

Karthik Murugesan

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EDUCATION

Arizona State University

M.S in Computer Science

Tempe, AZ

Aug 2021 – May 2023

Anna University

B.Tech Information Technology

Chennai, India

Aug 2014 – May 2018

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (MySQL, Postgres), NoSQL, JavaScript, Ruby

Frameworks: Java Spring, Ruby on Rails, Node.js, Flask

Tools, Databases, and OS: AWS (Lambda, SQS, SNS, EC2, DynamoDB, S3), Pytorch, Tensorflow, Git, Linux/Unix, Docker, Kubernetes

EXPERIENCE

Software Engineering Intern

Audible (Amazon)

May 2022 – Dec 2022

Newark, NJ

- Developed a Java Spring based tool that conducts automatic quality checks on large volumes of audiobook assets from vendors, ensuring their compliance with Audible's standards.
- Created a new framework for 100s of existing bulk operation tools using AWS SQS and SNS to efficiently start, manage and retrieve results of long running tasks.
- Reduced the quality check testing time significantly from 1-2 days to seconds for the Content management team.

Software Engineer

Freshworks

Jan 2018 – Aug 2021

Chennai, India

- Designed and developed scalable services for the product 'Freshdesk' using Ruby on Rails and Java Spring.
- Achieved over 40% reduction in resource consumption through implementing diverse performance optimizations on the product.
- Improved the execution time of several APIs by more than 80%.
- Recognized as 'Quality Champion' for resolving critical customer issues and improving product performance.

PROJECTS

AWS Auto Scaling using SQS | *AWS, Python, Flask, MySQL*

Feb 2022 – March 2022

- Created a request handler in Python Flask to automatically start/stop EC2 instances depending upon the number of parallel requests.
- Leveraged AWS SQS to effectively manage concurrent requests, dynamically scaling the web application in response to demand fluctuations.
- Performed comprehensive testing using various workload patterns, resulting in a 50% improvement in response time.

Custom Database using Minibase | *Java, SQL*

Feb 2022 – June 2022

- Modified the minibase SQL database to accommodate additional attributes in a tuple and added custom join and sort algorithms.
- Devised 3 new join strategies : Index-nested loop join, tuple oriented nested loop join, and block nested loop join.
- Implemented a versatile query parser enabling the provision of diverse parameters for the join operation.
- Executed a mechanism to determine the optimal join strategy based on read operations and table indexes.

Face Recognition using AWS Lambda and Raspberry Pi | *AWS, Docker*

March 2022 – May 2022

- Trained and deployed a machine learning model for real-time facial recognition on AWS Lambda, optimizing for fast model loading and inference.
- Utilized the Raspberry Pi camera module to capture and process live video feed, achieving low latency (less than 50ms) predictions from the model deployed on AWS Lambda.

Website Monitoring tool | *Python, Flask*

Mar 2023 – Apr 2023

- Built a monitoring tool that continuously monitors the status and latency of user provided URLs.
- Scheduled jobs using Cron which is a job scheduler in the Linux OS to monitor the response every 60 seconds.