Jiwon 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 an efficient **Python**-based web scraping method to aggregate **1000+** Department of Defense job postings
- Designed and implemented a responsive website using **React** and **Node.js**, enhancing **UX**, reducing bounce rate by **20%**
- Earned **Google UX Design Certificate**, cutting design iterations by **15%** with wireframing skills prototyping tools
- Optimized site performance using **Node.js** caching and compression, reducing latency by **25%** across **5+** key pages

Machine Learning Engineer **Jan 2024 – Apr 2024**

GoodGang Labs *Remote*

- Developed a gesture prediction model using **Python**, syncing animations for **10+** audio inputs with high accuracy
- Generated synthetic data by automating mesh synthesis using **BVH** and **blendshape**, boosting model accuracy by **18%**
- Refined code by implementing **Python** and **pytest** unit tests, to slash debugging time by **30%** for **50+** files
- Refined motion models using **TensorFlow** and **PyTorch**, improving responsiveness and gesture accuracy by **20%**
- Applied optimizations, tuning parameters and inference speed, lifting gesture precision by **25%** for realism
- Built **Docker** containers via custom scripts, to optimize deployment and handle **50+** packages for team workflows
- Authored comprehensive **Markdown** docs on **GitHub**, reducing onboarding time by **30%** and improving transparency
- Configured and optimized a **Linux (Ubuntu)**-based remote environment, scaling training speed by **15%** for **3+** models

Projects

Text2Avatar Data Generation System | *Python, Shell* Jan 2024 – Feb 2024

- Built a tool to generate synthetic datasets by processing **50+** video inputs with **Python**, aiding research on other projects
- Integrated **OpenAI's API** for **STT** to transcribe **90%** of video audio into text, cutting processing time by **40%**
- Used **Google Cloud Translation API** to detect and translate **5+** languages in audio inputs for downstream data analysis
- Tracked facial movements with **MediaPipe**, producing **200+** files for detailed animation studies and ongoing research
- Captured full-body motion via **MocapNET**, generating outputs for **65+** joints across complex movement sequences
- Plotted **10,000+** motion data points using **Matplotlib** in a **Python** module to verify output accuracy for team reviews
- Designed a **PyQt** interface to control data generation, improving workflow efficiency by **40%** across teams
- Created a **Tkinter** GUI to display **100+** motion outputs and support team validation processes with clear visuals

Synthetic Data Generator | *Python* May 2023 – Jul 2023

- Crafted a synthetic data generator with **GANs** in **Python**, boosting avatar app realism by **30%** via enhanced frame quality
- Preprocessed and optimized inputs using **OpenCV** and **Next3D** pipelines, boosting model training precision to **95%**
- Generated **100,000+** frames of data by **GAN** synthesis, involving a broad spectrum of age, race, and gender variations
- Detected and generated **blendshapes** and **bounding box** for each frame using **Python**, enabling **80%** flexibility
- Used **Docker** to streamline deployment process, cutting setup time by **50%** across scalable environments

GoAI | *Python, Keras, Numpy* Nov 2022 – Feb 2023

- Developed a machine learning algorithm to play Go at a professional level using **Keras** and **numpy**
- Performed simulations on **50** games of Go, simulating over **3000** moves using the **Monte Carlo Tree Search** algorithm.
- Effectively employed the **UCT formula** to select optimal moves, contributing to strategic insights into game dynamics
- Successfully utilized Convolutional Neural Network to **increase the accuracy of each move by 200%**
- Created an encoder capable of converting game state into **Numpy Array** enabling the use of CNN
- Achieved **99.18% accuracy** trained based on past data collected from professional Go games from 2001 - 2019

Technical Skills

Languages: Python, C++, R, SQL (Postgres), JavaScript, HTML/CSS, Shell
Machine Learning: TensorFlow, PyTorch, Keras, scikit-learn, MediaPipe, Caffe, OpenAI API, pandas, NumPy, Matplotlib
Developer Tools: Git, Bash, Docker, AWS, Postman, Notion, React, Node.js, pytest, PyQt, Tkinter, OpenCV, MocapNET

Additional Experience

- Secured **school champion** in the 2021 Euclid Contest, earning top **10%** regional rank among math competitors
- Earned **Google UX Design Certificate** via Coursera, designing a mockup adopted for a collaborative app project