Jennifer Lay

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Education

Toronto Metropolitan University (TMU)   Expected Graduation: May 2027
Bachelor of Computer Engineering with Software Specialization

Work Experience

Ontario Power Generation (OPG)   April 2025 - Current
Computer Engineering Intern   *Oshawa, Ontario*
- Developed a **cloud-based** web application for the Owner's Engineering department to streamline database management and deliver interactive metrics on **2,500+** legislative documents, hosted on **Azure** with **React.js**, **Flask**, and **SQL**, improving performance by **98%** and serving **30+ daily users**.
- Contributed to the development of AI-powered tools as an **AI Ambassador**, including a form input assistant for governance documents leveraging the internal **large language model** (ChatOPG) automating data entry.
- Led oversight of design compliance for the **Darlington New Nuclear Project**, coordinating with stakeholders and vendors to ensure adherence to Canadian nuclear codes and regulatory requirements for licence approval.

Toronto Metropolitan University   September 2024 - December 2024
Project Manager   *Toronto, Ontario*
- Managed and coordinated over **60** engineering students on term projects focused on **reverse engineering** and analyzing historical engineering disasters, guiding teams in research, collaboration, and presenting findings to faculty.
- Tutored **MATLAB** programming with an emphasis on simplifying complex mathematical concepts for first year engineering students, supporting more than **40** recurring students per session.

Projects

Battle Bites - Multiplayer Fighter | *Website | Devpost | Source Code*   **Node.js | React.js | MongoDB | Google Gemini**
- Launched an online Street Fighter style browser game in **36 hours** using **React.js** and **Node.js** where real-life healthy eating triggers in game powerups and submitted to **Hack the 6 2025** for Best Game Hack.
- Established gameplay with **Socket.io** and **Express.js**, achieving sub **2ms** latency. Integrated **MongoDB** for powerup storage, **Auth0** for authentication, and **Google Gemini** to generate eating habit based powerups.
- Applied **object-oriented JavaScript** to render fighters and their associated sprites from a set of **20**, implementing collision detection, a continuous game loop for smooth gameplay, and dynamic application of power ups to fighters.

Skin Match - Full-Stack Web Application | *Website*   **React.js | Flask | Python | JavaScript | CSS**
- Built a skincare recommendation web application powered by a **Flask REST API** and **React.js** frontend, leveraging the Sephora catalog with more than **1600 stored products** to generate tailored suggestions based on user skin attributes.
- Designed a responsive React.js frontend with custom reusable components and robust form handling to deliver an intuitive skin quiz experience, lowering time to recommendations by **25%.**

LessEats - Full-Stack | *Source Code*   **Java | MySQL | Apache Tomcat | Kubernetes | | Google Cloud | Docker**
- Created a food ordering simulator using **Java** with an **Apache Tomcat** server, implementing a **microservices** architecture and **REST APIs** for ordering and purchasing workflows, backed by a **MySQL** database.
- Containerized services with **Docker** and deployed them on **Google Cloud** using **Kubernetes**, enabling asynchronous communication between services with **KubeMQ** to ensure data consistency.

LeetBot - 1st Place Winner (Ignition Hacks) | *Website | Devpost | Source Code*   **Next.js | Flask | Mistral AI | GraphQL**
- Engineered a turn based browser game where player arsenals are powered by **LeetCode** statistics and daily questions graded by **Mistral AI**, developed with **Next.js** and **Flask** in **32 hours**, winning **1st Place** at Ignition Hacks 2024.
- Implemented a responsive **WebSocket** enabled frontend with **NES.CSS** styling and custom sprite creation, integrating with the **LeetCode GraphQL API** to pull public player statistics.

Technical Skills

Languages: Java, Python, JavaScript, SQL, HTML5, CSS, C/C++
Developer Tools: AWS, Azure, Postman, Git, Docker, PowerBI
Frameworks: Spring Boot, React.js, Next.js, Node.js, PostgreSQL, Flask