Harrison Sheng-Yu Tsai

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Education

University of California, Berkeley *B.S. Electrical Engineering & Computer Sciences, 2015*

Relevant Coursework: Computer Programs, Data Structures, Machine Structures, Systems & Signals, Communication Networks, Microeconomic Analysis, Productive Use of UNIX, Intro to Wall Street, Discrete Math & Probability Theory, Microelectronic Circuits, Database Systems, Computer Simulations in Earth & Planetary Sciences, Technology Firm Leadership, Artificial Intelligence

Work/Volunteer Experience

Applications Engineer Intern *June-August 2013*

Broadcom Corporation, Sunnyvale, CA

- Setup and run throughput tests using iperf on pre-production wireless combo chips
- Setup and run indoor location demos for customers and partners
- Implemented a real-time time vs. throughput iperf graph on Android
- Winner of the Broadcom Norcal Intern Hackathon. Created a proximity sensor using LEDs, Raspberry Pi and Samsung Galaxy S4 with Broadcom indoor location technology. A team of four completed in sixteen hours

Project Member *February-May 2013*

Blueprint, Technology for Non-Profits, Berkeley, CA

- A team of five used Ruby on Rails to create an informational and interactive website for UC Berkeley's Alternative Breaks. The website allows prospective members to learn about the club and members to discuss in a forum-like environment.

Industrial Relations Officer [Director after May 2013] *August 2012-present*

IEEE UC Berkeley Chapter, Berkeley, CA

- Organize and assist with on-campus corporate info sessions and tech talks
- Assist in planning and executing the biannual, student-run UC Berkeley Startup Fair
- As director, manage and develop a team of industrial relations officers

Helpdesk Program Assistant *August 2012-present*

UC Berkeley IRIS/EECS Department, Berkeley, CA

- Diagnose, troubleshoot, and resolve technical problems on Windows, MacOS and UNIX
- Provide support for graduate students, professors and research groups
- Use Request Tracker ticket-tracking system to answer requests for computing help

Software Engineering Intern *July-August 2012*

Beyond Consultancy, San Francisco, CA

- Created scripts, queries, and web apps to help the analytics team efficiently obtain data from social media
- Taught non-technical associates how to use the software tools and make basic social media API queries

Programming Experience

Experience in **Python**, **Java**, **C** & **HTML/XML**. Knowledge in **Git**, **UNIX**, **TCP/IP, Ruby on Rails** & **MongoDB**

- Designed a 16-bit two-staged pipeline processor in Logisim that implemented ALU, register, & memory operations.
- Took advantage of caching and parallelism to improve the performance of matrix multiplication. Used C, SSE instructions, and OpenMP. In two weeks, a team of two improved up to 50 Gflop/s on average
- Created a learning switch/bridge and a router implementing Routing Information Protocol (RIP) in Python. RIP router included split-horizon routing with poison reverse and handled link failures and implicit withdrawal.
- Designed a program in Java to produce an ordered list of n-gram co-occurrence rates in small and large documents. Used Hadoop on Amazon EC2 servers.
- Created website to find open classrooms at UC Berkeley. Used PostgreSQL, Flask, Jinja, and Heroku.
- Created a web scraper in Python to find when classrooms are occupied at UC Berkeley. Used SQLite3 to organize data. A team of two finished in two nights
- Created an intelligent computer player in Java for the board game Network. Used game trees and alpha-beta pruning. A group of three finished in two weeks
- Designed a program in Python that maps Twitter tweets around the nation. Presented states' attitude on a subject using sentiment aggregation in the tweet. Completed in a weekend.