Sahil Gandhi

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Education

University of California, Los Angeles
M.S. Computer Science – (*Specialization: Distributed and Big Data Systems*) **Apr 2019 - Mar 2020**
B.S. Computer Science and Engineering (*Summa Cum Laude*) **Sep 2015 - Mar 2019**

Selected Coursework: Big Data Systems, Computer Security, Parallel and Distributed Computing, Autonomous Vehicle Communications, Data Structures, Algorithms, Operating Systems, Computer Networking, Databases, Machine Learning, Machine Learning in Hardware, Quantum Programming, Embedded Networking Systems, Intro to AI, FPGA Programming

Monta Vista High School
High School Diploma; GPA: 3.96 **Sep 2011 - Jun 2015**

Selected Coursework: AP → Computer Science, Physics C Mechanics, Physics C E&M, Macroeconomics, Microeconomics, Calculus BC, Government, Language and Composition, Physics B

Skills

Programming Languages: Java, Golang, Python, Javascript, Bash

Technologies: Kubernetes, Helm, Docker, Protobuf, Vert.x, React, Vault, Terraform, AWS, GCP, AZURE, SQL, PostgreSQL, OpenTelemetry, OpenCensus, DataDog, RocksDB, Git, Mercurial, UNIX

Work Experience

Confluent, *Senior Software Engineer* **June 2020 - Present**
Founding engineer on Control Plane Fleet Management team, where we design scalable solutions for day 1+ operations on all cloud clusters

- As a founding engineer on the Control Plane Fleet Management team, played a critical role in designing scalable solutions for day 1+ operations on cloud clusters
- Spearheaded the design of a new Java-based workflow engine, incorporating the Vert.x framework and Datadog monitor APIs; resulting in a 95% reduction in incident rate and a reduced roll time for the entire fleet from several months to 2 days
- Generalized the workflow engine via a well-defined GRPC contract for seamless compatibility with any Confluent cluster (Kafka, KSQL, etc) and any operation (Upgrade, Restart, Shrink, etc), empowering all cloud teams to leverage maximum parallelism and continuous monitoring
- Streamlined microservice deployment through the design and development of a new cloud-agnostic Golang-based Kubernetes deployment engine; eliminating all manual Helm or Kubectl based deployments, and allowing Confluent to scale from 30 to 10000+ deployments/day
- Developed a unified view of all cluster information through a Golang and ReactJS-based microservice + UI; eliminating manual database commands and reducing manual information stitching from multiple sources
- Lead the design and development of a Golang-based infra CLI to securely communicate with the above services via SSO authentication
- Mentored 5 new employees and interviewed numerous candidates to foster a positive and inclusive work environment

Microsoft, *Software Engineering Intern* **Jun 2019 - Sep 2019**
Revamped logging infrastructure in distributed build tool, BuildXL, allowing Windows and Office developers to easily grab information and speed their builds further:

- Switched custom binary serializer to using well defined ProtoBuf schemas to enable full forward/backward compatibility
- Implemented a caching feature for important log data in RocksDB to speed up log file analyzers between 5x and 200x
- Immense speedup introduced the opportunity to run-time build analysis as opposed to only post-build analysis

UCLA ScAi Lab, *Undergraduate/Graduate Researcher* **Jan 2018 - Jun 2019**
Researched under Dr. Zaniolo and Ariyam Das on real-time streaming DBs, NLP Datalog parsers, and graph visualizations:

- Created Python profilers for Hoeffding Anytime Trees and wrote a Java implementation of the VFDT
- Creating an NLP tool for easily writing Datalog queries using natural English semantics
- Used Node JS, Express and native JavaScript to create UI for streaming utility
- Built an n-ary And-Or tree parser using Java for use in the querying system

Facebook, *Software Engineering Intern* **Jun 2018 - Sep 2018**
Bridged the functionalities of several services to form a single more coherent automated testing tool for testing and validating new hardware:

- Optimized the DB design and queries to speed up the validation portal UI by more than 50%
- Automated the creation and updates of test results, saving the organization over $300,000 a year in man-hours

- Merged functionalities of several testing tools to enable automated re-testing and move to the new CI/CT pipeline
- Implemented a more logical grouping of hardware reservations to provide a better coverage map and automated re-testing
- Redesigned the validation portal to talk to other services, and migrate to the new CI/CT pipeline

Viasat, *Software Engineering Intern* **Jun 2017 - Sep 2017**

Created the infrastructure to transport data off airplane routers, process it, and then visualize it for business analytics:

- Used Docker containers and Apache Flume to create a flow of data off routers into our hands
- Automated the infrastructure deployment and AWS/VMware provisioning process with Ansible
- Processed Spark streams using Scala and stored the processed data into OpenTSDB
- Graphed data in Grafana to let business leaders make critical decisions of the Arclight network

Reltio, *Software Engineering Intern* **Jun 2016 - Aug 2016**

Worked on the company's Master Data Management product to tailor it to customers' needs:

- Developed and modified features in the API (Java, Cassandra, Elasticsearch) and the UI (Qooxdoo JS)
- Found and fixed major bugs within the product's code base before it was deployed
- Gained a critical understanding of the PaaS model of service
- Used Git extensively to collaborate with developers around the world

SmartMonitor and IntelliVision, *Software and Product Development Intern* **Jun 2014 - Aug 2014**

Concurrently interned at two companies, splitting my time accordingly to the tasks given:

- Tested SmartMonitor's product, a smart watch for epileptics, and assisted in designing and pitching a new product to other biotech companies like Genentech
- Created a website for one of the IntelliVision's products and tested proprietary software for accuracy to optimize the customer's experience

Blog Posts and Patents

[1]: Sahil Gandhi, Subbu G, Chaoqun Chen, Godwin Pang: Migrating Confluent Cloud's Most Critical Services into a New Deployment Management Platform. Confluent Blog **2022**

Research Publications

[1]: Ariyam Das, Jin Wang, Sahil M. Gandhi: Learn Smart with Less: Building Better Online Decision Trees with Fewer Training Examples. IJCAI 2019 **2019**
[2]: Sahil M. Gandhi, Matthew Wong: Parallel Kernel Execution on GPUs. UCLA 2019 **2019**
[3]: Ariyam Das, Sahil M. Gandhi, Carlo Zaniolo: ASTRO: A Datalog System for Advanced Stream Reasoning. CIKM 2018: 1863-1866 **2018**

Projects

[1] **Stock-Trader:** Created an automated stock trading bot integrated with Alpaca with custom strategies
[2] **Prequel-Error-Codes:** Created a Chrome extension that turns HTTP error codes into fun Star Wars prequel memes instead
[3] **Trivia Bot:** Created an automated python bot to tackle online trivia games like HQ Trivia, Beat the Q, and more
[4] **Micromouse:** Designed the PCB and programmed the MCU for an award winning autonomous maze solving robot
[5] **Free Throw Classifier:** Created a classifier for basketball free throws using three Hexiwears mounted on a user's arm
[6] **Bruin Dining Backend:** Published an API endpoint that allows developers to grab information about UCLA dining items
[7] **C.A.R.M.:** Published a Chrome extension that lets users to message anyone else on the same website at any time
[8] **REM.my:** Published an Android application that optimizes the sleep cycle for those with dynamic sleep schedules

Awards

[1] **Dean's Honors List:** All years of Undergraduate **2015, 2016, 2017, 2018, 2019**
[2] **California Micromouse Comp (CAMM):** 2nd place in 2018 and 1st place in 2019 **May 2018, May 2019**
[3] **IEEE Region 6 Micromouse Comp:** 1st place in 2019 **May 2019**
[4] **All American Micromouse Comp (AAMC):** 2nd place in 2018 and 2019 **May 2018, May 2019**
[5] **Idea Hacks (Hardware Hackathon) 2018:** Top 10 overall amongst 40 teams **Jan 2018**
[6] **UC San Diego Hacks 2017:** 1st place in the Genome Link Category **Oct 2017**
[7] **UC San Diego Hacks 2016:** 1st place in the ViaSat Category **Oct 2016**
[8] **AT&T Hackathon 2012:** 1st place in the Teen Category **Oct 2012**

Activities

[1] **UCLA IEEE:** PM ('18-'19), Workshops Manager ('17-'18), OPS Lead ('16-'17), Member ('15-'20) **2015-2020**
[2] **UCLA Eta Kappa Nu (HKN):** Membership Chair ('17-'18), Member ('17-'20) **2017-2020**
[3] **UCLA Tau Beta Pi (TBP):** Club Liaison ('17-'19), Member ('17-'20) **2017-2020**
[4] **UCLA Upsilon Pi Epsilon (UPE):** Member ('16-'20) **2016-2020**
[5] **UCLA Supermileage Vehicle - Electric Vehicle:** E.V. Team Lead ('16-'17), Member ('15-'17) **2015-2017**
[6] **Monta Vista DECA:** Director of Entrepreneurship ('13-'14), Member ('11-'15) **2011-2015**
[7] **Monta Vista Hackathon:** Co-founder and Director of Finance ('14-'15) **2014-2015**
[8] **Teen Hackathon:** Co-founder and VP of Finance ('14-'15) **2014-2015**
[9] **Monta Vista Web Development:** Manager of Events ('14-'15), Member ('13-'15) **2013-2015**