NEIL GIRIDHARAN

Education

University of California, Berkeley
Aug. 2016 - May 2020

B.A. Computer Science
- GPA: 3.566
- Coursework: Algorithms, Great Ideas of Computer Architecture, Data Structures, Discrete Math and Probability Theory, Structure and Interpretation of Computer Programs, C++ for Programmers, Unix System Administration
- Spring 2018: Operating Systems, Computer Security, Designing Information Devices and Systems

Experience

Berkeley RISE Lab
Berkeley, CA

Undergrad Researcher
Sept. 2017 - Present
- Wrote tests and documentation for Confluo, a distributed lock-free data store designed for monitoring applications
- Built timeseries and streaming interfaces (C++) that implemented prefetch reads and buffered writes resulting in a 85% reduction in running time over a workload of millions of records
- Overhauled the type manager system to support operations on custom user-defined types using template specialization in C++

Berkeley Terraswarm Research Center
Berkeley, CA

Undergrad Researcher
Jun. 2017 - Aug. 2017
- Implemented a multithreaded logging system in C++ using pthreads for Drona, a safe robotics system, that monitored temporal properties of the drone
- Improved throughput allowing more data to be logged compared to a single-threaded implementation

Miami University Parallel and Cloud Computing Lab
Oxford, OH

Software Developer/Researcher
Oct. 2013 - 2016
- Developed a comprehensive stochastic individual-based simulation in place of a limited differential equation model (Java) that maintained 90%+ accuracy across all metrics to scraped H5N1 surveillance data
- Automated data collection by building a tool that determined the best parameter settings through analyzing thousands of simulation runs (Shell, Python)
- Parallelized simulation using the Java 8 Concurrency APIs resulting in a 52% reduction in running time

Projects

Easy Vote - Cal Hacks 3.0
Nov. 2016
- Built a mobile web app using Python and Django that automatically registered users to vote based on the barcode of their ID
- Automated voting process by using the Python Mechanize library to upload barcodes to a barcode decoder web service and automatically fill out the California online voter registration form

Identitree
Oct. 2013
- Built an Android Application (Java, XML) for Camp Joy (nonprofit) that identified trees in Ohio by parsing JSON data structured as a dichotomous key
- 1000+ downloads in the Google Play Store

Publications

- **Neil Giridharan,** Dhananjai M. Rao, "Eliciting Characteristics of H5N1 in High-Risk Regions Using Phylogeography and Phylodynamic Simulations" in **IEEE Computing in Science and Engineering Special Issue in Discrete Modeling and Simulation**

Skills

- Java, Python, Amazon Web Services, C++, Scheme, SQL, JavaScript, Shell Scripting, Vim, Git, Eclipse, Subversion