

# Daniel Lu

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## Education

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**Carleton University, B.Sc. in Computer Science, Honours Program (Co-op)** Ottawa, Canada  
*Dean's Honours List - GPA: 4.0/4.0* Sep 2023 – Present

- *Carleton University Entrance Scholarship (\$16,000)*

## Technical Skills

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**Languages:** C/C++, Python, Java, JavaScript, TypeScript, C#, SQL, NoSQL, HTML, PHP, CSS  
**Libraries and Frameworks:** TensorFlow, PyTorch, Node, React, Next.js, TailwindCSS, Flask, React Native, Selenium  
**Platforms, Technologies, and Knowledge:** Git, AWS, Azure, Docker, Apache, Jira, Linux, DSA

## Projects

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**Walk in the Park** | [Devpost](#) | [GitHub](#) *April 2024, University of Toronto*

- Achieved **Best AI in Education Hack** in GenAI Genesis 2024 (out of **250+** participants).
- Built a **gamified mobile application** aimed at fostering empathy, understanding, and cultural awareness among diverse communities around the world through immersive real-world exploration.
- Utilizes **React Native** for cross-platform accessibility, **Gemini** to create content and select music, and **Flask** as its server infrastructure.

**TRACY: Tennis Realtime Analysis Coaching Systems** | [Devpost](#) | [GitHub](#) *Feb 2024, Queen's University*

- Achieved **3rd Best Hack** in QHacks 2024 (out of **200+** participants).
- Developed an accessible, real-time web application for **tennis analysis and coaching**, implementing **computer vision algorithms** and a **CRNN** powered by **OpenCV** and **TensorFlow**.
- Effectively tracks **rapid ball and human movements in 3D space** from a singular viewpoint and delivers personalized insights to enhance the skills of tennis enthusiasts.
- Engineered a sleek and responsive web interface using **React.js**, seamlessly integrating advanced statistical computations, captivating data visualizations, and intuitive natural language feedback.

**Melodica** | [Devpost](#) | [GitHub](#) *Oct 2023, McGill University*

- Achieved the **Best Hack for All Arts** in McGill AI Hacks (*MAIS Hacks*) 2023 (out of **150+** participants).
- Crafted a **modern tool for musicians** that leveraged **AI-powered technologies** to separate instrument stems and provide other valuable utilities.
- Orchestrated the **back-end Python development**, with a primary focus on **sound-to-instrument stem conversion** and seamless integration of various components into the final product.

**Automatic Speech Recognition Neural Network** | [Read](#) | [GitHub](#) *Jun 2022 - Jan 2023*

- Published a machine learning research paper on **automatic speech recognition** that investigated the performances of different **speech feature extraction algorithms** in ASR systems.
- Trained a **deep bidirectional GRU network** using **TensorFlow** to accurately transcribe continuous speech data using varying audio feature extraction algorithms, such as Mel spectrograms, Mel-Frequency Cepstral Coefficients (MFCCs), and discrete wavelet transforms.

## Experience

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**Software Subteam Lead, Bot Developer, and Mentor** Jun 2021 – Present, Part-time  
*FIRST Robotics Team 8729: Spark Youth Robotics Club* *Kanata, Ontario*

- **Organized online workshops** tailored toward children to spark interest in **robotics, software development, and engineering**.
- Managed the **autonomous and lighting software subteams** during the FRC build season.
- Introduced team members to **WPILib, PID systems**, and the **GitHub workflow**; responsible for preparing weekly lesson plans.
  - \* Became the **first team from Ottawa** to qualify for the FIRST Championships in **4 years, as rookies**.
- Used **Node.js** paired with **PostgreSQL** to craft a **general-purpose Discord bot** tailored towards streamlining various club tasks.

## Meeting Coordinator

*iLeap Club*

Sep 2019 – Jun 2022, Part-time

*Ottawa, Ontario*

- Volunteered as a **club meeting coordinator** for weekly **public speaking, soft skills, and leadership meetings** for young teenage leaders.
- **Organized and administered** weekly in-person and online meetings.
  - \* **Worked closely alongside colleagues** to manage each week's content and **provided valuable guidance and feedback** to members.

## Awards & Achievements

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- **International Baccalaureate Diploma:** Awarded to students who graduated from the International Baccalaureate Diploma Programme (*Higher Level in Math, Physics, and English*)
- **Senior Canadian Computing Competition Distinction Award (Feb 2023):** Awarded to students with a comprehensive knowledge of informatics who performed to an exceptional standard (*35/75 - top 20%*)