


# Sairam Krishnan

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## SUMMARY

Software engineer with 6+ years of work experience and specializations in embedded systems, cloud computing, and machine learning

## EDUCATION

### **Carnegie Mellon University, Pittsburgh, PA**

- M.S. in Electrical & Computer Engineering, Dec. 2014 [GPA: 4.00/4.00]
- B.S. in Electrical & Computer Engineering, May 2014
- Minor in Business Administration, May 2014

## SKILLS

- **Languages** - English, Tamil, Spanish, French, Italian, Chinese
- **Programming Languages** - C/Embedded-C, C++, C#, Go, Java, Scala, Python 2/3 (+Pandas), PowerShell, Bash, Zsh, Awk, Perl, HTML/CSS/JavaScript, Matlab, GNU Octave, R
- **Cloud Computing Technologies** - Apache HBase and Hadoop, Apache Cassandra, MongoDB, Microsoft Azure Cosmos DB and SCOPE QL, Amazon Web Services (CloudWatch, SNS, S3, EBS, EC2, Elastic MapReduce, DynamoDB), Google AppEngine and Cloud, Heroku
- **General Tools and Technologies** - Windows, Linux, HTTP, SSL, TCP/IP, J2EE, JQuery, XML, AJAX, MySQL, Hibernate, Spring MVC, Django, Play!, Undertow, Bootstrap, Node.js, Express.js, ASP.NET MVC, Android, OpenCV, OpenNI, OpenMP, SIMD, CUDA, Arduino, Raspberry Pi, Vim, Eclipse IDE, Visual Studio, Git, Subversion, Perforce, Selenium

## EMPLOYMENT HISTORY

### **Amazon Alexa Senior Software Engineer (04/2018 – Present)**

- [Team Lead] Created GraphQL-based data aggregator with intelligent caching to improve modularity and reduce latency.
  - Saved \$40M per year.
  - Also implemented self-service onboarding to reduce time from 2 weeks to 15 minutes.
- Optimized user registration process to cut customer complaints by 10x.

### **SIG Senior Data Engineer (11/2016 – 03/2018)**

- [Team Lead] Utilized C++; Pandas; Django to analyze firm's market-making transactions and detect FINRA compliance violations in real-time.

### **Microsoft OSG Core Software Engineer (03/2015 – 10/2016)**

- Established Windows Phone 10 OneSync power-consumption targets (4x reduction from Windows Phone 8)
- Leveraged telemetry in real-time dashboards and weekly guidance reports to management

### **Amazon Web Services (AWS) SDE Intern (05/2014 – 08/2014)**

- Achieved 15% speedup in logging system for 8M+ customers
- Deployed script to build call traces and gather metrics from logs

### **LeanFM Technologies Full-Stack Web Developer Intern (12/2013 – 02/2014)**

- Developed Django admin interface for building managers

### **Web Applications Course Developer (05/2013 – 12/2013)**

- Created cloud platform for course administration
- Instructed 105+ students as final projects' Agile Product Owner

### **NSF Cyberphysical Systems Researcher (02/2013 – 08/2013)**

- Designed bacterial simulator to replace live culture experiments and synthesize smaller-scale models

## RELEVANT COURSEWORK

- **Amazon Machine Learning University**
- **Google TensorFlow Tutorials**
- **CMU** - Cloud Computing, Web Applications Development, Financial & Managerial Accounting, Microeconomics I, Java Smartphone Development, How to Write Fast Code, Distributed & Real-Time Embedded Systems, Cyber-Intelligence & Cyber-Warfare
- **Coursera** - Fundamentals of Quantitative Modeling, R Programming, Intro to Spreadsheets and Models, Statistical Inference, Machine Learning, Foundations of Scala Programming, Programming with Google Go

## PROJECTS

### **LinkedIn Extractor, Spring 2016**

Constructed NodeJS API to extract user's LinkedIn profile details. Used to build professional website for my dad

### **Bing Rewards Points Bot, Fall 2015**

Launched bot to automate Bing searches daily to accumulate points

### **Synonyms Crawler, Spring 2015**

Designed web crawler to generate N-levels of synonyms for user-specified word; displays results in D3.js tree, with 1st matching Google image for each node.

### **Drone-Megaddon, Fall 2014**

Implemented end-to-end cyberphysical system in which high-level, StarCraft-like RTS interface could be used to control drone swarms.

### **Real-Time Embedded Linux Kernel, Fall 2014**

Refashioned Android kernel into energy-aware RTOS via smart task scheduling and partitioning schemes

### **Embedded Capstone: Hand-2048, Spring 2014**

Reconfigured hit game 2048 to use hand-motions as inputs; utilized Raspberry Pi and Asus-Xtion-Pro motion sensor in motion-sensing-and-actuating framework

### **Cloud Computing, Spring 2014**

- *End-to-End AWS-based Cloud Service*: Developed 2nd most cost-effective and performant RESTful front-end API for analyzing 200 GB Twitter tweet corpus; leveraged Amazon's Elastic MapReduce to ETL corpus into HBase backend
- *Twitter Hashtag Similarities*: Computed 50-GB corpus' hashtag pairs' co-occurrence counts via Hadoop, achieved 78% speedup over default solution
- *Wikipedia Page-Views Timeline*: Tracked Wikipedia 2014 English articles' monthly view counts via Elastic MapReduce; achieved \$20 operating budget
- *N-an-Instant*: Simulated Google-Instant using n-grams from 10000-book corpus & Bayesian statistics
- *Image Taxonomy Interface*: Developed front-end interface to select from 256-categories/30607-images in DynamoDB.

### **MedHub: Medical Issues' StackOverflow, Spring 2014**

Devised Android app to address patients' medical issues through crowd-sourcing, find nearby pharmacies, and track physical activity

### **Discrete-Time Elevator Simulation, Fall 2013**

Led team in waterfall development process to implement the class's most robust and best documented time-triggered CAN-network-based Java elevator simulation

### **Stock Exchange Web Application, Spring 2013**

Created J2EE-based, MySQL-backed online stock exchange, with bot AI to manipulate liquidity and tag clouds showing most popular stocks