

# Dylan Dai

 [dylandai.vercel.app](https://dylandai.vercel.app)  [DylanYDai@gmail.com](mailto:DylanYDai@gmail.com)  [linkedin.com/in/dyland06](https://linkedin.com/in/dyland06)  [github.com/suoeh](https://github.com/suoeh)

## SKILLS

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**Languages:** Python, C++, C, Java, JavaScript, TypeScript, Bash, Scheme, Clojure, HTML, CSS, SQL, Haskell.

**Technologies:** Git, React, React Native, Flask, Google Cloud Platform, Terraform, MongoDB Atlas, Arduino, AWS, Node.js, Next.js, React.js, PyTorch, Linux, NumPy, Pandas, BeautifulSoup, MATLAB, LangChain, Whisper

## EDUCATION

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**University of Waterloo**

Waterloo, Ontario

*Bachelor of Computer Science*

Faculty GPA: 3.7/4.0

Relevant coursework: Compilers, Advanced Functional Programming, Calculus, Linear & Abstract Algebra

## WORK EXPERIENCE

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**Cohere** | Python, C++, Java, JS, HTML, CSS, React, Bash

Toronto, Ontario

*Machine Learning Data Consultant*

*August 2024 – Present*

- Optimized and reviewed over **700** coding test sets for evaluating the quality and accuracy of LLM-generated code
- Improved coding abilities of large language models including Command R+, helping achieve **71.4%** on the MBPPPlus and **22.2%** on the LBPP benchmarks by providing reinforcement learning from human feedback
- Created and annotated mini-projects, including automated word-game solvers, and a to-do list

## PROJECTS

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**Exercise Assistant** ([Github](#)) | MongoDB Atlas, Terraform, AWS, Arduino, Python, LangChain, DataBricks

*June 2024*

- Won **Best use of DataBricks** from **340+ participants** by developing a web-based physiotherapy game
- Stores and recreates exercises by translating movement vectors into absolute position from controller data every **15 milliseconds**
- Incorporated live feedback via a GenAI-powered voice assistant to enhance user engagement and retention using **LangChain**.
- Deployed the platform with **Terraform** on **GCP** for highly scalable infrastructure and reliable performance.
- Designed a **Flask** backend to integrate with **MongoDB** on **AWS** for persistently storing user heartrate and exercise data.

**Music Tracking Game** ([Github](#)) | MATLAB, Flask, HTML, CSS, JavaScript

*June 2024*

- Won **Best use of MATLAB** from **200+ participants** by developing a musical accuracy tracking game
- Implemented **cross-correlation** to compare two audio waves by extracting two vectors of amplitudes
- Tracked musical accuracy by adjusting lag from both audio waves, giving feedback every **50 milliseconds**
- Deployed an interactive web platform to retrieve and display game information in real time

**Waste Sorter App** ([Devpost](#)) | Google Cloud, Hugging Face, Flask, JavaScript, Python, React Native

*May 2023*

- Made an application built with **React Native** to identify and sort waste using a camera for object detection with **90% accuracy**
- Used **Google Cloud's Vision AI** for object detection and classification to send to manually parsed waste database with **JS**
- Combined embeddings with a **384 dimensional dense vector space** using AI model **all-MiniLM-L6-v2**
- Sent response data and associated weights to the **REST API** of the **Flask backend** to identify disposal strategies

**Voice Automated Assistant** ([Github](#)) | Cohere, Whisper, Python, TKinter

*May 2023*

- Made an AI-driven tool that interprets voice input using **Whisper** into computer commands
- Implemented voice-to-text transcription to send information to **Cohere's API** to categorize the command
- Used **Google Cloud search API** for web search, and implemented Python keyboard and mouse macros to execute commands

## AWARDS

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**Canadian Computing Olympiad** | Bronze Medalist

*May 2024*

- Placed **14th out of 10000+ participants** in national-level computing competition, invited to Canada's team selection contest
- Solved algorithmic problems using data structures, graph theory, and combinatorics in C++

## Math Contests

- Placed in the **97th percentile** in UWaterloo's Euclid Contest (27650 participants) | Distinction Award
- Placed in the **99th percentile** in the Senior Mathematics Contest (16805 participants) | Honour Roll
- Placed in the **99th percentile** in the Hypatia Contest (7816 participants) | Honour Roll

*April 2024*

*November 2023*

*April 2023*