

Joseph Deng

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EDUCATION

University of British Columbia

Bachelor of Science in Computer Science and Physics, Co-op program — 90.1% Average

Vancouver, BC

Sep 2023 – Apr 2028

SKILLS

Languages: Python, Java, C, C++, JavaScript, TypeScript, Assembly

Web: HTML, CSS, React.js, Node.js, Next.js, Astro.js, Bootstrap, Tailwind, Selenium, Cloudflare, Flask

Frameworks/Tools: Docker, AWS, Bedrock, Git, Matplotlib, Supabase, RESTful APIs, Blender, WSL

AI/ML: PyTorch, Stable Diffusion, OpenCV, Scikit-learn, NumPy, Weights & Biases

WORK EXPERIENCE

Machine Learning Engineer Intern | Metrized Inc.

Jan – Sep 2025

- Designed a **novel classification algorithm** that reduces error rates for text and symbol classification by **over 150%** using a **custom trained mobilenet** embedding model with an **enhanced KNN algorithm**
- Engineered a **cutting edge Image to 3D AI** to generate high fidelity models of furniture, helping clients **save up to \$5000 per unit** of shipping and scanning costs.
- Boosted YOLO object detection speed by **200%** by conducting **thorough benchmarks** and implementing TensorRT.
- Spearheaded the transformation of a full-stack web app into a **distributable desktop app** with Electron, rewrote and packaged python backend to use **dynamic ports**, and bootstrapped large modules to **optimize app size**
- Designed, implemented, and deployed a product landing page from scratch using **Docker containers** to ensure migratability, and **Cloudflare tunnels** to link a local port to a live domain

Software Engineer Intern | CS Toolkit Inc.

May – Jun 2024

- Executed dynamic API calls to Contentful using **Flask** to add pagination, tagging, and a search function to the company's **production blog page** within a tight **2 week timeline**
- Conducted a **multi-stage build and review process** with a professional UX designer, and reskinned the website to use a responsive, mobile-first layout to **improve user experience on small screen sizes**

EXTRACURRICULAR INVOLVEMENT

Computer Vision Engineer | UBC SUBBOTS

Sep 2025 – Present

- Architected a **robust synthetic dataset** to **combat overfitting** using a simulated pool environment in Blender
- Developing a novel computer vision system for an autonomous underwater robot using **ROS, Python, and YOLO** to perform **real-time object detection** in challenging underwater environments.

Website Team Lead | UBC BIOMOD

Oct 2024 – Present

- Led a team of four to ship a **responsive, competition-ready website** in **less than 3 weeks**
- Finalized the production site by **reviewing several pull requests**, resolving code conflicts, and fixing critical bugs
- Architected a well-structured code base and delegated tasks accordingly based on members strengths and interests

PROJECTS

DIY AM Radio | Physics, E&M, Circuits, Statistics

Nov 2024

- Built an AM Radio composed of an **amplifier, demodulator, and tank circuit** from scratch using a breadboard
- Wrote thorough scientific notes that detailed **Chi2** and **uncertainty** values for the experiments that we performed

Urbanize AI | AWS Lambda, Bedrock, Expo, React.js, Python | Demo

Oct 2024

- Created an **AI-powered Urban Design Improvement** app that helps users identify changes that could be made in their own neighborhoods to improve sustainability, placed **top 4 out of 25+ teams** at UBC CIC Hackathon
- Engineered a serverless **AWS Lambda** function that made calls to send text and base-64 representations of images to an **generative AI model through Bedrock**
- Debugged Lambda function with Postman and CloudWatch to allow for easier testing of the API

AI Recipe Generator | Next.js, Node.js, React.js, Three.js, OpenAI API, Bootstrap | Live Website

May – Aug 2024

- Developed a **Node.js** backend that made asynchronous calls to the **OpenAI API** to create AI-generated recipes based on ingredients entered by the user.
- Designed the frontend with React and Three.js to insert a custom interactive **3D model generated using Blender**.
- Refactored project to use the **Next.js app router**, enabling a **serverless deployment with Vercel**