XUENING WANG

New York, NY | 347-592-3363 | xw672@cornell.edu | LinkedIn | GitHub | Portfolio

EDUCATION

Cornell Tech (Cornell University), New York, NY — Exp. Aug 2023 - May 2025
Master of Science in Computer and Information Sciences| Merit Scholarship
Relevant Coursework: Machine Learning Engineering, Applied Machine Learning, Algorithms and Data Structures for Applications

University of Liverpool, Liverpool, UK
Bachelor of Science in Computer Science | First Class Honors | GPA: 3.85/4.0 | Ranked Top 10% — Sep 2019 - Jul 2023
Relevant Coursework: Data Structures, Complexity of Algorithms, Computer Networks, Operating Systems, Software Engineering, Machine Learning, Big Data Analytics, Computer Systems Security, Advanced Object-oriented Programming, Multi-Agent Systems

TECHNICAL SKILLS

Programming Languages: Java, Python, C++, C#, JavaScript, HTML, CSS, SQL, PHP, MATLAB
Frameworks: PyTorch, TensorFlow, JQuery, Flask, Spring Boot, React.js, Node.js, OpenCV
Database: MySQL, PostgreSQL, Redis, SQLite, MongoDB (NoSQL)
Tools and Platforms: AWS (CodePipeline, S3, ECS, RDS), Alibaba Cloud ECS, Git, Docker, Bash/Shell, ActiveMQ, Jenkins, Scrum

EXPERIENCE

Xi'an Jiaotong-Liverpool University, Research Assistant, China — Oct 2021 – Mar 2023

- Engineered AI-powered solutions for long-range and cohesive music composition; built generative models in **PyTorch** and **TensorFlow**
- Developed a **Transformer-XL** model for full-song music generation with melodic, rhythmic, and harmonic variations; introduced a structure-enhanced token encoding, increasing generative accuracy by 20.1%, melodic coherence by 9.5%, and user evaluations by 12.7%
- Built **C++** and **Python** music segmentation algorithms combining music theory and data-driven approaches, achieving a 98.7% accuracy
- Integrated melody identification models to annotate classical piano music datasets; optimized the model by incorporating transfer learning techniques, boosting the accuracy by 23.5%; developed **VAE** and **GAN**-based models for Mozart-style piano accompaniment generation

Yufeng Technology Co., ltd, Machine Learning Engineer Intern, China — Jul 2021 - Oct 2021

- Built and deployed a Faster R-CNN object detection model for citrus diseases, using a **CI/CD** pipeline via **AWS CodePipeline**
- Augmented the dataset using image crawling and GAN-generated synthetic images to address data imbalance, increasing the model's mAP from 83.1% to 94.8%; developed a cloud-based annotation tool integrated with **AWS** to improve the labeling workflow
- Packaged models into **RESTful APIs** with **Flask** and integrated message queuing using **ActiveMQ**

Emerson Electric Co., Software Engineer Intern, China — Jun2020 - Aug 2020

- Collaborated in a **Scrum**-based agile team; built and deployed a product repair application using **React.js** and **C# (.NET framework)**
- Developed **RESTful APIs** using **ASP.NET Core**, managing 1 million+ records for optimized CRUD operations via **MongoDB**
- Ported and expanded the application into a WeChat Mini-Program; integrated WeChat's native functionalities of QR code scanning and location-based services to boost user engagement, increasing daily active users by 18%

PROJECTS

AI-powered Music Production System, **Poster and Demo** (PyTorch, Flask, Alibaba Cloud ECS, Docker) — Summer 2022
An "AI Songwriter" application that generates melodies and piano accompaniments based on user's vocal inputs

- Innovated an end-to-end AI-powered pipeline with singing voice transcription, music composition and real-time music synthesis
- Implemented deep generative models in VAE and Bi-LSTM architectures using **PyTorch**, integrated state-of-the-art APIs for singing voice transcription; customized metrics and loss functions, enhancing the training process and improving the baseline by 13.7%
- Built and deployed a **Flask**-based application on **Alibaba Cloud ECS**; integrated dedicated front-end (using **WebSockets** and **Web Audio API**) and GPU servers with real-time audio segment streaming to enhance system efficiency, reduced user waiting time by 28%

Student Social Media Platform Application, (Spring Boot, JQuery, Mybatis, Redis, Alibaba Cloud ECS) — Spring 2022

- Developed the frontend with **JQuery** and **Bootstrap CSS**; implemented the backend using **Mybatis** within **Spring Boot**
- Optimized the system performance by integrating **Redis** for data caching, resulting in a 40% reduction in database query times
- Deployed the application on Alibaba Cloud ECS using **Docker**, integrated with a **CI/CD** pipeline via **GitLab**

File Synchronization Tool, (Python, Socket, multithread, TCP/UDP) — Winter 2021

- Developed an automatic file synchronization tool via **Python Socket**, supporting 500 MB file transmission with breakpoint resume and dynamic port allocation; proposed a novel TCP-based application-layer protocol with specialized message types and error-handing
- Applied multithread techniques to overcome concurrency issues, improving the transmission rate by 36%