Lelin Zheng (She/Her)

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# Education

**Northeastern University**  Sep 2024 – Dec 2026

***M.S.*** *in Computer Science*, GPA: 4.0 / 4.0

Relevant Coursework: Computer Systems, Algorithms, Object-Oriented Design

**University of Alberta**

***B.Ed****. in Education with Distinction*, GPA: 3.8 / 4.0 Sep 2020 – May 2022

***M.S.*** *in Materials Engineering*, GPA: 4.0 / 4.0 Sep 2017 – May 2019

# Technical Knowledge

* **Languages:** Python, Java, C, HTML/CSS, JavaScript
* **Tools & Frameworks:** Git, Linux/Unix, Java GUI (AWT & Swing), Tableau, PyQt6, Flask, Django, JUnit, Node.js, Express.js, EJS, Bootstrap, Passport.js
* **Databases & Services:** MySQL, SQLite, MongoDB (Atlas), Mapbox, Cloudinary, Render

# Relevant Work Experience

# *High School Computer Science Teacher* Sep 2022 – Jun 2024

## Calgary Board of Education, Crescent Heights High School, Calgary, AB

* Taught Computer Science to 100+ grade 10/11 students, covering programming fundamentals, algorithms, procedural and functional programming, **OOP** in **Python**, and **HTML/CSS** for web development
* Achieved a 15% improvement in student grades through tailored instruction and engaging programming assignments, fostering a deeper understanding of computer science fundamentals.

***Research Assistant*** Oct 2019 – Sep 2020

## University of Alberta, Edmonton, AB

* Analyzed data from over 200 tensile, UV degradation, and compression tests to understand degradation patterns.
* Developed an end-of-life sensor for textiles that delivers warnings at 50% and 80% deterioration thresholds.

# Projects

***Qualcomm On-Device AI Hackathon: AI-Powered Narrative Connect Four (2nd Place Winner)*** March 2025

## Team Member, Northeastern University & Qualcomm Technologies & Microsoft

* Engineered a **PyQt6-based GUI** with **multi-threaded event handling** for a responsive and interactive **LLM-integrated** Connect Four experience, featuring dynamic UI updates and real-time AI narration.
* Integrated **local LLM inference via Ollama (Mistral-7B)** with game logic algorithms **(minimax with alpha-beta pruning)**, implemented speech-to-text **(Whisper ASR)** for AI-driven commentary of seamless offline experience.

***Camp Review – Full-Stack Web Application for Campground Discovery & Reviews*** March 2025

## Personal Project

* Developed a full-stack campground review app using **Node.js**, **Express**, **MongoDB** **Atlas**, **EJS**, and **Bootstrap**; included secure authentication via **Passport.js** and responsive user profiles.
* Integrated **Mapbox** for real-time campground mapping and **Cloudinary** for dynamic image storage, deploying the production-ready server on **Render** for scalability and reliability.

***Gesture-Based Music Creation App in Java*** Sep 2024 – Dec 2024

## Team Member, Northeastern University

* Designed and implemented an interactive **Java GUI (AWT/Swing)** for gesture-based music composition, achieving 90% recognition accuracy using bounding boxes, subsampling, and coordinate transforms.
* Applied **OOP principles** across 20+ Java classes, increasing music composition efficiency by 60% and enhancing modularity by 40% through refactoring, serialization, and reusable components.

***Digital Family Tree: An Application of Graph Data Structures*** Nov 2024 – Dec 2024

## Team Lead, Northeastern University

* Developed a **Python**-based app for creating and navigating family trees with support for 50+ members, using BFS algorithms for efficient relationship searches.
* Utilized **NetworkX** for intuitive graph visualizations and **JSON**-based storage for persistent, easily accessible data.