Yi-Ting (Elane) Han

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Education

University of Massachusetts Amherst **Sept. 2023 – Expected May 2025**
M.S in Computer Science; GPA: 3.9/4.0 *Amherst, MA*

- **Focuses:** Machine Learning, Full Stack Development, Networks

National Chung Cheng University **Sept. 2018 – Jan. 2022**
B.S in Computer Science and Information Engineering; GPA: 3.8/4.0 *Chiayi, Taiwan*

Skills

Languages: Python, JavaScript/TypeScript, HTML/CSS, SQL, Java, C/C++, Bash, C#, R, MATLAB
Tools/Frameworks: Git, Numpy, Pandas, Matplotlib, Scikit-Learn, Keras, PyTorch, Docker, React.js, Django, REST API

Work Experience

Rescue Lab UMass Amherst **Feb. 2024 – Present**
Software Engineer Intern *Amherst, MA*

- Led a team to assist law enforcement agencies to pinpoint tattoos linked to criminal affiliations.
- Integrated computer vision models with a Nest.js-based backend of a microservices application to process and analyze 9k+ images and videos.
- Developed REST API endpoints to support ML pipeline, facilitating data flow between core services and ML models.
- Created interactive frontend components using HTML, CSS, TypeScript, and Node.js, improving user experience by effectively displaying model results.

Institute of Information Science, Academia Sinica **Mar. 2022 – July 2023**
Data Engineer *Taipei, Taiwan*

- Enhanced cancer detection by 5% across 49k+ sequences in 4 species by refining deep learning algorithm for eccDNA.
- Streamlined eccDNA detection pipeline, reducing processing time by 84% for 14+ TB of sequence data through data cleaning, parallel processing, and batch scheduling.
- Developed pioneering Python tool for efficient detection of eccDNAs in single-cell sequencing data.
- Created the first PostgreSQL database compiling eccDNAs from 1.4k+ Taiwanese individuals, collaborating closely with biotech team.
- Partnered with engineers and biologists to investigate relationship between eccDNAs and flu/PM2.5 in 74k+ cells, using single-cell multimodal sequencing and data science techniques such as regression analysis and hypothesis testing.

National Chung Cheng University **Sept. 2019 – June 2020**
Teaching Assistant *Chiayi, Taiwan*

- Assisted in defining the course curriculum for Program Design, created course materials, and developed interactive webapps for student assignments.
- Organized and conducted office hours for 40+ students across two semesters, providing support for 1st year CS courses.

Projects

Dream Singer: A Web Platform for AI Song Cover | *JavaScript, Django, REST API*

- Collaborated to develop full-stack features for unique music system to support user account management, historical song access, and cloud deployment.
- Built Django backend services, serving ML pipeline for voice conversion model deployment and song generation.
- Ensured seamless integration of backend and frontend via REST API, enhancing user experience from media uploads to song access.

Real-Time Product Information App in Mixed Reality | *Python, YOLOv5, C#, Unity*

- Led team to design real-time product recognition system for MR devices, enabling customers to access convenience store product details like price, ingredients, and calories.
- Optimized YOLOv5 model, achieving a mean Average Precision score above 99% on 8k+ product images.
- Developed an interactive interface using C# and Unity, facilitating model deployment and user interaction.
- Awarded the Undergraduate Research Fellowship for excellence in research proposal and project execution.