ANDREW DAI

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EDUCATION

The Woodlands Secondary School   Sep. 2022 – Jun. 2026 (Expected)
Enhanced Learning Class, Ontario Secondary School Diploma   *Mississauga, ON*
- ◇ **Relevant Courses:** Grade 12 CS (100%), Grade 11 CS (100%), Grade 11 Functions (98%)
- ◇ **Club Leadership:** Computer Science, Math, Model UN, Charity Club, Asian Student Association

EXPERIENCE

Hackathons   Dec. 2022 – Present
University of Waterloo, University of Toronto, McMaster University, and more   *Ontario, Canada*
- ◇ Attended 13 hackathons with **8 consecutive wins**, winning over **$4,000 CAD** in total prize value
- ◇ Excels in **project management**, laying out project steps using the waterfall model and dividing roles among the team
- ◇ Gathered experience in Gen-AI, Computer Vision, Full-Stack, Hardware, Cloud Computing, and Mobile-First Design

Club Executive & Instructor   Sep. 2023 – Present
The Woodlands Secondary School Computer Science Club & Math Club   *Mississauga, ON*
- ◇ Plans and teaches lessons preparing **50+ students** for CEMC Contests, placing Woodlands within the **top 50** honor roll schools
- ◇ Taught topics such as OOP, graph theory, dynamic programming, data structures, number theory, combinatorics, geometry
- ◇ Plays an active role in student success in math/computer science, with many students qualifying for **AIME, CCO, CMO**, etc.

PROJECTS

⌨ AI Charity Scorer (JAMHacks Winner) | *Google Cloud Storage, MongoDB, OpenAI, Flask, Python, HTML, Javascript*
- ◇ Solved how LLMs inconsistently quantify ratings by **caching vectorized inputs** and comparing against previous similar inputs
- ◇ Used MongoDB Atlas semantic search to look up embedded image descriptions provided by Google Cloud Vision
- ◇ Deployed onto a web app, gaining **50+ users** within 6 hours and winning **Best use of MongoDB** out of **170+ hackers**

⌨ Semantic-Based Species Classifier (EurekaHacks Winner) | *Google Vision, OpenAI, Flask, React, MongoDB, Python*
- ◇ Built an AI animal species classification pipeline that **supports 52.9% more** species than Google's SpeciesNet (3159 vs. 2066)
- ◇ Uses Google Vision object detection to describe the animal, then matched to an OpenAI vector embedding via **semantic search**
- ◇ **Scales up** through adding vectorized species names instead of expensive traditional image-based CNN training

⌨ Physiotherapy Tool (UTRAHacks Winner) | *C++, Python, Arduino, Flask, MongoDB, GCP, OpenAI, DataBricks, Terraform*
- ◇ Won **Best use of Databricks** out of **340+ participants** by developing a hardware-based physiotherapy game in **36 hours**
- ◇ Uses Nintendo Switch controllers to store, recreate, and score exercise motions, and monitor user heart rate
- ◇ Incorporated live audio feedback via a **GenAI-powered** voice assistant for user engagement using LangChain and OpenAI
- ◇ Deployed the app through Terraform on Google Cloud Platform for highly **scalable infrastructure** and reliable performance

⌨ Internet-Free Emergency Response App (DeltaHacks Winner) | *Cohere, React, Auth0, Twilio, Javascript, Python*
- ◇ Built a system to communicate vital information in ongoing emergencies **without internet** by leveraging SMS networks
- ◇ Won **Best use of Cohere** against **500+ participants** at McMaster University's DeltaHacks, built in less than **36 hours**
- ◇ Integrated a Flask backend with Twilio's SMS services to communicate data and create a **WiFi-free Cohere agent**, both over SMS
- ◇ Implemented a geospatial heatmap from **global user data** stored on MongoDB to identify disaster regions of highest priority

SKILLS

- ◇ **Languages:** Python, C++, Java, HTML5, CSS3, JavaScript, C
- ◇ **Technologies:** Flask, React, Node.js, Next.js, Three.js, Tailwind CSS, PyTorch, NumPy, Pandas, OpenCV, Arduino
- ◇ **Development Tools:** Git, MongoDB, Google Cloud Platform, Amazon Web Services, Unity, Blender, Linux, Arduino IDE

AWARDS

- ◇ **Math Contests:** AIME 2025 Qualifier (**Top 16% of 21,000**), Cayley 2024 142/150 (**Top 0.8% of 18,000**)
- ◇ **Hackathons:** JAMHacks, EurekaHacks *x2*, UTRAHacks, DeltaHacks, HackTheSkies, IgnitionHacks, HackTheRidge
- ◇ **Model UN:** Cornell University, Oxford University, University of Toronto, Richmond Hill High School, Holy Trinity School