# Kellen Sun

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## › EDUCATION

**University of Waterloo**, Waterloo, Ontario — September 2023 — April 2028
BCS, Honours Computer Science with Co-op — Faculty Average: 96.7
National Math Scholarship

**Relevant Courses:**

- Designing Functional Programs (Advanced):
  - » Abstracted data structures (eg: trees, sets, lists) through modules and analyzed their time complexities.
  - » Applied functional programming concepts by representing them with lambda calculus and generating functions.
  - » Implemented simple algorithms using the RAM model of computation and machine code.
- Elementary Algorithm Design and Data Abstraction (Advanced).

**Earl of March S.S.**, Ottawa, Ontario — September 2019 — June 2023
Schulich Leader Nominee — Canadian Computing Competition (Senior) Honour Roll (Top 5%)

## › SKILLS

- **Languages:** Python, Javascript, C/C++, Rust, Scheme/Racket, HTML/CSS, VBA.
- **Frameworks and Libraries:** Flask, Django, Node.js, React.js, MongoDB, Matplotlib, NumPy, PyTorch.
- **Software and Dev Tools:** GitHub, Git, VSCode, Docker, LaTeX, Excel.

## › EXPERIENCE

**Logiscool**, Ottawa, Ontario
*Coding Instructor* — July 2022 - February 2023

- Leveraged strong technical proficiency to tutor Python data structures and control flow in imperative programming.
- Facilitated learning in various formats including EV3 robotics, Roblox Game Design, Minecraft Redstone and block-based coding by employing effective communication to make concepts understandable.
- Provided attentive supervision and mentorship to children thus creating a safe and inclusive learning environment.

**Introduction to Geometry**, Ottawa, Ontario
*Co-Founder* — July 2022 – September 2022

- Founded an organization for math and computing contest preparation.
- Designed from scratch and instructed a 12-hour long geometry course with lecture slides, problems and homework.

**Math Club**, Ottawa, Ontario
*President* — October 2021 – June 2023

- Coordinated weekly meetings creating a space for interactive learning, problem-solving, and knowledge sharing.
- Promoted club and created an engaging environment thereby growing club size to 100+ members.
- Presented keynotes on diverse math outside the high school curriculum (eg: number theory) totalling 30+ hours.

## › PROJECTS

**AI OS** — December 2023 - Ongoing

- Created a smart OS with a new shell and file system by using large language models as part of a team.
- Connected LangChain's agent tools to a shell terminal and used semantic search to find files based on text matches.
- Created a handwritten digit classification model from scratch (no libraries) using the gradient descent algorithm by applying current advances in LLMs and AI/ML.

**PokerEngine** — November 2023 - Ongoing

- Created a poker engine to autonomously host competitions between poker bots submitted to a web server.
- Simulated each table in a Docker Container to determine bots' ranking while preventing potential security issues.
- Built an executor file in Rust that enforced all game rules through a custom protocol.

**OpenBias**, Hack the 6ix — August 2023

- Developed web app and Chrome Extension to crowdsource political bias in the news over a 36-hour hackathon.
- Brought vision to light by coding and releasing a Chrome Extension (with HTML/CSS/JS) which congregates data to a MongoDB database and links to a MERN website.
- Leveraged Google Cloud Platform (Natural Language AI) to determine the politicalness of articles and warn users of potential bias.

**Seedchain**, JamHacks 7, Best Blockchain Hack — June 2023

- Implemented a web application to facilitate startup funding through transparent and secure blockchain technology.
- Leveraged Python (Flask), HTML/CSS/JS, JSON, and branded project through a pitch and logo.