

GEMMA GUO

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EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY: May 2019 (*anticipated*)

B.A. Computer Science, College of Letters and Sciences

Major GPA: 3.79

COURSEWORK

Structure and Interpretation of Computer Programs · Data Structures and Algorithms · Computer Architecture · Discrete Mathematics and Probability · Artificial Intelligence · Efficient Algorithms and Intractable Problems · Database Systems · User Interface Design and Development · Computer Security · Operating Systems · Internet Architecture and Protocols (in progress) · Data Science Principles (in progress) · Programming Languages and Compilers (in progress)

ASSOCIATIONS

Upsilon Pi Epsilon (Computer Science Honor Society)

PROJECTS

QUANTCAST (SOFTWARE ENGINEERING INTERN): May 2018-Aug 2018

- Used **Terraform** to automate the management of **Datadog** monitors and put them in version control.
- Designed a library of **reusable modules** for common monitor types in order to simplify codifying new monitors, reduce code duplication, and enforce stricter standards in monitor set-up.
- Won first place in the summer intern hackathon, where I worked in a team of four to build a web app that ranked website popularity for a given set of topics and demographics.

IBM ASPERA (SOFTWARE ENGINEERING INTERN): May 2017-Aug 2017

- Worked on the streaming team to develop an **Android** demo application.
- Implemented an app that **adaptively streamed** side-by-side videos to compare the performance of streaming over FASP to streaming over TCP.

UC BERKELEY (ACADEMIC INTERN): Jan 2017-May 2018

- Taught and guided students during lab for CS61B (Data Structures and Algorithms), ensuring that they complete lab assignments and understand the concepts behind their work.

PROJECTS

PINTOS OPERATING SYSTEM EXTENSIONS (C): Extended Pintos, a simple operating system. Implemented scheduling algorithms for threads, support for command-line arguments, and process control and file operation system calls. Also added a buffer cache, as well as support for extensible files and a hierarchical directory structure.

MAP OF BERKELEY (JAVA): Programmed the backend of a web-based, interactive map of Berkeley in Java, using real-world data. Implemented an A* algorithm to calculate the shortest path between any two locations, and utilized a quad-tree data structure to store the map image in order to achieve different levels of detail when zoomed in or out.

DATABASE (JAVA): Implemented B+ Trees with bulk loading, multiple join algorithms (including PNLJ, BNLJ, External Sort Join, and Sort Merge Join), and a relational query optimizer that used System R Dynamic Programming to search for the optimal query plan. Also implemented table-level and page-level locking to manage multiple transactions.

SKILLS

TECHNICAL: Java, Python, C/C++, Terraform, SQL, JavaScript, HTML/CSS; MS Word, MS Powerpoint, MS Excel