Dundee Zhang

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EDUCATION

University of Waterloo Waterloo, ON
Bachelor's of Computer Science *Sep 2024 – Apr 2028*
- **Relevent Courses:** Designing Functional Programs (Adv.), Algorithm Design and Data Abstraction (Adv.)
- **Awards:** Aivars Petersons Memorial Award: Awarded to an outstanding incoming Computer Science student.

EXPERIENCE

Software Developer May 2025 – Present
airfairness *Kitchener, ON*
- Designed the **Human Interaction** framework powering key product workflows, optimizing for **modularity** and **speed**.
- Engineered full-stack features using **Next.js** and **Convex** within a **monorepo**, streamlining development across services.
- Improved product **UX** by implementing **WCAG-compliant accessibility standards** and running accessibility **audits**.
- Streamlined the claims process to **eliminate** all erroneous customer submissions, **improving** claim accuracy by **100%**.

President May 2025 – Aug 2025
University of Waterloo Computer Science Club *Waterloo, ON*
- Organized a team of **70+ people**, overseeing club operations, strategic planning, and campus-wide initiatives.
- Facilitated **recruitment pipelines** by engaging with partners like **Google** and **Hackathons** on behalf of the club.
- Assisted cross-functional teams with **technical**, **logistical**, and **outreach** tasks to maintain **operational efficiency**.

Cofounder and Mentor Aug 2023 – Aug 2024
NRGHacks *Aurora, ON*
- Mentored **100+** students in **JavaScript**, **TypeScript** and **Python** with **React** and **Flask** frameworks.
- Assisted to integrate **Language Models** and **Computer Vision** into projects with endpoint (**REST**) APIs.
- Raised over **$1000** for multiple regional computer science clubs totaling over **200 hackers** and over **60 projects**.

PROJECTS

NanoWorks - Cursor for DNA Origami | *TypeScript, Python, Next.js, TailwindCSS, FastAPI, Three.js*
- Developed **interactive 3D DNA visualizations** using **Three.js**, enhancing scientific data representation.
- Bridged **frontend** and **backend systems** by integrating **middleware**, enabling seamless data flow and user interaction.
- Implemented **backend API**, enabling frontend components to access and display **dynamic backend output**.

YangNews - Positive News App | *AWS, Python, FastAPI, React, TypeScript, Supabase, TailwindCSS*
- Deployed the backend on an **AWS EC2 instance**, ensuring fast and **reliable** service delivery with **scalable** infrastructure.
- Built high-performance **RESTful APIs** using **FastAPI**, enabling efficient news retrieval and filtering with **low latency**.
- Engineered a **SQL schema** to track unique articles and support **crowd-sourced** contributions with data integrity.

Aura - Professional Career Assistant | *Python, JavaScript, Flask, Firebase, HTML, CSS, OpenAI API*
- Engineered scalable **RESTful APIs** using Flask to enable efficient **client-server communication** and data exchange.
- Integrated **AI** into a professional career development toolkit using **Flask** and **JavaScript** in **backend**.
- Leveraged **Firebase** to ensure the **security** of the app and to **streamline** user sign-up experience by **400%**.

AI-Enhanced To Do List | *Python, Flask, SQLAlchemy, OpenAI API, HTML, CSS*
- Designed an **AI powered** To-Do list that **automatically generates** ordered subtasks for the users tasks.
- Engineered AI prompts to achieve **100% realistic** and step-guided subtasks for the user to complete.
- Implemented a **local task database** using **SQLAlchemy** to ensure **persistent storage** and user **privacy**.

GoTerpret - Bash Shell | *Go*
- Built a **Bash shell interpreter** from scratch using **Go**, allowing shell **commands**, **piping**, and **redirection**.
- Implemented built-in commands such as **cd**, **exit**, and **echo**, providing a simplified shell environment for users.
- Integrated **error handling** to ensure proper execution and **improve** the **stability** of the shell interpreter.

TECHNICAL SKILLS

Languages: Bash, C, C++, Go, HTML/CSS, Java, JavaScript, Objective-C, Python, Racket, Swift, TypeScript
Frameworks: Bootstrap, FastAPI, Flask, Java Swing, Next.js, React, SQLAlchemy, TailwindCSS, Three.js
Tools: AWS, Cloudflare, Docker, Figma, Firebase, Git, Github Actions, Node.js, PostgreSQL, Supabase, Tailwind, Vercel, Vim