Jacob Lee

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EDUCATION

Honors Specialization BSc. Computer Science   London, ON
Western University   *Expected Graduation May 2027*

- **Awards & Honors:** Western Admission Scholarship $2,500, Dean's Honor List (2024-2025)
- **Courses:** Data Structures & Algorithms, Data Science, Databases, Reinforcement Learning, Intro to AI/ML

PROJECTS

Hourly NO2 Forecasting with ML & Time Series Analysis ⌂ | *Python, Jupyter, Sklearn*

- Built a forecasting model to predict hourly NO2 levels, achieving relative **MAE of 4.6%** and **RMSE of 6.5%** through time-aware (lagged & rolling statistics) features and hyperparameter tuning (suitable for public warnings).
- Improved model predictive accuracy by **53% in MAE** and **50% in RMSE**, increasing R^2 from **0.25 to 0.82** using tree-based models (Random Forest and LightGBM), outperforming linear regression.

Western Webring Widget ⌂ | *JavaScript, HTML/CSS*

- Spearheaded a customizable webring widget for the **Western University community**, allowing students to connect personal portfolios and offering a **visibility boost of 10%** compared to traditional SEO-driven platforms.
- Orchestrated a targeted marketing campaign that reached **1,000 students**, forecasting **100 signups** prior to launch and promoting the project via campus advertisements.

ROCSim | *C++, ROCm, Docker, Cuda*

- Engineered a physics simulation in `C++` with custom GPU kernel scheduling, optimizing particle simulations for **100,000+** particles at **60fps**.
- Reduced project setup time by **85%** through Docker containerization, ensuring seamless environment setup across diverse systems.
- Achieved **2.3x faster** simulation performance on AMD hardware using **HIP SDK** and **CUDA**.

EXPERIENCE

Software Engineer   Mississauga, ON
Kingsbridge Rehab Centre 🔗   *Jun 2025 - Aug 2025*

- Led the design, development and deployment of a **responsive clinic website** with React, Next.js, and TypeScript, resulting a **90% increase in CTR**.
- Designed user-friendly UI/UX flows in Figma, ensuring **99% mobile and desktop compatibility**, and deployed seamlessly via Vercel for fast loading and responsive performance.
- Optimized IT systems, reducing startup time by **30%** through strategic software updates, cache clearing and driver updates leading to smoother day-to-day operations.

Camp Counselor   Kitchener, ON
STEM Camp   *Jul 2024 - Aug 2024*

- Led STEM activities for **150+ campers** with hands-on projects with robotics kits, block coding and electronics, fostering teamwork and engagement.
- Increased program retention with a **95% attendance rate.**, ensuring consistent participation and learning.

TECHNICAL SKILLS & INTERESTS

Languages: Python, Java, C/C++, HTML/CSS, JavaScript, TypeScript, ARM Assembly (Keil)
Frameworks & Libraries: Pandas, NumPy, Matplotlib, Seaborn, Sklearn, React.js, Next.js, Tailwind CSS, Java Swing
Developer Tools: Git, Jupyter, VS Code, Unix/Linux, Figma, Godot, JUnit, PyCharm, IntelliJ, Eclipse
Interests: Climbing, AGI/ASI, Applied ML, Research/Academia, Video Editor (5M+ views), Content Creation