

KEVIN KAO

San Jose, CA 95132 | 408.373.5520 | kkao@berkeley.edu
kevcao.com | github.com/kk415kk

EDUCATION

University of California, Berkeley – College of Engineering

B.S. Electrical Engineering & Computer Science (EECS)

May 2016
3.63 – CS GPA

Awards: Regents & Chancellor Scholar

- Received by only top 2% of the university's students

Advanced Courses:

- Completed: Data Structures, Machine Architecture, Efficient Algorithms, Databases, Computer Security, Artificial Intelligence
- Current: Algorithms in Computational Biology, Web Architecture, Data Science, Computing with Data

SKILLS

Programming Languages: Java, Python, Ruby, C, C++, HTML, CSS, JavaScript, SQL, Bash, JRuby

Frameworks & Libraries: Node.js, Sails.js, Hadoop MapReduce, D3, Rails, OpenMP, Logstash, Kibana, Redis

Platforms & Tools: Github, Amazon EC2/S3/CloudFormation, UNIX, GDB/JUnit, OpenSSL, nginx, Monit, RabbitMQ

WORK EXPERIENCE

AutoGrid Systems – Redwood Shores, CA

May 2014 – Present

Software Engineering Intern – Ruby, Rails, Python, Monit, Redis

- Fully developed Ruby gem serving as a communications platform that provides email, SMS, and voice functionalities
- Implemented a JRuby-based webservice/RESTful API for the Ruby gem for non-Ruby platforms to be able to utilize its functionalities
- Integrated a Logstash/Kibana-based logger to provide organized, searchable logs with charts and filters for AutoGrid's foundational services
- Designed and developed Python/UNIX-based monitoring service to check uptime and configuration of applications (i.e. MySQL, Redis)

UC Berkeley School of Information – Berkeley, CA

February 2014 - Present

Full Stack Web Developer – JavaScript, Python, Node.js, Sails.js, HTML/CSS

- Developed secure Node.js web app called moocRP from scratch for Berkeley researchers conduct data analytics and share D3 visualizations
- Wrote data scraping/parsing Python and Bash scripts to contribute to Stanford's open-source scripts for ordering data into SQL/CSV files
- Implemented secure download pipeline for sensitive datasets with SSL, CSRF-protection, CAS authentication, and user/admin system
- Researching and contributing to machine learning algorithms written in C++ with Matlab wrapper, possibly porting to Julia for parallelization

UC Berkeley MOOCLab – Berkeley, CA

October 2012 - Present

BerkeleyX Research Assistant

- Integrated LTI services to edX online learning platform, successfully importing Piazza to edX through XML tweaks
- Developed Amazon CloudFormation template for automating VM setup with appropriate dependencies set up, such as Ruby on Rails

Microsoft – Redmond, WA

December 2012

Software Development Engineer for Test Extern

- Identified simple bugs from snippets of code through unit testing and integration testing
- Researched TDD with two externs to learn to push efficient code quickly in an agile software development cycle

PROJECTS

moocRP (HTML, CSS, JavaScript, Node.js, Sails.js, Bootstrap, jQuery, nginx)

February 2014 - Present

- Followed MVC design pattern and used Node.js, Sails.js platforms and Bootstrap to develop SSL-secured front and backend infrastructure
- Consulted Berkeley researchers on user stories, creating a RESTful API to provide automated JSON data retrieval from web app
- Developing data analytics and visualization modules using D3.js library while maintaining security of sensitive datasets
- Integrated and developed user-permission-based download system for sensitive datasets of information

Node.js CAS Module (HTML, JavaScript, Node.js)

March 2014 - Present

- Pioneered first open-source JavaScript CAS module specific to UC Berkeley's authentication system, packaging for Node.js package manager
- Researched numerous CAS clients in Java, Perl, PHP, and Ruby in order to determine module necessities

Web/VM Security Penetration Testing (Python, C, Ruby, Bash)

March 2014 – April 2014

- Performed reconnaissance on Ubuntu VM using nmap and netcat network tools to find security holes
- Penetrated into five user accounts on Ubuntu VM remotely via vulnerable FTP service with GDB stack analysis
- Wrote Python and Bash scripts to pipe hex data and perform buffer overflows, bypassing ASLR defenses for root shell access
- Scanned vulnerable C code, writing a Python script to bruteforce RSA private key and a Ruby script to spoof DNS responses to bypass SSL

Image Filter, Metadata Extractor (C)

November 2013 – February 2014

- Implemented speedy image filter algorithm by means of convolution of a kernel matrix, as well as a secure metadata processing algorithm
- Exploited potential of OpenMP multi-threading library in C and Intel SSE instructions for performance speed-ups of over 600%

MapReduce on Amazon EC2 (Java, Hadoop, Amazon EC2)

September 2013

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

Other: SimpleDB RDBMS, Pacman AI, portfolio website, various language interpreters (MIPS, Scheme), Network game