Zixuan (Vicky) Zheng

Pittsburgh, PA | zzheng3@andrew.cmu.edu | 412-888-7634
Portfolio: https://www.zixuanzheng.com/ | **LinkedIn:** http://www.linkedin.com/in/zzheng3 | **GitHub:** https://github.com/Zionified

Education

School of Computer Science at Carnegie Mellon University Pittsburgh, PA
Bachelor of Science, Double Majors: Computer Science, Statistics Expected Dec. 2024
Cumulative GPA: **3.89/4.00**
Honor: Dean's List, National Level Golf Athlete, Overall Winner of the 2019 Oakland City Junior Championship, California
Relevant Courses: Data Structures & Algorithm, Database, Computer Systems, Software System, Machine Learning

Skills

- **Languages & ML Libraries:** Java, Python, C, TypeScript, R, SQL, SML, Assembly, PyTorch, Ternsorflow, Jetson-Inference
- **Software Engineering / Full-Stack Web Development:** HTML, CSS, React, Vue, MySQl, Django, Docker, FastAPI

Project Experience

Portfolio Nexus: Web Portfolio and Administration Hub May 2023 – Jun. 2023
- Developed and deployed a well-functional single-page web portfolio application using **React (TypeScript)** and an admin site using **Ant Design** with an integrated **Markdown** editor to manage dynamic web page data
- Leveraged responsive design, **CSS** animation, dynamic theme, and a rolling bullet curtain feature to optimize portfolio page
- Designed database schema using Python-based ORM library **SQLAlchemy** to ensure efficient data storage and management
- Implemented the backend functionality using the **FastAPI** framework to enable smooth data retrieval, manipulation, and secure authentication, and utilized **Axios** for seamless communication with the backend API

COMPASS (COntext Marking and starter PhrAses for Synchronized Socializing) Feb. 2023 – May 2023
- Collaborated with 4 teammates in the implementation of a web-based interface designed to facilitate real-time online communication for users with speech-generating disabilities
- Performed text cleaning and stop word removal on 3940 dialogue scripts from switchboard dialogue act corpus using **Python**
- Refined keyword extraction model **KeyBERT** and evaluated its performance on the switchboard dataset using cosine word embedding similarity, achieving 78% average accuracy in extracting conversation topics
- Developed visualization pipelines in **R** for analyzing user satisfaction, interface usability, and feature effectiveness based on the results of the user study on 6 pairs

Online Interactive Latin Motto APP Dec. 2021 – Mar. 2022
- Self-learnt and built a mobile application used by 400+ students with **Django** as the backend to elevate Latin's accessibility for beginners and promoted interactive Latin learning
- Web-scraped 572 + school mottos worldwide and Latin-word dictionaries using **Python** and stored data in **MySQL**
- Designed and implemented UI that supports Motto Search, Latin English/Mandarin Dictionary, Favorites, and Grammar using **Vue**; polished English and Chinese translations and composed grammar references on the Django admin site
- Launched on Huawei App Gallery and received Authorship of Software issued by the National Patent Bureau

Work Experience

iD Tech | *Camp instructor of AI and Machine Learning Academy with NVIDIA* Jun. 2023 – Aug. 2023
- Developed a **PyTorch** batch script to train student's data on CNN-based algorithms (VGG, ResNet, DenseNet, MobileNet)
- Implemented a prediction snippet on students' Nvidia Jetson-Nano server using **HTTP-based RPC** to report real-time results to a web-based console for student
- Mentored 20+ high school students on projects like web page gesture navigation, real-time language translation, and etc.

Robotics Institute at CMU | *Research Assistant, Summer Undergraduate Research Apprenticeship* May 2023 – Aug. 2023
- Collaborated with 5 teammates to engineer a novel approach in incorporating physics constraints with **NeRF** (Neural Radiance Fields) to accurately predict the state of cloth-like objects under manipulation in biomedical applications
- Designed and implemented scripts using Blender **Python** API to generate 120+ simulated scenes in Blender for algorithm evaluation automatically in less than 1 minute, leveraging randomized cloth size, texture, falling heights, and ground objects
- Took initiative in building a robust automation pipeline that integrates the Real-Time High-Resolution Background Matting model, the **COLMAP** framework, and **AprilTag** to generate a synthetic image dataset with subtracted background and JSON file of camera field of views (FOV) and relative poses; improved robots' perception capabilities

Guangzhou Intelligence Electrical Technology Company, Ltd. | *Machine Learning Research Intern* Jan. 2021 – Feb. 2021
- Used **LabelImg** to manually label and classify 1271 sample bird nest images taken by drones as training and testing dataset
- Augmented data by mirroring, rotating, Gaussian blur, pixel removal using **PyTorch,** resized images, and labeled regions
- Evaluated model's performance using Mean Average Precision (MAP), successfully raising 10+% accuracy rate and boosting 80 % processing efficiency
- Co-authored 10+ pages report in IEEE Access Journal (Volume: 7)