

# Feiyu Lin

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## Technical Skills

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**Programming Languages:** C/C++, Java, JavaScript, Python, HTML/CSS/XML

**Frameworks & Libraries:** React, Next.js, Node.js, Express.js, Tailwind CSS, Framer, Clerk, shadcn-ui

**Databases:** PostgreSQL, Convex, MongoDB, MySQL, Firebase, SQLite

**Developer Tools:** Git, GitHub, Android Studio, Figma, Docker

## Projects

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**Productivity Web App** | *Convex, Next.js, React, shadcn-ui, Tailwind CSS, JavaScript*

- Developed a full-stack web-based document editor and file system aimed at maximizing workflow productivity
- Utilized Next.js **file-based and API routing** to establish efficient server-side endpoints, ensuring users to access specific documents and pages
- Engineered **custom schema** and Convex's **mutation and query functions** to update user data in **real-time**
- Programmed a **recursive algorithm** to establish document hierarchy and allow file archive and restoration

**Chess Engine (Grandmaster ELO)** | *C++*

- Developed a **UCI Compliant** chess engine (rated at 2900) that can interface with other chess engines/GUIs
- Optimized move generation **speed by 5000%** through **bit manipulation** techniques and a **bitboard** data structure
- Engineered an **algorithmic AI** by implementing **Negamax, Quiescence, and PV search algorithms**, resulting in advanced decision-making capabilities
- Enhanced search algorithm through pruning techniques: **alpha-beta, null-move, razoring**; and memorization techniques: **transposition table, zobrist hashing, hash move ordering** achieving **10000x faster** searches
- Increased playing strength by embedding a **neural network** to yield accurate positional evaluation

**Portfolio Website** | *Next.js, React, Tailwind CSS, Framer, JavaScript*

- Developed an engaging portfolio that visually communicates my experiences, project highlights, and skill set
- Efficiently animated and **manipulated DOM elements** by integrating Framer's motion and leveraging React's **useState, useEffect, and useRef** hooks
- Crafted elegant lamp effect by implementing **dynamic gradient animations** through **pseudo-elements**, opacity, and transformations
- Engineered parsing function that enables **conditional content rendering** of border animations, svg tracing, and modals upon mouse hover/click

**Healthcare Management System** | *Java, Firebase, XML, Android Studio*

- Developed an **Android app** in a team of 4 to facilitate healthcare appointment management
- Programmed **fast database queries** to efficiently store, retrieve, and update comprehensive doctor/patient information, ensuring a seamless data management system
- Fostered cohesive team collaboration through **Git and version control**, utilizing pull requests and branches.
- Crafted an engaging and user-friendly front-end UI by incorporating recyclers, pop-ups, and buttons

## Experience

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**Math Instructor and Assistant Centre Director**

May 2023 – Aug. 2023

*Mathnasium of Pleasant View*

- Demonstrated exceptional proficiency in teaching **Advance Functions and Calculus**
- Managed and engaged with up to **6 students concurrently**, fostering an interactive and supportive learning environment
- Managed scheduling **logistics**, efficiently coordinating, rescheduling, and organizing appointments
- Maintained **proactive communication** with parents, providing regular updates on their child's academic development, milestones achieved, and areas for improvement

## Education

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**University of Ottawa**

Sep. 2022 – Dec. 2026

*Honours Bachelors in Computer Science (co-op)*

- 3.9/4.0 GPA – 9.27/10 CGPA