Harrison Sheng-Yu Tsai

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Education

University of California, Berkeley

B.S. Electrical Engineering & Computer Sciences, 2015 (Expected)

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

Work/Volunteer Experience

Industrial Relations Officer *August 2012 to 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
- Managed a project to design and promote a corporate sponsorship package

Helpdesk Program Assistant *August 2012 to 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
- Updated backend components to be more efficient

Programming Experience

Experience in **Python**, **Java**, and **C**. Knowledge in **HTML**, **CSS**, **JavaScript**, **SQL**, **Git**, **UNIX**, **TCP/IP**

- Designed a 16-bit two-staged pipeline processor in Logisim that implemented ALU, register, and 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 app that gets any website's interaction data (shares, likes, comments) on Facebook. Used Facebook Graph API, Python, Flask, and Jinja. Completed in three days.
- Created a web app that used multithreading to get the full URL of multiple Twitter t.co links. Written in Python and utilizes Flask and Jinja frameworks. Finished in a week.
- 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.