Mohammad-Mohsen Aseman-Manzar

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EDUCATION

SHARIF UNIVERSITY OF TECHNOLOGY

PH.D. IN COMPUTER ENGINEERING
2020 - Present
Direct Admission, GPA: 18.98 / 20.0
Thesis: Preserving Privacy in The Internet of Things to The Level of Events Unlinkability: Smart Home Case Study

SHARIF UNIVERSITY OF TECHNOLOGY

MSC. IN COMPUTER ENGINEERING, SOFTWARE
2018 - 2020
Direct Admission, GPA: 19.15 / 20.0
Thesis: Big Data Application Performance Prediction and Cost-based Heterogeneous Resource Recommendation in Cloud

IRAN UNIVERSITY OF SCIENCE & TECHNOLOGY

BSC. IN COMPUTER ENGINEERING, SOFTWARE
2014 - 2018
First Rank, GPA: 18.76 / 20.0
Final Project: Mixed Performance and Power Consumption Modeling in Virtual Machine Using Coloured Petri Nets

COURSEWORK

System Analysis and Design | Software Engineering | Computer System Performance Evaluation | Formal Specification and Verification of Programs | Object-Oriented Analysis and Design | Formal Methods in Software Engineering | Software Testing | Operating Systems | Computer Networks | Artificial Intelligence and Expert Systems | Data Mining | Machine Learning Privacy and Security

Teacher Assistant:

Theory of Distributed Systems | Verification of Reactive Systems | Algorithmic Game Theory | Advanced Programming

SKILLS

Python • Go • JavaScript • Rust • Swift
C# • C/C++ • Java • SQL • Flask • Gin
React • NumPy • PyTorch • Unity3D
Redis • PostgreSQL • MongoDB
CockroachDB • Spark • Git • Figma
Docker-Swarm • K8s (Kubernetes)

Last Updated on 11th June 2025

EXPERIENCE

HINAVA SMART HOME | SENIOR SOFTWARE DEVELOPER & SOLUTION ARCHITECT

Jul 2016 - Present

- Joined as an **iOS developer**, later transitioning to the **backend team** to rewrite the backend stack for improved uptime and stability. I then moved into the role of **Solution Architect**, where I designed and developed the architecture of the smart home system, ensuring seamless integration and user-friendly functionality across all devices.
- Developed the iOS client application using **Swift**, and also developed the web application client using **React** and **JavaScript**, supporting Android, iOS, and web platforms, featuring a comprehensive interface with 50 pages.
- Contributed to the UI/UX design of 35 pages, each featuring its own specific interactions, using **Figma**.
- Designed & Developed a backend architecture consisting of 30 **microservices** based on **Docker Swarm**, which was later migrated to **Kubernetes** for improved stability and orchestration.
- Collaborated with the backend team to develop the stack using **Python** and **Golang**, utilizing frameworks like Flask and Gin, while promoting clean code practices and knowledge sharing through code reviews and pair programming.
- Designed a **high-availability architecture** for the backend stack using **CockroachDB**, **HAProxy**, **ActiveMQ**, **Redis**, and **OpenStack**.
- Developed a detailed service monitoring & alerting system with over 60 dashboards using **Grafana**, **Prometheus**, **Kibana**, and **Elasticsearch**.
- Developed a comprehensive test suite that includes unit tests, system tests, and integration with GitLab **CI/CD**, implementing effective **DevOps** strategies.

HAMAYEH | IOS DEVELOPER

Aug 2015 - Feb 2016

- Developed the iOS application to connect to the Axiom smart home system, which utilized Zigbee technology.

ELMOGAME GAME STUDIO | CLIENT/SERVER DEVELOPER

Sep 2014 - Sep 2019

- Contributed as a **Unity3D** developer and backend developer on three published Android games (Farmuler, Footyard, and NewCity), focusing on online gameplay, custom physics engine, and AI, utilizing Python, **C#**, **PostgreSQL**, Docker, Unity3D, and **RabbitMQ**.

OPEN-SOURCE CONTRIBUTIONS

- Maintainer of the **mohsenasm/swarm-dashboard** project, a monitoring dashboard for docker swarm cluster.
- Merged pull requests on:
  - **k0sproject/k0s**, An All-Inclusive Kubernetes Distribution.
  - **cockroachdb/cockroach-operator**, K8s Operator for CockroachDB.
  - **espressif/esp-idf**, Development Framework for Espressif SoCs.
  - robinrodricks/vue3-touch-events, A Touch-Support Plugin for Vue.js 3.

PUBLICATION

IEEE Transactions on Services Computing, vol. 16, no. 3, pp. 1726-1737, 1 May-June 2023
Cost-aware Resource Recommendation for DAG-based Big Data Workflows: Apache Spark Case Study

IEEE Transactions on Cloud Computing, vol. 11, no. 1, pp. 897-910, 1 Jan.-March 2023
Fixed-point Iterations Approach to Spark Scalable Performance Modeling and Evaluation