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
- Debugged Python programs, eliminating errors and reducing debugging time by **30%**, enhancing 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
- Included automatic detection and configuration support for multi-device audio output, enhancing user control
- Added functionality to assign genres and custom EQ to artists, overriding **Spotify API** genres for improved customization
- Optimized startup time by streamlining resources loading through lazy initialization, reducing load time by **1 second**

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 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