

# Andrew Dai

Full-Stack + AI Developer | 10 Consecutive Hackathon wins

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## Education

### University of Waterloo

Bachelor of Computer Science

Present  
Waterloo, ON

## Skills

- ◇ **Languages:** Python, JavaScript, Typescript, HTML, CSS, C++, C#, Java
- ◇ **Technologies:** Flask, React, Node.js, Next.js, Tailwind, PyTorch, NumPy, Pandas, OpenCV, Redis
- ◇ **Development Tools:** Git, MongoDB, GCP, AWS, LangChain, Claude Code, Docker, Terraform, Postman, Supabase

## Experience

### JAMHacks [↗](#)

Lead Organizer & Full-Stack Developer

Aug. 2025 – Present  
Waterloo, ON

- ◇ Scaled Canada's largest high school hackathon up to **41.5% more attendees** in under a year on a \$15,000 budget
- ◇ Built and deployed jamhacks.ca and app.jamhacks.ca with **1000+ registered users** using **React + Node.js + MongoDB**
- ◇ Coordinated infrastructure and judging panels for **100+ projects** with engineers from Google, Meta, Apple, & Microsoft
- ◇ Led a cross-functional team of 19 organizers, **structuring a sub-team system** and managing 4 weekly agile syncs.

### Leading Aces Academy

Contest Math Tutor

Aug. 2025 – Dec. 2025  
Markham, ON

- ◇ **Designed and taught coursework** to prepare students for international math contests such as **AMC, AIME, & Euclid**

### Open Source

Developer & Maintainer

May. 2024 – Present  
Remote

- ◇ Built an open source tool to sort similar photos by **perceptual hash**, designed to handle **large files (100GB+) in bulk**

### Hackathons

Competitor, Judge, Mentor, Volunteer

Dec. 2022 – Present  
North America

- ◇ Won **10 consecutive hackathons** out of 18 attended, shipping and pitching full-stack products in **under 24 hours**
- ◇ Awarded **\$4000+ in corporate prizes** for technical solutions built on **Databricks, MongoDB, Cohere, & Roboflow APIs**

## Projects

### FaunaDex: Semantic-Based Species Classifier [↗](#) – [Google Cloud Vision](#), [OpenAI](#), [Flask](#), [React](#), [MongoDB](#)

- ◇ Built an AI animal classification pipeline that **supports 52.9% more** species than Google's SpeciesNet (3159 vs. 2066)
- ◇ Mapped Google Vision metadata to vector embeddings via semantic search, **eliminating per-species training costs**
- ◇ **Designed a modular architecture** built to scale to thousands of additional classes using one general CV model

### Protosynthesis: Agentic Workflow Prototyping [↗](#) – [Gemini](#), [Moorcheh.ai RAG](#), [Flask](#), [MongoDB](#), [React](#), [Supabase](#)

- ◇ Built a **tool-based agentic system** to build executable backend workflows using a custom drag-and-drop node system
- ◇ Integrated Moorcheh.ai **high-speed RAG** for **vector retrieval 6.6x faster** than standard Pinecone and Cohere pipelines

### Physiotherapy Form Tracker (Awarded Best use of Databricks) [↗](#) – [LangChain](#), [Terraform](#), [GCP](#), [Flask](#), [MongoDB](#)

- ◇ Built a motion tracking game to reward exercise posture, integrating motion tracking with a **Flask + MongoDB** backend
- ◇ Deployed cloud architecture on **GCP Compute Engine** via **Terraform**, added an LLM feedback agent using **LangChain**

### Quantum Key Distribution [↗](#) – [Arduino](#), [Quantum Mechanics](#)

- ◇ Replicated the encryption **used by governments** for national security, storing data in the quantum superposition of light
- ◇ **Automatically transmits secure data** with motorized polarizers, impossible to intercept without corrupting data