TENGXIAO SONG

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EDUCATION

University of Pennsylvania Philadelphia, PA
Master of Computer and Information Technology, GPA 4.0/4.0 Aug 2023 – May 2025

Franklin & Marshall College Lancaster, PA
Bachelor of Arts, Major in Mathematics, GPA 3.84/4.00 Aug 2018 – May 2022

- Awards: University Honors 2019-2022, John Kershner Scholar 2022, Dean's List 2018-2019

TECHNICAL SKILLS

Programming Languages: C, C++, Python, Java, Motoko, HTML, CSS, JavaScript, R, SQL, MATLAB, Assembly
Frameworks and Tools: React, Node, Express, PyTorch, Scikit-Learn, Pandas, Apache Spark, Apache Storm, Git, AWS

SELECTED PROJECTS

NFT Marketplace Application

- Implemented a decentralized NFT trading marketplace full-stack **web3** application with custom tokens, leveraging **Node.js**, **React**, and **Motoko**. Developed core functionalities, including NFT minting, listing, and purchasing.
- Utilized **React Hooks** to manage component state and lifecycle in functional components; optimized rendering performance with useCallback, reducing response time by **8%**.
- Deployed **Motoko** canisters on the Internet Computer blockchain to achieve orthogonal data persistence with CRUD operations.

To-Do List Application

- Designed and developed a scalable To-Do List full-stack web application with user and admin role distinction. Engineered key features including task creation, filtering by categories, and sorting by priority levels.
- Designed **RESTful APIs** handling HTTP requests using **Node.js** and **Express** for CRUD operation in **MongoDB**.
- Created the dynamic frontend webpages with **React** and **React Hooks** to respond to users' events.
- Implemented bcrypt-based password encryption and authentication for both user registration and login under **Node.js**.

Cardiovascular Disease Risk Prediction

- Implemented machine learning models (logistic regression, random forest, XGBoost) with **Scikit-Learn** for predicting cardiovascular disease in the Kaggle competition, achieving recall score of **93%** and AUROC of **82%**.
- Conducted data wrangling, including one-hot encoding, principal component analysis, and k-fold validation using **Numpy**. Utilized GridSearchCV for hyper-parameter tuning.

LC4 Assembler

- Engineered an assembler and disassembler in **C** to assemble and reverse PennSim-generated .OBJ files, translating hex instructions into LC4 assembly code following the Instruction Set Architecture (ISA).
- Implemented a custom linked list data structure for LC4's program and managed memory allocation, assembly representation, etc. within the list.

WORK EXPERIENCE

Meituan-Dianping Shanghai, China
Data Analytics Intern May 2023 – Aug 2023

- Implemented automated pipeline from data query, cleaning, processing to visualization using **SQL, Pandas,** and **Seaborn** to generate weekly department reports from **MySQL** database.
- Formulated merchant agreements on after-sales services, conducting cross-platform market research and data analysis. Resulted in a **24%** reduction in departmental operational costs.

Poizon Shanghai, China
Software Engineer Intern Jan 2023 – Apr 2023

- Developed a convolutional neural network model for luxury product feature extraction and image recognizing using **PyTorch**. Achieved **86%** test accuracy with **300K+** training samples and **52k+** testing samples.
- Implemented a multinomial logistic regression classifier as a baseline in **Python**, laying the foundation for subsequent models.
- Optimized models' performance by tuning key hyper-parameters, including the learning rate, beta value, and the number of fully connected layers.