API, Moorcheh AI

DeltaHacks 12, Jan 2026

- Used **Louvain's clustering/modularity algorithm** and **Pyvis** to generate a 3D node map of vectorized news articles clustered by subtopics.
- Scraped articles with **Newspaper3k + NewsAPI**, vectorized text with lightweight Hugging Face transformers, and served/deployed results with Streamlit + HTML/CSS.
- Implemented **Moorcheh AI retrieval-augmented queries** and **Gemini API** to deliver a chatbot with memory and context-aware responses sourced from scraped articles.
- Deployed further transformers to filter content by political spectrum and emotion, utilizing **named-entity recognition** to plot articles on an interactive global map.

Twin Universe Space Simulator | Lua

Bronze Bat Studio, Aug 2023 – Present

- Developed a space exploration game with rocket launches, progression systems, and multiplayer missions.
- Created interactive environments and engaging mechanics leading to over **2.8 million player visits**.

JWT Authentication | *Python, Django REST*

UofT Blueprint, Oct 2025 – Present

- Developed volunteer/admin login on the inventory management platform for the Museum of Art and Digital Entertainment in Oakland, California.
- Wrote API endpoints and middleware logic for **JSON Web Token-based authentication in Django REST**, using serializers to clean/secure user inputs.

Trace Stock Market Predictor | *Python*

Dec 2025

- Used Tensor Flow to develop and train a **Long Short-Term Memory (LSTM)** network to predict stock price trends from historical market data.
- Developed a data ingestion pipeline using the **Alpha Vantage API** to clean 20+ years of global OHLC data into Pandas DataFrames.

Genetic Code/Cellular Automata Experiments | *R*

Sep 2025 – Dec 2025

- Performed computational experiments to assess SGC mutation tolerance and the impact of augmentors in **Wolfram Rule 110 cellular automata**.
- Compiled Quarto/Jupyter notebooks documenting findings.

SMS Spam Detector | *Python*

Aug 2025

- Built and trained a ML Spam/Ham text detector using SciKit Learn and Kaggle's SMS Spam Collection Dataset.

OPUS eLibrary | *Java*

Jun 2024

- Built a school library management system with student and librarian login support.
- Implemented book borrowing, account management, and eBook browsing functionality.

Custom PCB Game System | *KiCad, Arduino C++*

Oct 2024

- Designed and wired a PCB and RGB LED matrix to play games such as Tic Tac Toe and Connect 4.
- Programmed interactive game logic, input handling, and simple AI for **Arduino Uno**.