Dylan Dai

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SKILLS

Languages: Python, C++, C, Java, JavaScript, TypeScript, Bash, Racket, 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, Puppeteer, BeautifulSoup, MATLAB, LangChain, Whisper

EDUCATION

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

Cohere | Python, C++, Java, JS, HTML, CSS, React, Bash Toronto, Ontario
Machine Learning Data Consultant *August 2024 – Present*
- Oversaw and managed large-scale code datasets used to train Cohere's Command A learning model, which outperforms Deepseek-V3 and GPT-4o on the RepoQA benchmark by a **margin of 10%**
- Created a web-scraper using JavaScript and Puppeteer to curate mass problemsets from online programming problem repositories
- Designed and solved advanced data structure and algorithm problems to train and evaluate Cohere's LLM models
- Optimized and reviewed over **700** coding test entries 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 digit detector

PROJECTS

Customizable Chat Widget (Website) | TS, Next.js, HTML, CSS *Februrary 2025*
- Deployed a website to talk to a customizable chat-bot by **integrating React hooks** to pass user settings in less than **48 hours**
- Implemented **system-prompt engineering** by modifying the chat array in the API request to the chat-bot
- Used **image and audio** input by converting uploaded files into base64 for the chat-bot to digest
- Used React hooks as a WebSocket to send conversation context between the user and the chat-bot

Exercise Assistant (Github) | MongoDB Atlas, Terraform, AWS, Arduino, Python, LangChain, DataBricks *January 2025*
- 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
- 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

AWARDS

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++