Ehsan Hajyasini

San Diego, CA ehsanhajyasini74@gmail.com (858) 257-8282 esihaj.github.io
ehsan-hajyasini

Education

University of California San Diego *2022 to 2027*
PhD in Computer Science in Systems and Networks
- Advisor: Dr. Steven Swanson

University of Tehran *2013 to 2018*
BSc in Software Engineering

Publications

Telepathic Datacenters: Fast RPCs using Shared CXL Memory 2024
Suyash Mahar, ***Ehsan Hajyasini***, Seungjin Lee, Zifeng Zhang, Mingyao Shen, Steven Swanson

10.48550/arxiv.2408.11325

Experience

Graduate Research Assistant *San Diego, CA*
University of California San Diego *2022 to present*
- Designed a framework for efficient low-latency communication leveraging CXL memory.
- Specialized in kernel development, focusing on memory and file system subsystems.
- Specialized in CXL technologies and high-performance RPC frameworks.
- Reduced kernel memory sealing latency from 120 µs to 0.5 µs.
- Improved sandboxing latency from 26 µs to 0.6 µs.
- Architected a distributed orchestration system leveraging etcd for robust coordination.

Lead Engineer *Tehran, Iran*
Radin Bourse *2017 to 2022*

Led the design and development of a trading platform for the national stock exchange.

- **High Performance:** Achieved order matching latency of **2 µs** and end-to-end transaction latency of **40 µs** through optimized algorithms and system design.
- **Message-Passing:** Reduced latency from **2 ms** to **30 µs** by optimizing communication.
- **Performance Benchmarks:** Devised **50 microbenchmarks** to evaluate and reduce critical paths latency from **200 µs** to **2 µs**.
- **System Availability:** Integrated **Raft** and **Chain Replication** to ensure fault tolerance.
- **Infrastructure Automation:** Engineered workflows for **20 nodes** using **Ansible**, cutting stack setup time to under **10 minutes**.
- **Network Security:** Orchestrated a **Zero Trust** infrastructure to fortify system security.
- **Software Quality:** Established best practices to reduce production issues and improve maintainability.
- **Competency Matrix:** Created a framework to assess skills and support career growth.
- **Team Mentorship:** Onboarded and trained **10 new hires** to deliver complex tasks within **2 months**.

Software Engineer *Germany*
Digital Product School, Germany *2018 to 2018*
- Conceptualized and prototyped an innovative bike-sharing app for last-mile mobility.

Software Engineering Intern *2016 to 2016*
Cafebazaar

- Deployed and fine-tuned a CDN cache using **Nginx**.
- Realized 99% cache hit rate and reduced storage needs by 94%.

Technical Skills

Languages: C++, C, Java, Python, Go Lang

Frameworks: Kafka, PostgreSQL, Spring, Spring Boot, Hibernate, JUnit, ArchUnit, Java Microbenchmark Harness, Hazelcast

Tools and Platforms: Linux Kernel, Docker, Nginx, Ansible, HashiCorp Nomad, Vault, Teleport, CI/CD

Practices: DDD, DevOps, Event Sourcing, Micro Services, Infrastructure as Code, Dependency Injection

Projects

Scalable Online Election Platform for University of Tehran *2016-2017*
- Engineered a robust election system serving over 15,000 users for university-wide elections.

RANA: Mobile Augmented Reality Framework *2014*
- Designed and implemented an augmented reality solution optimized for mobile devices.

TripleA: 3D Soccer Simulation in RoboCup *2011*
- Secured first place in Khwarizmi Technical Challenges.

Mixed Reality Soccer in RoboCup IranOpen *2010*
- Competed as a member of TripleA Simulation Team in RoboCup IranOpen Mixed Reality.

Academic Projects

Congestion Control Analysis *2024*
- UCSD CSE222A Computer Communication Networks Project

Raft implementation in Go *2023*
- UCSD CSE224 Graduate Networked Systems Project

Enhancement of Graph Node Classification via Self-Attention *2018*
- Bachelor's Thesis

Object-Oriented Design for Academic Management System *2017*
- Capstone Project in Object-Oriented Design

Linux Kernel Scheduler *2015*
- Implemented a user-level and task-level round-robin scheduling policy in the Linux kernel.

MOL Language Compiler *2015*
- Developed a MOL language compiler supporting inheritance and function overriding.

Stereo Vision Depth Detection via Parallel Programming *2016*
- Utilized SIMD, OpenMP, CUDA for optimization.

Teaching Experience

Chief Teaching Assistant: Advanced Programming *2016 to 2018*

Teaching Assistant: Internet Engineering *2017*

Teaching Assistant: Formal Methods in Software Engineering *2017*

Teaching Assistant: Design and Implementation of Compilers *2016*