



Mohammad Hossein Alikhani

mohammad.hosein.alikhani08@gmail.com

LinkedIn: [mohammad-hossein-alikhani](#) | GitHub: [MH-Alikhani](#)

Summary

Multidisciplinary software engineer and researcher with a robust background in computer science, computer engineering, and software engineering. I bring hands-on expertise in full-stack development, systems architecture, and algorithmic design—alongside independent research in generative AI and neuro-symbolic reasoning. My academic journey has been shaped by rigorous coursework, peer-reviewed publications, startup leadership, and mentoring roles in immersive coding programs. Passionate about advancing both the theoretical and applied dimensions of computing, I seek to further my studies in a research-driven, innovation-focused graduate program in Europe, contributing to the design of reliable, efficient, and human-aligned technologies.

Research Interests

I am deeply interested in the interdisciplinary advancement of software engineering, computer science, and artificial intelligence. My primary focus areas include scalable software architectures, intelligent distributed systems, and the theoretical underpinnings of machine learning and symbolic AI. I seek to bridge rigorous system design with innovative AI techniques to create reliable, efficient, and human-centered computational systems.

Education

Bachelor of Engineering (B.E.) in Computer ENGINEERING | Sep 2020 – Feb 2025 | DAMGHAN UNIVERSITY

- Focused coursework in advanced computer science, computer engineering, and software engineering.
- Completed a 200-hour academic internship at Rasteen Asia Quality Technology Company, gaining practical experience in software development, web design, and software testing.
- Independent research in Generative AI and Hybrid Neuro-Symbolic Systems, resulting in two peer-reviewed publications.
- Final Year Project: Developed a cloud-based real-time messaging web application using Firebase, Firestore, and modern web technologies.
- Led and participated in multiple full-stack software projects, applying agile development methodologies.
- Active member and central councilor of the Computer Engineering Association, organizing academic events and workshops.
- Mentored fellow students in core computer science concepts and software development.

Honors & Awards

2nd Place – RoboCode Programming Competition

Damghan University — Apr 2023

Achieved second place in the RoboCode programming competition, demonstrating advanced problem-solving, algorithmic thinking, and real-time strategic programming against autonomous opponents.

Projects

Hamsaye – P2P Storage Platform (Mentor, Technical Lead, and Founder)

- Designed and supervised the backend system architecture, modular microservices, and product scalability strategies.
- Led a cross-functional team while mentoring junior developers on best practices in cloud-native development.
- Drove strategic and technical direction across product, engineering, and community alignment.

Iranian Dooz Game with AI

- Developed an AI-driven version of the traditional "Iranian Dooz" game using JavaScript.
- Implemented advanced search algorithms such as Minimax and Alpha-Beta Pruning to create an intelligent opponent.
- Designed and built a graphical user interface (GUI) for seamless user interaction.
- [GitHub Repository](#)

Realtime Web Messenger App

- Developed a cloud-based real-time messaging application using Firebase and Firestore.
- Implemented user authentication, real-time chat functionality, and responsive UI with modern web technologies.
- [GitHub Repository](#)

Professional Experience

Hamsaye Startup – P2P Storage Marketplace

Founder

Jan 2024 – Present

- Founded and led Hamsaye, a peer-to-peer storage platform, serving as Technical Lead and Product Strategist. Oversaw architectural design, mentored contributors, and aligned engineering outcomes with real-world urban sustainability goals.
- Spearheaded platform design and development, ensuring a simple, trustworthy, and impactful user experience.
- Led efforts to integrate technology and sustainability, positioning Hamsaye as a potential solution for reducing environmental impact.
- Oversaw system design, deployment strategies, and product vision, aligning engineering with sustainability and impact goals.

- Adapted the roadmap in response to early-stage funding constraints while sustaining long-term technical vision.
- Positioned Hamsaye to drive a movement that redefines how we live, share, and care for our planet, focusing on sustainable and community-driven solutions.

TEHRAN INSTITUTE OF TECHNOLOGY (MFT)

Front-End/Full stack Development Instructor

Nov 2021 – Present

- Delivered immersive coding bootcamps covering React.js, Next.js, Tailwind CSS, Node.js, and Agile development workflows.
- Designed hands-on project-based curricula and facilitated learning through mentorship, code review, and team-based problem-solving.
- Collaborated with innovation labs to keep course content aligned with evolving industry trends and best practices.

Freelance

Remote Software Engineering Mentor

June 2021 – Aug 2021

- Mentored software engineers and QA engineers remotely in the UK on JavaScript programming, software testing methodologies, and agile development best practices.
- Conducted technical workshops, code reviews, and career guidance tailored to international development standards.
- Focused on enhancing coding skills, debugging strategies, unit/integration testing, and industry readiness.

Skills

Programming Languages: JavaScript (ES6+), TypeScript, Python, C, C++, SQL, Bash, Markdown

Frameworks & Libraries: React.js, Next.js, React Native, Node.js, Express.js, Redux, Tailwind CSS, Bootstrap

Databases & Backend Technologies: PostgreSQL, MongoDB, Firebase (Firestore), Prisma, RESTful APIs, GraphQL

Tools & Platforms: Git, GitHub, Docker, Postman, Vercel, Netlify, Visual Studio Code, Figma

Software Development Practices: Agile (Scrum, Kanban), Test-Driven Development (TDD), CI/CD, Microservice Architecture, Responsive & Cross-Platform Development

Languages: English (IELTS Academic 7), German (B2 – informal), Persian (native)

Publications & Research Articles

Academia.edu (Peer-Reviewed), Top 2% by engagement

Synthetic Reasoning - Designing AI Architectures Beyond Neural Networks with Hybrid Neuro-Symbolic Systems

Investigates the design of hybrid neuro-symbolic AI systems that merge data-driven learning with structured symbolic reasoning. Emphasizes scalability, interpretability, and ethical resilience in real-world AI applications.

Read: academia.edu/128897001

Academia.edu (Peer-Reviewed), Top 0.5% by readership

Generative AI for Front-End Development - Automating Design and Code with GPT-4 and Beyond

Explores the transformative impact of generative AI models on UI/UX design and front-end development. Addresses automation, personalization, and the ethical implications of AI-generated interfaces.

Read: academia.edu/127356756

Medium

Serverless Architecture with JavaScript: AWS Lambda and Edge Computing

Offers a comprehensive guide to serverless backend systems using AWS Lambda, with practical insights into cloud-native engineering and edge computing.

[Read on Medium](#)

The Ethical Landscape of AI — *LinkedIn Article*

Quantum-Driven AI for Code Optimization — *LinkedIn Article*

JavaScript vs. Elm: Paradigms in Web Development — *LinkedIn Article*

(Complete list of research articles and technical essays available on [LinkedIn](#))

Certificates

CS50x: Introduction to Computer Science

Harvard University — July 2023

Completed Harvard's flagship computer science course (CS50x), covering algorithms, data structures, memory management, software engineering practices, and web development in C, Python, and JavaScript.

[View Certificate](#)

Node.js Backend Development

TopLearn Institute — June 2022

Completed an intermediate-level program focused on backend development with Node.js, emphasizing asynchronous programming, RESTful API design, and server-side architecture.

[View Certificate](#)

Progressive Web Application (PWA) Development

TopLearn Institute — September 2021

Gained proficiency in building Progressive Web Applications (PWAs) with offline capabilities, service workers, responsive designs, and app manifest integration for cross-platform optimization.

[View Certificate](#)

Website Development with React.js

Laitec Institute — August 2021

Completed a project-based course on dynamic front-end development with React.js, covering component-based architecture, state management, and responsive UI development.

[View Certificate](#)

Web Design (HTML5, CSS3, JavaScript, jQuery)

Laitec Institute — April 2021

Acquired practical skills in modern front-end technologies, including semantic HTML5, responsive CSS styling, interactive JavaScript programming, and DOM manipulation using jQuery.

[View Certificate](#)