

EDUCATION

University of Waterloo

Bachelor of Mathematics in Statistics and Combinatorics & Optimization

Waterloo, ON

Sep 2022 – Apr 2026

Relevant courses:

Stochastic Processes, Calculus 3, Object-Oriented Software Development, Applied Linear Models, Computational Stats & Analysis, Sampling and Experimental Design, Mathematical Statistics

EXPERIENCE

Software Developer

Standard Data (Y Combinator)

Aug 2024 – Sep 2024

Remote

Researched a **Python** web scraping tool for Department of Defense, to aggregate job postings into a single database

Designed and implemented a responsive website using **React** and **Node.js**, to enhance **UX** through intuitive navigation

Machine Learning Engineer

GoodGang Labs

Jan 2024 – Apr 2024

Remote

Developed and researched a baseline model utilizing audio input to generate corresponding body gestures

Produced synthetic data in **BVH**, **blendshape**, ensuring high-quality training datasets for deep learning models

Conducted thorough testing and debugging of programs using **Python**, successfully identifying and eliminating critical errors, reducing debugging time by **30%** and enhanced overall software reliability

Managed the development of deep learning models for 3D avatars, improving the precision and efficiency of facial expression and body gesture recognition by **25%**, resulting in more lifelike avatars and enhancing user interaction quality

Implemented containerization with **Docker** to manage over **50** packages, facilitating scalable deployment and streamlining collaboration across teams while ensuring consistent environments and reducing setup time

Authored comprehensive documentation for the project on the **GitHub** repository, facilitating smooth onboarding for new team members and enhancing project transparency, improving overall collaboration within the team

PROJECTS

AutoEQ | Python, PyQt, Spotify API, Machine Learning

Dec 2024 - Jan 2025

Developed an app to adjust equalizer settings in real time using **Spotify API** and machine learning for genre detection

Engineered a low-latency equalizer engine with under **200ms** latency for seamless playback across all devices

Designed a **PyQt** interface with customizable presets and real-time genre-based equalizer adjustments from Spotify

Integrated **Logistic Regression** for genre classification, enabling accurate dynamic equalizer adjustments in real time

Optimized caching mechanisms to reduce redundant API calls and database queries, improving responsiveness by **25%**

Included automatic detection and configuration support for multi-device audio output, enhancing user control

Mixify | React, Node.js, Spotify API

Built a web application to aggregate playlists from **Spotify**, **SoundCloud**, and **YouTube** using RESTful APIs

Optimized backend data fetching with **Node.js**, reducing latency by **40%** for faster song retrieval

Integrated **OAuth 2.0** authentication for **Spotify**, **SoundCloud**, and **YouTube**, ensuring secure user login and access

Designed a **playlist merging algorithm** to resolve duplicate tracks and ensure seamless cross-platform playlist creation.

Text2Avatar Data Generation System | Python, OpenAI API, MediaPipe

Jan 2024 – Feb 2024

Designed and developed a program that creates synthetic data sets by extracting information from video inputs

Accomplished the integration of **OpenAI's API** to perform **Speech-to-Text (STT)** for video inputs, **Google's Cloud Translation API** for language detection and translation, and extraction of probabilities for **5** distinct emotional measures

Extracted facial movements using **MediaPipe**, capturing **52 facial points** and generating **200+** JSON files

Implemented **MocapNET** to produce high-resolution motion capture data with **65 skeletal joints** at **350+ FPS**

Generated synthetic datasets for facial animation and skeletal tracking, enhancing ML training workflows

Created a Python module to visualize and render **BVH** files, improving data validation and debugging efficiency by **30%**

Authored clear project documentation on **GitHub**, facilitating smooth onboarding and collaboration for team members

TECHNICAL SKILLS

Languages: Python, C++, R, SQL (Postgres), JavaScript, HTML/CSS
Frameworks & Libraries: pandas, NumPy, Matplotlib, Keras, TensorFlow, PyTorch, scikit-learn, React, Node.js
Developer Tools: Git, Bash, Postman, Docker, Notion, AWS, OpenAI API, MediaPipe, Caffe