

# ARAVIND VASUDEVAN

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## Education

### Carnegie Mellon University – School of Computer Science

Master of Software Engineering – Scalable Systems

Pittsburgh, PA

December 2020

**Coursework:** *Distributed Systems, DevOps, Engineering Data Intensive Scalable Systems, Architecture for Software Systems, Introduction to Machine Learning, Analysis of Software Artifacts, Introduction to Computer Systems.*

### Anna University

Bachelor of Engineering – Computer Science & Engineering

Chennai, India

May 2018

## Experience

### Carnegie Mellon University – School of Computer Science

Teaching Assistant for 17323/17623: Quality Assurance

Pittsburgh, PA (Remote)

October 2020 - Present

- Conducted office hours to help students with their coursework/projects and evaluated the project submissions.

### GoDaddy Inc.

Intern — Software Development Engineer

Kirkland, WA (Remote)

May 2020 - August 2020

- Reduced execution time of the analytics tool by two hours by redesigning it into multiple processes.
- Devised an AWS Batch based architecture to parallelize analysis in the analytics tool, which will further decrease runtime.
- Volunteered for the scrum master role to handle our project backlog on Jira, scrum meetings, and retrospective.

### Zoho Corporation

Member Technical Staff

Chennai, India

June 2018 - May 2019

- Simplified transaction handling by implementing an annotation-based framework using Aspect-Oriented Programming.
- Conceptualized an HTTP connection pool library that can share pools between modules separate in multiple codebases.
- Modularized i18n keysets by developing a library to load and validate keys across multiple repositories without collision.
- Distributed configuration across runtime-dependent repositories by building a tool to manage and validate conf files.
- Fixed distributed lock handling mechanism in Zoho CRM, which removed race-conditions between database operations.

Project Trainee

December 2017 - March 2018

- Minimized dependency among teams by decoupling Zoho CRM into several compile-time independent components.
- Architected an observable-based inter-service communication framework that can resolve function calls at runtime.

### Tata Consultancy Services

Project Intern

Chennai, India

June 2017 - July 2017

- Prototyped a chatbot to simplify data lookup in Planatics, a financial data management tool, using RASA NLU and flask.
- Separated the chatbot service from the tool using microservice design-pattern and REST API for service interaction.

## CMU Projects

### Distributed Bitcoin Miner

Fall 2020

- Modeled an application layer protocol on top of UDP with resilience, liveness, and packet sequencing.
- Developed the protocol to be connection-oriented and support the client-server model natively.
- Implemented a distributed bitcoin miner system on top of this protocol with fault-tolerance.
- Designed the miner to be the client and the server to load-balance mining jobs using SRTF scheduling and chunking.

### Scalable Ecommerce Web Application

Spring 2020

- Engineered a highly-scalable e-commerce app that can serve over a million requests/minute using EC2 and load balancer.
- Handled search functionality for around a million products using AWS RDS for storage and AWS ElastiCache for caching.
- Improved response time to under a second by devising a distributed in-memory caching framework.
- Synchronized the distributed cache using the check-on-use invalidation strategy and handled overflow using LRU eviction.

### Smart Home System

Spring 2020

- Built a java-based smart home web platform that can handle around 500 concurrent TCP connections.
- Assembled a CI/CD pipeline using Jenkins and Kubernetes that allowed single command update/rollback.
- Performed static/dynamic analysis in the pipeline using JUnit, JaCoCo, Checker Framework, PITest to monitor quality.
- Orchestrated an A/B testing component to split users between two ML models and analyze the success rate in real-time.

## Skills

**Programming Languages:** Java, Python, Javascript, C, Bash, Go.

**Backend & Database:** Node.js, Struts, Spring, Flask, MySQL, MongoDB, Redis, RabbitMQ.

**DevOps:** Docker, Jenkins, Vagrant, AWS stack, Ansible, Kubernetes.

**Frontend:** Angular, JQuery, SCSS, HTML, CSS.