

SUMMARY

An infrastructure engineer with great passion for performance and scalability. Most recently I have been working on a highly scalable, low-latency stateful task execution system that handles Uber's CI workloads. Before that, I researched extensively on techniques to guarantee ACID like properties for large monorepos and built a system utilized by 5k+ developers at Uber.

WORKING EXPERIENCE

- **Uber** San Francisco, CA
Senior Software Engineer II May 2016 - Present
 - **SubmitQueue**: 1000s of engineers committing changes concurrently to a repository leads to frequent master breakages. Explored & conceived a new system that guarantees an **always-green** master. At Uber, *SubmitQueue* handles 1000s of commits/hr submitted by 1000s of engineers every day.
 - * **Led a team of 5 engineers to build the system**: reading papers on state-of-the-art techniques used in similar domains such as Databases, experimented with various approaches to find a scalable solution, & architected the system to handle 1000s of changes/hr.
 - * Published a research paper presenting the design & implementation of *SubmitQueue* at **Eurosys'19**. Adrian Coyler has covered it as part of [the morning paper](#).
 - **uCI**: Because existing open-source CI systems such as [Jenkins](#) do not scale to Uber's needs, I conceived & designed *uCI* - a large-scale distributed system written from scratch to handle reliable execution of millions of stateful tasks every day on 1000s of CI machines.
 - * Leading a team of 6 engineers to design a state-of-the-art cluster scheduler that exploits data locality, SLO budgets to come up with near-optimal placements.
 - * Designed the system leveraging existing open-source technologies such as [Apache Mesos](#) for cluster management, [Cadence](#) for workflow orchestration & [Docker](#) for executing tasks in a containerized environment.
- **Baidu Research Silicon Valley AI Lab** Sunnyvale, CA
Software Engineer Jan 2016 - May 2016
 - **Speech Infrastructure**: Designed & productionized deep-learning based Speech Recognition APIs which power Android apps such as [TalkType](#). Also worked on infrastructure that would suggest words as you speak (e.g, world level suggestion [word, wide]) .
- **Twitter Inc** San Francisco, CA
Software Engineer Jun 2014 - Jan 2016
 - **AddressBook Infrastructure**: System for storing, retrieving contacts stored on the phone-book of Twitter's 300M+ MAUs. It was used in powering features such as *Who To Follow* aimed at increasing engagement. Designed the Offline Infrastructure that periodically reconciled the 1PB+ HDFS snapshot with updates.

ANCIENT HISTORY

- **Stanford University** Stanford, CA
Master of Science in Electrical Engineering; GPA: 3.9/4.0 Sep. 2012 - Jun. 2014
- **Microsoft** Redmond, WA
Software Engineering Intern, Kernel Core Team Jun 2013 - Sep 2013
- **Google Summer of Code** Chennai, India
Worked on Metalink Support for Google Chrome Jun 2012 - Sep 2012
- **College of Engineering, Guindy, Anna University** Chennai, India
Bachelor of Engineering in Information Technology; GPA: 9.32/10.0 Aug. 2008 - June. 2012
- **University of Waterloo** Waterloo, Canada
Research Intern - Worked on design & application of One-Instruction Processors Apr. 2011 - June. 2011

TALKS

- **Keeping Master Green at Scale:** sundaram.io/slides/submitqueue.pdf

- *Google Journal Club, May 2019*

San Francisco, CA

- *Eurosys'19, March 2019*

Dresden, Germany

- *Facebook, Jan 2019*

Menlo Park, CA

SKILLS

- **Languages:** Java, Scala, C++, Bash, SQL

- **Specialities:** distributed systems, graph theory, algorithms, machine learning, performance tuning and debugging