

Mobina Kashaniyan

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RESEARCH PROFILE

PhD student in Computer Science with research experience in machine learning systems, NLP, and deep learning. Proven ability to translate product challenges into ML problems, build data pipelines, run controlled experiments, and deploy scalable AI solutions. Experienced with large-scale distributed systems (HPC, cloud), advanced statistical evaluation, and cross-functional collaboration. Passionate about applied AI for search, ranking, personalization, and intelligent user experiences.

EDUCATION

Iowa State University

PhD Student in Computer Science

Ames, IA

2024 – Present

Iran University of Science and Technology

Bachelor's Degree in Computer Engineering; GPA: 17.15/20 (3.62/4)

Tehran, Iran

2017 – 2021

TECHNICAL SKILLS

AI/ML Fundamentals: Supervised/unsupervised learning, deep learning, transformers & sequence modeling, CNNs, RNNs, reinforcement learning, recommendation systems, search ranking, statistical analysis, hypothesis testing, A/B testing

Data & ML Engineering: Data pipeline development, data quality assessment, feature engineering, distributed data processing, experiment design & validation, model evaluation metrics (offline & online)

ML Frameworks & Tools: PyTorch, NumPy, Pandas, Scikit-learn, Matplotlib, OpenNMT, MLflow

Cloud & Systems: Azure, Docker, Git, Linux, PostgreSQL, MongoDB, MySQL, SQL Server, Distributed systems (HPC concepts), Microservices

Languages: Python, SQL, Java, C++, C#, JavaScript, TypeScript

Software Development: React.js, Next.js, Django, Spring Boot, ASP.NET MVC, REST APIs, Microservices Architecture

RESEARCH EXPERIENCE

Researcher, SwAPP Lab

Iowa State University

Aug 2024 – Present

Ames, IA

- Conducting research under the supervision of Dr. Ali Jannesari on adaptive AI systems, with a focus on efficient and scalable machine learning methods for real-world computing environments.
- Researching adaptive test-time scaling for large language model inference, designing controlled experiments to measure tradeoffs between model accuracy (BLEU/F1), latency, throughput, memory utilization, and GPU efficiency. Developing evaluation frameworks to assess real-world deployment constraints and inform productionization decisions.
- Exploring HPC-aware evaluation metrics for AI systems to balance model quality with computational efficiency, resource usage, and deployment constraints.
- Reviewing and building on recent research in large language models, inference optimization, scheduling, and system-level performance measurement.
- Aligning research with production-oriented AI applications where accuracy, responsiveness, scalability, and infrastructure cost must be considered together.

Researcher, Machine Learning Lab

Iran University of Science and Technology

Jan 2021 – Dec 2023

Tehran, Iran

- Researched a consensus-based autoscaling approach for serverless environments using multiple ML models to improve resource scaling prediction accuracy and reliability.
- Designed experiments to compare model outputs, analyze prediction disagreement, and support more trustworthy scaling decisions for production-like cloud workloads.
- Developed Persian and Arabic handwritten OCR models using convolutional neural networks to convert handwritten character images into text.

Researcher, Natural Language Processing Lab

Iran University of Science and Technology

Nov 2023 – Mar 2024

Tehran, Iran

- Built and customized neural machine translation models for Arabic-to-Persian translation, focusing on dataset preparation, model training, and translation-quality improvement.

- Curated Arabic-Persian text data and analyzed data quality issues to support more robust language-model experiments.
- Experimented with sequence-to-sequence and transformer-based architectures to improve translation quality for low-resource Arabic-to-Persian language pairs.

Researcher, Advanced Big Data Analysis Laboratory (ABDAL)

Mar 2024 – Jun 2024

Iran University of Science and Technology

Tehran, Iran

- Researched Tarvajeh, a Persian word-association project that collects, visualizes, and analyzes semantic relationships between words in users' minds.
- Supported data collection and visualization workflows for analyzing language, cognition, and user-response patterns.

Researcher, Game Innovation Center

Jun 2022 – Oct 2023

Iran University of Science and Technology

Tehran, Iran

- Developed reinforcement-learning agents for a flight racing environment, using reward-based learning to study decision-making in real-time interactive settings.
- Implemented AI-based difficulty adjustment for DoNoghte, a released puzzle game, to personalize gameplay and improve user engagement.

INDUSTRY EXPERIENCE

Software Engineering Intern

May 2025 – Aug 2025

Iowa State University – Health & Safety Department

Ames, IA

- Developed a data-backed web application for Health & Safety management using C#, .NET Core, ASP.NET MVC, Entity Framework, SQL Server, HTML, CSS, JavaScript, and Git.
- Implemented authentication, database operations, and workflow features to improve secure data handling and operational usability.
- Collaborated with faculty and staff to translate operational needs into technical requirements, iterate on features, and deliver user-centered solutions.

Software Engineer

Mar 2022 – Sep 2023

Bourna

Tehran, Iran / Remote

- Built and launched 10+ production web applications with 500+ UI/UX pages, collaborating with designers, backend engineers, and product stakeholders.
- Developed scalable product features using React.js, Next.js, Django, PostgreSQL, MongoDB, Docker, WebSocket, OAuth, and microservice architecture.
- Mentored 3 junior developers, participated in code reviews and Scrum ceremonies, and communicated product-release updates to stakeholders.

Full Stack Developer

Oct 2020 – Oct 2021

Dadeh Gostar Adak

Tehran, Iran

- Developed a real-time question-answering platform with quiz categories, leaderboard, admin/user panels, and PWA support.
- Designed efficient MySQL and SQL Server data structures to improve secure access, reduce support issues, and support concurrent users.
- Built backend and frontend features using Java Spring Boot, React.js, Bootstrap, Material UI, Azure DevOps, NginX, Git, and Figma.