Richard Liu

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Education

University of California, Berkeley Planned Graduation: December 2019

Technical GPA: 3.92; B.A. Computer Science, EECS Departmental Honors with History Concentration

Select Courses: Security, OS, Networks, CS Theory, Machine Learning, Deep Neural Networks, Parallel Computing
(course numbers: CS 161, 162, 168, 170, 188, 189, 194-129, C267)

Experience

Google | Software Engineering Intern, Google Cloud Dataproc May 2019 – Aug 2019

- Wrote design doc for and implemented currently unannounced feature*
  - Impact: decreases waiting for end-users and workflow latency
- Wrote message passing and translation library in Java and integrated with existing service control plane

Blend Labs | Software Engineering Intern (Data), 8VC Summer Fellow May 2018 – Aug 2018

- Designed and implemented parallel Python **ETL pipeline** in Apache Spark for application datastores
  - Preserved data model and transition definitions while refactoring to support parallel execution
- Decreased end-to-end runtime **by > 90%,** enabling faster data refreshes and higher ingestion frequency
- (May 2019 update) Pipeline has been running stably in production without crashes for 10 months

Blend Labs | Software Engineering Intern (Infrastructure) May 2017 – Aug 2017

- Designed and built a ***distributed tracing*** system, enabling request lifecycle monitoring in production
  - Impact: helped application developers diagnose elusive MongoDB load issues
- Created scalable tracing span pipeline optimized for low resource usage through sampling
- Implemented tracing client as template, internal services, and monolith as TypeScript middleware

CS 162 (Operating Systems) Staff | UC Berkeley EECS: Reader Jan. 2019 – May 2019

- Responsible for grading exams and homeworks, supporting office hours, running review sessions

RISELab | UC Berkeley EECS: Research Assistant Fall 2018

- Worked on RLlib and enhanced worker scheduling: dropped worker latency by 80%, cut runtime by 20%
- Research: experimenting with deep RL methods for efficiently scheduling worker tasks on cluster nodes

Projects

CS 194-129 | Deep Neural Networks: Image Forgery Detection Spring 2018

- Created a deep convnet with attention for detecting copy-move image forgeries, ~90% class. accuracy

CS C267 | Parallel Computing: Generative Deep Model Parallelism and Acceleration Spring 2019

- Modified CycleGAN to sequentially shard model training across GPUs, enabling generating larger images
- Proposed method of splitting individual layer calculations across devices with unshared memory

Selected Awards and Achievements

- US Department of Energy National Science Bowl – 2nd (Nationals)
- USA Computing Olympiad (USACO) – Gold Division Competitor
- USA Physics Olympiad (USAPhO) – Semifinalist, Honorable Mention (Top 100)

Technical Skills

Languages: C, C++, Java, Python, Typescript | Tools: Pytorch, OpenCV, Docker, Cloudformation, Redshift, Spark