Ting-Hsiu Liu (Claire)

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EDUCATION

New York University, Courant Institute of Mathematical Science May 2025 (Expected)
Master of Science in Computer Science *New York, NY*
Coursework: Algorithms & Data Structure, Operating Systems, Database Systems, Computer Networks, Programming Languages

National Taiwan University Sep 2017 – Jan 2022
Major: Bachelor of Arts in Economics Minor: Political Science International Relations *Taipei, Taiwan*
Coursework: Programming and Business Computing, Machine Learning, Deep Learning, Data Mining, Linear Algebra, Econometrics

SKILLS

Programming Languages: Python, C++, Java, JavaScript, SQL, R, Scala
Web Development: Django, PostgreSQL, RESTful, React, HTML, CSS, MongoDB, ExpressJS, NodeJS, Bootstrap, MySQL
ML/ AI: Pandas, Numpy, Sklearn, Pytorch, TensorFlow, OpenCV, OpenAI, LangChain, Transformers, Spark
Other Tools: Git, Linux, AWS, GCP, Docker, Jira, Kubernetes, Vim, SSH, Web3, Tableau, Power BI

WORK EXPERIENCE

Orbex Labs/ Alien Attorney May 2024 - present
Software Engineer Intern | Python • Django • PostgreSQL • Docker • RAG • LLM • OpenAI *United States*
- Developed a Django-based full-stack web application, featuring a multimodal RAG system capable of intelligently answering user inquiries about various documents in diverse formats (image, tables, texts)
- Designed a versatile database schema incorporating traditional table, JSON, and embeddings to optimize the retrieval of heterogeneous document data to enhance the RAG system's responsiveness and accuracy
- Implemented LLM as middleware to autonomously generate SQL statements based on user queries; develop metrics to evaluate the performance of RAG with a set of user questions

ASUSTeK Computer Inc. (ASUS) Jul 2022 – Jul 2023
Software Engineer | Python • Java • GCP • ML • RESTful • SQL • Tableau *Taipei, Taiwan*
- Optimized BigQuery datasets and integrated diverse APIs (CRM, product pricing) on GCP to enhance data integrity and system efficiency, collaborating with IT departments for seamless data consolidation
- Led 5+ team members in ML projects to enhance digital marketing efficiency, resulting in a 23.9% increase in Return on Ad Spending for the BTS campaign in Taiwan with various models (XGBoost, gradient boosting, random forest, CNN, etc.)
- Developed a global business intelligence system with Tableau for 42 countries, minimizing network latency through partitioning, clustering, and query optimization

Data Science Intern Jul 2021 – Jun 2022
- Constructed ML models to improve digital marketing performance, achieving a 15% increase in Electronic Direct Mail open rate and a 12% increase in Return on Ad Spending in a pilot project
- Developed a service to automatically generate sales reports bi-weekly for global sales performance evaluation; designed a program with Python and SQL to detect wrong GA UTMs for precise website traffic tracking, saving more than 60% manual time per week

SELECTED PROJECTS

Augmented Library Application | Python • Django • Database • RESTful • React.js | code *New York University*
- Developed a Django-based RESTful API to empower the library's room reservation and resource management system
- Formulated a comprehensive PostgreSQL data schema with normalization principles, encompassing key entities like reservation ID, room ID, dates, and user email to optimize the storage and retrieval operations within the library's digital management infrastructure

LENR GPT (Chatbot) | Python • Llama 3 • LangChain • LLM • RAG • ChromaDB *New York University*
- Developed a chatbot that answer questions related to Low Energy Nuclear Reactions (LENR) with both RAG (in-context learning) and traditional fine-tuning approaches with Llama 3
- Processed 4000+ PDF documents to generate training data; Utilized BERT and T5 for data processing and Q&A pairs generation

Operating System Tasks | C++ • Linux • Git • GCC • Vim • SSH | code *New York University*
- Implemented foundational OS modules, such as a custom linker, process scheduler, virtual memory, and io scheduler
- Applied advanced C++ programming to solve complex problems in memory management, process scheduling, and system utilities to enhance technical proficiency

Blog Website | JavaScript • NodeJS • ExpressJS • EJS • MongoDB • Bootstrap | code *Web development bootcamp*
- Constructed a web application enabling users to upload daily journals with JavaScript, EJS, and ExpressJS
- Integrated MongoDB to store and retrieve user-generated posts, titles, and content