Chuqiao Lu

Tel: (USA) 858 539 5610 | Email: lcq15637375109@gmail.com
Address: 2616 Erwin Rd, Durham, NC, 27705

EDUCATION

DUKE UNIVERSITY North Carolina, USA
Master of Engineering (M.eng.), electrical & computer engineering *August 2024 - December 2025*

UNIVERSITY OF CALIFORNIA, SAN DIEGO San Diego, USA
Bachelor of Science (B.S.), electrical & computer engineering *September 2020 - April 2024*
Henry Booker Reward *(GPA:3.7/4.0)*

INTERN & RESEARCH EXPERIENCE

Laboratory for Nanobioelectronics, University of California at San Diego, CA *August 2023 - May 2024*
Research Assistant (Advisor: Professor Joseph Wang)

- Collect and analyze **1 hour +** gait data from wearable sensors, applying data preprocessing/feature engineering techniques to enhance data quality and draw best features. Developed a Random Forest classifier, leveraging machine learning expertise to achieve over **90 percent accuracy** in gait pattern classification tasks.
- Designed and engineered a real-time gait data visualization webpage, integrating data streams from Bluetooth-connected wearable sensors to present dynamic and downloadable data visualizations, enhancing data interpretation and accessibility for end-users.

PROJECT EXPERIENCE

Developing AI Advisor-DUKIES *May 2024 - Present*

- Built an AI-powered academic advising system using **Retrieval-Augmented Generation (RAG)** by leveraging **retriever** and **reranker** model, integrating and fine-tuning by **LoRA** the state-of-the-art LLM like Qwen2.5 to improve the accuracy and relevance of academic guidance for Duke University students.
- Designed a responsive front-end interface using **Streamlit**, optimizing user engagement and real-time interaction, while creating a robust back-end with **FastAPI** for efficient handling of **asynchronous** requests and heavy concurrent traffic.
- Curated and cleaned the academic course data from Duke University, forming specialized datasets that enabled targeted model fine-tuning and **vector database** building for performance enhancements.

Developing stick figure generator using DCGANs model *December 2023 - April 2024*

- Implemented a Deep Convlutional Generative Adversarial Network (DCGANs) to create a stick figure generator, iterating on model architecture to produce visually appealing and unique outputs.
- Optimized both generator and discriminator networks, employing advanced techniques like layer normalization to enhance image realism and quality.
- Refined training processes with data augmentation strategies and hyperparameter tuning, achieving a discriminator accuracy near **0.5**, improving the overall quality of the generated images.

Adding features to wearable motion capture system OpensenseRT based on Raspberry Pi *December 2022 - April 2023*

- Developed and integrated object tracking functionalities using Python and Raspberry Pi, enabling precise tracking of handheld objects for motion capture applications.
- Enhanced tracking algorithms, optimizing them for real-time performance and achieving a 90% increase in tracking accuracy under varied conditions.
- Conducted extensive testing and debugging to ensure the stability and reliability of the system, refining the codebase for real-world, high-performance applications.

Building full-stack webpage *December 2022 - April 2023*

- Developed an end-to-end blog commenting platform, designing a full-stack architecture focused on scalability and modularity, with robust user authentication and data security measures.
- Programmed the back-end via **FastAPI** and **MySQL**, engineering optimized database schemas and efficient API endpoints for heavy-load handling.
- Created an interactive React front-end, integrating real-time comment features and ensuring seamless user experience across multiple devices and browsers.

SKILLS & ACTIVITIES

- **Programming Languages:** Python, C++/C, Java, MATLAB, JavaScript, SQL, HTML, R, Linux
- **Software:** PyTorch, TensorFlow, NumPy, Pandas, transfomers, vLLM, scikit-learn, Keras, OpenCV, FastAPI, Flask, React, Streamlit, Jupyter, Git
- **Coursework & Expertise:** Deep Learning, Large Language Models (LLMs), Machine Learning, Object-Oriented Programming, Data Structure, Full-Stack software Design, Computer Vision, Natural Language Processing, Database, Embedded Systems Engineering, Data Science, Statistics
- **Publications:** Flight trajectory of boomerang: Impact of joint angle. https://arc.aiaa.org/doi/10.2514/6.2023-3249