Andy Jung
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Education

University of Waterloo — Waterloo, ON
Bachelor of Mathematics in Statistics and Combinatorics & Optimization — *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 — Aug 2024 – Sep 2024
Standard Data (Y Combinator) — *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 — Jan 2024 – Apr 2024
GoodGang Labs — *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: Real-Time Equalizer Adjustment App | *Python, Flask, Spotify API, SQL, Signal Processing*

- Developed an app using **Spotify API** to identify music genres and dynamically adjust equalizer settings in real time
- Engineered a low-latency engine capable of frequency adjustments with under **200ms** latency for seamless playback
- Built a device selection interface with **Flask** to enable configuration across various audio output devices
- Designed a profile mapping system with **SQL** to load pre-calibrated equalizer settings for over 100+ headphone models
- Implemented manual override functionality, allowing users to customize equalizer settings for enhanced personalization
- Optimized caching mechanisms to reduce redundant API calls and database queries, improving load speeds by **25%**
- Added functionality to save and load custom equalizer profiles, enabling seamless reuse across multiple user devices

Mixify: Cross-Platform Playlist Generator | *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 Could 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