MAO LI

(+1) 619-381-1639 | maoli@berkeley.edu | https://li-mao.net

EDUCATION

University of California, Berkeley   (Expected) **08/2021 - 05/2022**

*Master of Engineerin*g in Electric Engineering and Computer Science, Data Science and System track

Honors: Received **20,000 dollars** Fung Institute Leadership Scholarship

University of California, San Diego   **09/2016 – 06/2020**

Bachelor of Science in Computer Science, GPA: **3.96/4.0**, ranked **top 2%** of the class

Honors: **Summa Cum Laude**, member of Tau Beta Pi and Phi Beta Kappa

Selected Coursework: Data Structure and Algorithm, Software Engineering, Networks, Operating System, Database

EXPERIENCE

Undergraduate Research Assistant | UC San Diego DebateStar   **10/2019 – 03/2020**
- Utilized NLP tools to analyze the persuasiveness of debate under the guidance of prof. Jingbo Shang
- Tailored **GloVe** embedding and attention mechanisms to extra relevant information from debate speeches
- Implemented **LSTM** to capture long-term dependency and gain insight on logical structure within speech scripts
- Built an interactive online platform with **Python Flask** and deployed via **AWS**: https://www.debatestar.net

Software Engineering Intern | SV Summit Inc.   **07/2019 – 09/2019**
- Developed an online learning management system for technical training following MVC pattern
- Designed data scheme, managed platform data in **MS SQL**, and implemented ORM with **SQLAlechmy**
- Implemented backend data serving using **Python Flask** and built **RESTFUL APIs** for front end clients
- Built modularized user interface with **React** and **Material UI** and handled data flow with **Redux** State Container
- Deployed on AWS EC2 with **Nginx**, configured reverse proxy load balancer to improve QPS by **37%**

President | UC San Diego Triple C (https://ucsdtriplec.org)   **03/2019 – 06/2020**
- Led Triple C, one of UCSD's largest student incubators which consists of **100**+ members and **12**+ CS/DS projects
- Organized coding parties, tech workshops and internal career fairs to foster geek and entrepreneur culture
- Collaborated with leadership team to tunnel academic, industrial, and financial resources for each project's needs

PROJECTS

Simple Router (C++, Mininet)   **03/2020 – 06/2020**
- Built a network router in C++ that routes packets between Mininet's emulated hosts, and tested it with Wireshark
- Developed logic to handle Ethernet packets, forwards UDP/TCP, generates ICMPs, sends, and replies to ARPs
- Designed and implemented a queue-based ARP cache with timed invalidation, improving performance by **50%+**
- Built sanity checks for packets and customized longest prefix match algorithm to find next-hop entry in routing table

CNN Optimization (C++)   **01/2020 – 03/2020**
- Performed memory and runtime optimization for a simplified version of deep neural network AlexNet
- Used **gprof** profiler to measure each layer's runtime and analyzed the assembly compiled by different C compilers
- Applied OpenMP multi-threading, loop re-ordering and tiling, and vectorization to achieve over **7x** runtime speedup

UMIX OS (C)   **01/2019 – 03/2019**
- Implemented context switch, scheduler, synchronization, and thread management for prof. Pasquale's UMIX OS
- Built FIFO, LIFO, Round Robin, and Stride Scheduling for processes with customized list- and map-based structures
- Designed and utilized Semaphores and shared memory to avoid busy waiting and prevent race conditions
- Developed thread initiation, yielding, scheduling, and exiting mechanisms to support general multi-threading

Recommender System (Python)   **09/2018 – 12/2018**
- Built category classifier on Amazon and Yelp's dataset (200k+), with accuracy ranked **2nd** out of 355
- Designed the classifier using **scikit-learn** linear SVM, extracting features from review text and purchase history
- Customized collaborative filtering algorithm for purchase prediction, ranked **top 12%** on Kaggle

SKILLS

Programming Languages: Java, Python, C++, SQL, HTML/CSS, JavaScript

Skills and Framework: Web development with Flask, Node.js, MySQL, AWS, React and HTML/CSS/JavaScript; Machine Learning with PyTorch, Pandas and Scikit-learn; Proficient in Unix environment and Git workflow