KEVIN KAO

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EDUCATION

University of California, Berkeley – College of Engineering May 2016
B.S. Electrical Engineering & Computer Science 3.63 – CS GPA

- Data Structures
- Machine Architecture
- Algorithms
- Computer Security
- Databases
- Web Architecture
- Computational Biology
- Data Science
- Artificial Intelligence

Awards: Regents & Chancellor Scholar

PUBLICATIONS

Zachary Pardos, Kevin Kao, Mangpo Phothilimthana. "moocRP: An Open-Source Analytics Platform". October 2014. LAK 2015.

SKILLS

Programming Languages: Java, Python, JavaScript, Ruby, JRuby, R, HTML, CSS, SQL, C, C++, Bash, Datalog
Frameworks & Libraries: Node.js, Sails.js, Rails, Hadoop (MapReduce), jQuery, Redis, MySQL, D3.js, Underscore.js
Platforms & Tools: UNIX, Git, Mercurial, Amazon EC2, Amazon S3, OpenSSL, nginx

WORK EXPERIENCE

LogicBlox – Database Engineering Intern August 2014 – Present

- Researched cutting-edge academic papers on implementation of **dynamic SCC algorithm** under edge additions/deletions
- Implemented an internal graph structure representing Datalog expressions to replace dependence on C++ boost library for graphs
- Currently designing new **incremental graph maintenance** into smart database to optimize performance from full recomputes of SCCs

AutoGrid Systems – Software Engineering Intern May 2014 – August 2014

- Fully developed new vital portion of data analytics pipeline: an **incremental ETL algorithm** using multithreading, the star schema, Redis, MySQL, and MapReduce to allow scalable incremental computations on millions of data points by ML algorithms
- Developed a **communications platform** (email, SMS, voice) as a Ruby gem with an enhanced templating system
- Designed a **JRuby webservice/RESTful API** for the Ruby gem, allowing all non-Ruby platforms to utilize its functionalities
- Implemented a **CSV import feature** for mass database population, saving tens of minutes of time for customers and QA engineers
- Developed **internal monitoring app** with Python Flask to check config/status of applications, ensuring quick detection of problems

UC Berkeley School of Information – Full Stack Research Intern February 2014 – Present

- Developed **Node.js web app** called moocRP that serves as a data distribution and data analytics sharing platform for researchers
- Contributed significant data transformation Python and Bash scripts to **open-source Stanford/Harvard data analytics scripts**
- Designed **analytics sharing system** that allows users to upload D3 visualizations to be automatically scaffolded and shared publicly
- Implemented **secure datasets download pipeline** with SSL, CSRF-protection, CAS authentication module, GPG encryption

Past Positions: Undergraduate Researcher at **UC Berkeley MOOCLab**, SDET Extern at **Microsoft**, Founder of **Paw for Paw** non-profit

PROJECTS

Brain Image Analytics (Python, Pandas, R, Matlab, Scala) October 2014 - Present

- Currently performing exploratory data analysis on fMRI images to classify patient responses against images that they are viewing

Scribble.ly (Python, Flask, JavaScript, D3.js, HTML/CSS) October 2014 - Present

- Designed a single page application (SPA) with Python Flask that shortens URLs, using AJAX requests to dynamically update page content
- Implemented simple analytics visitor tracking feature of shortened URLs with visualizations of the data in graphs through D3.js

Traffic Simulation Study (R) October 2014 – October 2014

- Implemented algorithm to display flow of traffic according to the BML traffic model and analyzed traffic jams through visual simulations

SimpleDB Relational Database System (Java) January 2014 – May 2014

- Designed a transactional database that allows concurrency at a page level, with locking to prevent race conditions
- Wrote sort-merge algorithm and DP query optimization algorithm that generated close-to-optimal query plans

Web & Virtual Machine Security Penetration Testing (Python, C, Ruby, Bash) March 2014 – April 2014

- Wrote Python and Bash scripts to pipe hex data and perform buffer overflows, using GDB stack analysis, netcat, and nmap to scout
- Scanned vulnerable C code, writing a Python script to bruteforce RSA private key and Ruby script to spoof DNS responses to bypass SSL

MapReduce Text Processing on Amazon EC2 (Java, Hadoop, Amazon EC2) September 2013

- Utilized the Hadoop MapReduce framework to process large documents and calculate word relationships on Amazon's EC2 clusters
- Implemented efficient MapReduce algorithm, benchmarking a speed of 51 seconds, less than half required time (200% speedup)