Yifan Guan

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EDUCATION

University of Michigan, Ann Arbor, MI January 2017 – May 2019 (Expected)
B.S.E in Computer Science GPA: 3.95/4.00

Virginia Polytechnic Institute and State University, Blacksburg, VA July 2015 - December 2016
B.S. in Computer Science GPA: 3.96/4.00 Major Rank:1/134

RESEARCH EXPERIENCE

Designing Fair Ranking Schemes and On Obtaining Stable Rankings September 2018 – Present

- Built a demo system for fair and stable ranking schemes describe in two papers
  Designing Fair Ranking Schemes: https://arxiv.org/abs/1712.09752
  On Obtaining Stable Rankings: https://arxiv.org/abs/1804.10990

Beaver January 2018 – April 2018

- Made it easy to integrate data from two or more sources, and applied necessary data transformations
- Developed a new schema mapping technique and proposed a novel declarative query language
- Investigated poor performance for different integration settings and determined fixes for them

Satellite Remote Sensing January 2018 - Present

- Implemented an image library, a vector library, and a raster library for the existing codebase
- Performed data analysis and transformations on satellite data collected from remote sensors

Industry EXPERIENCE

Zillow Group, Seattle, WA
Software Development Engineer Intern Summer 2018

- Refactored neighborhood module on Zillow home detail pages using React, added asynchronous loading to improve user experience, and wrote test cases using Jest and enzyme
- Migrated region data from Zillow Pogo database to GraphQL
- Fixed bugs including URL generation and page redirections

PROJECTS

Wikipedia Search Engine Winter 2018

- Created an inverted index using Hadoop's command line streaming interface
- Built a backend index server (RESTful API) using python to handle search queries and return search results
- Implemented a search interface using React to provide a GUI for users to enter a query and display search results from the index server
- Deployed final product to AWS

Single Image Surface Normal Prediction Winter 2018

- Performed feature engineering to adjust image pixel values according to the actual scenario
- Developed stacked hourglass neural network using TensorFlow to predict surface normal of a single image
- Trained and tested models using GPUs on Google Cloud

Network File Server Fall 2017

- Implemented a multi-threaded and secure network file server to handle clients' requests concurrently using socket programming
- Built a hierarchical file system to provide functionalities for clients to create new files or directories, delete files or directories, read from files, and write to files

Memory Manager Fall 2017

- Implemented a pager managing application process virtual address spaces with interrupt handler for memory faults and system calls that applications can use to create, copy and destroy address spaces, and switch between address spaces
- Designed page faults generation mechanism to achieve translations between physical memory and virtual memory

Thread Library Fall 2017

- Implemented an operating system thread library that contains mutex, condition variable, thread, and CPU class to support multi-threaded programs
- Decided usage of data structures to simulate how kernel schedules concurrency programs internally

B+ Tree Implementation Fall 2017

- Implemented a B+ tree data structure for efficient data storage and retrieval
- Mastered how B+ tree index works, how it stores data records, and how it rearranges keys properly

Disk Scheduler Fall 2017

- Wrote C++ multi-threaded programs using monitors to issue and service disk requests
- Understood how to write monitor code for concurrency programs

Zookeeper Spring 2017

- Implemented MST on completely connected graphs based on Prim's and Kruskal's algorithms
- Developed a fast and effective bounding algorithm to find an optimal solution for Traveling Salesman Problem and applied heuristic approaches to achieve a nearly-optimal solution

HONORS and AWARDS

EECS Scholars Winter 2018
University Honors at University of Michigan Winter 2017, Winter 2018
Dean's List at University of Michigan Winter 2017, Winter 2018
Dean's List at Virginia Tech Fall 2015, Spring 2016, Fall 2016

CORE COURSES

Operating Systems, Database Management Systems, Web Databases and Information Systems, Machine Learning, Computer Vision, Natural Language Processing, Computer Security, Computer Organization, Theory of Computation, Data Structures and Algorithms, Discrete Mathematics, Software Design, Technical Communication

SKILLS

Programming Languages: C, C++, Java, Python, JavaScript, MATLAB, R, ARM, x86
Frameworks: React, Flask, AngularJS, TensorFlow
Databases: MongoDB, PostgreSQL, MySQL, SQLite