Zehao (Zach) Guan

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Education

Carnegie Mellon University — Pittsburgh, PA
M.S. in Artificial Intelligence and Innovation, School of Computer Science, GPA: 3.83/4.0 — *Aug. 2018 - May 2020*

Zhejiang University — Hangzhou, China
B.E. in Information and Electronic Engineering, GPA: 3.76/4.0 — *Sep. 2014 - Jun. 2018*

Skills

Coursework: Distributed Systems, Principles of Software Construction, Intro to Computer Systems, Database Systems, Practical Data Science, Machine Learning, Machine Translation, Deep Learning(TA), Natural Language Processing(TA).
Programming Languages: Python, Go, Java, C/C++, JavaScript, SQL, Scala, Shell.
Tools and Frameworks: Linux, Git, Perfoce, AWS, Kubernetes, Docker, CUDA, Hive, Hadoop, Spark, MySQL, MongoDB, Django, Vue.js, TensorFlow, PyTorch, MATLAB.

Professional Experience

VMware — Palo Alto, CA
Member of Technical Staff - Propel, vCenter WCP Core Team — *July 2020 – Now*
- Currently working on WCP Observability Logging project for the 1st rotation.

Walmart Labs — Sunnyvale, CA
Software Engineer Intern, Personalization Team — *May 2019 – Aug. 2019*
- Designed a personalized recommender for implicit data, and developed latent factor model based collaborative filtering.
- Aggregated million-scale Walmart.com transaction data by Hive, extracted and preprocessed raw data with PySpark.
- Visualized insights by Tableau and applied ranking-based information retrieval metrics such as Mean Average Precision and Normalized Discounted Cumulative Gain for graded relevance evaluation on the customers preference.

University of Michigan — Ann Arbor, MI
Research Assistant, Electronic Engineering and Computer Science Dept. — *Jul. 2017 – Oct. 2017*
- Developed a prototype system integrated with wearable sensors and remote monitor display for U-M athletic swimmers.
- Assembled varied sensors and modules on Arduino by C++ to collect real-time detected biometric data, and utilized Eagle to redesign schematics and circuit layouts to improve communication efficiency.
- Designed Android App to receive transmitted data and multi-thread programs to establish synchronous connections.

Nokia Siemens Networks — Hangzhou, China
Software Engineer Intern — *Aug. 2016 – Nov. 2016*
- Implemented image segmentation and feature extraction by OpenCV, and applied CNNs based model to build a human face recognition system in TensorFlow.
- Embedded the framework in Raspberry Pi with front-end display interface to complete a human-machine interactive demo, which is capable of pushing customized information of recognized targets.

Selected Projects

Chatbot for Interactive Voice Response System — *Dec. 2019 – Apr. 2020*
- Designed an interactive web application for phone trees of insurance company with Vue.js and DynamoDB.
- Provided RESTful APIs and built websocket connections for event-driven data transfer between server and clients.
- Utilized Twilio tools and Google Speech for real-time utterance transcription and sent it to backend with Flask.

Speech-to-Text Transcription System — *Feb. 2019 – Apr. 2019*
- Developed Attention-based deep neural networks in PyTorch, with a combination of RNNs, CNNs and Dense Nets to design an End-to-End system for speech utterance to corresponding text transcription.
- Evaluated on WSJ dataset with the Levenshtein distance and perplexity, and ranked top 5% on Kaggle leaderboard.

Intro to Computer Systems Labs — *May 2018 – Aug. 2018*
- Wrote a general-purpose cache simulator, and optimized a small matrix transpose kernel to minimize number of misses.
- Realized a simple Unix shell that supports basic commands of job control and implemented I/O redirection.
- Implemented a dynamic memory allocator by designing segregated free list and manipulating bits in header/footer with LIFO and best-fit policy to improve both space utilization and throughput.
- Built a concurrent HTTP proxy that caches recently accessed web objects to handle multiple client requests in parallel.