HAO CUI

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TECHNICAL SKILLS

Languages: Python, C++, Java, Kotlin, TypeScript, JavaScript, HTML, CSS, Bash
Frameworks: React, Next.js, Node.js, Flask, Expo, React Native, Pandas, Tailwind
Technologies: Git, Docker, Google Cloud, Firebase, Nginx, OpenCV, TensorFlow, Pytorch, ONNX, CUDA, MongoDB

EXPERIENCE

Magic Hour (YC W24) 🔗
Software Engineer Intern   *Nov 2025 - Present*
- Built a production-ready z-image turbo generation workflow and ran **500+ controlled test renders** to identify the best **sampler, scheduler, and step size**; published results in a clear internal website for reuse.
- Reduced end-to-end generation latency by **49%** by integrating **torch.compile** and **FlashAttention**, plus attention/precision optimizations (**SageAttn2**, **FP16Fast**, **TeaCache**).
- Developed a data ingestion pipeline including a **mobile TikTok scraper** that bypasses SSL pinning with a custom **MITM proxy**, enabling collection of high-engagement video datasets.

Cluely (contract) 🔗
Machine Learning Engineer   *Sept 2025 - Oct 2025*
- Contracted by **Cluely** to design a pilot project that tracks realtime **head pose and gaze.**
- Lightweight, local-only gaze tracking prototype using webcam to infer eye/pupil position and head pose, classifying gaze direction at **15-30** FPS with **landmark detection** and **temporal smoothing**.
- Designed an architecture achieving **CPU-only** performance with **100ms** latency and dual outputs (debug overlay + NDJSON stream).

Smashspeed 🔗
Chief Technology Officer   *May 2025 – Present*
- **40k+ downloads across 100+ countries**, amplified by a viral social campaign with **millions** reached.
- Executed an end-to-end port of the machine-learning shuttle tracker to **React Native**.
- Implemented a scalable serverless **Firebase** architecture (Auth, Firestore, Cloud Functions, Cloud Storage).
- Developed the marketing and product website with **React + Tailwind**, sustaining **10k+** monthly active users.
- Helped build the data pipeline using **YOLOv5**, curated and annotated **13k+** images to reach **93% model accuracy**.

FTC Robotics - Furious Frogs 🔗
Developer   *Sept 2024 – Present*
- Co-designed the autonomous system that ranked **#191/100,000 competitors** in the 2024 season.
- Implemented an auto-aim pipeline using **AprilTag detection** with **OpenCV** and tuning PID controllers for fast, stable targeting and shot alignment.

PROJECTS

Steve the Freakysaur (160,000+ impressions) | 🔗 🎧
- Won **1st place out of 124 participants and 50+ projects** in BC's largest high school hackathon.
- A Chrome Dino–style game controlled entirely using tongue detection through real-time facial segmentation.
- Prototyped in **Pygame** before being ported to **Next.js** with TypeScript for web play.

Image 2 Desmos | 🔗 🎧
- Created a tool to convert raster images into parametric equations suitable for Desmos graphing, enabling visual art to be rendered purely via algebraic curves.
- Implemented image processing pipeline: edge detection → vectorization → equation generation, optimised for limited equation count and interactive use within Desmos.

Smashspeed | 🔗 🎧
- AI-powered badminton tracker that detects shots, estimates smash speed in real time, and visualizes performance trends.
- Reached **40k downloads across 100+ countries**, amplified by a viral campaign with **millions reached**.

EDUCATION

Port Moody Secondary School   Port Moody, BC
International Baccalaureate (IB) Diploma Programme   *Expected Graduation: 2027*
- Academics: 4.0 GPA, Studying Computer Science and Mathematics AA Higher Level.