Shayan Pardis

Website: shayan-p.github.io • LinkedIn: shayan-pardis • Github: Shayan-P • Email: shayanp@mit.edu / shayanpardis82@gmail.com

Education

Massachusetts Institute of Technology   Cambridge, MA

Master of Engineering Candidate   May 2025 - May 2026

Bachelor of Science in Computer Science and Engineering; **GPA: 5.0/5.0**   Sep 2022 - May 2025

Relevant coursework High-Dimensional Statistics, Symmetry ML, NLP, Analysis and Design of Algorithms, Software Construction, Computation Structures, Secure Hardware Design, Robotics Manipulation, Sensorimotor Learning

Sharif University of Technology   Tehran, Iran

Transferred to MIT after second year; **GPA: 19.51/20.0**   Sep 2020 - May 2022

Work Experience

Citadel LLC   New York City, NY

Quantitative Developer Intern in Central Risk Engineering   June 2024 - Aug 2024

- Developing tools for distributed system infrastructure.

MIT Biomimetics Robotics Lab (lead by Prof. Sangbae Kim)   Cambridge, MA

Undergraduate Researcher   Feb 2023 - May 2024

- Designed probabilistic homotopy optimization technique which enabled solving highly dynamic trajectory optimization problems (accepted in IROS 2024).
- Significantly improved the throughput (4x) of the Humanoid Robot's QP-based controller by parallelizing the computation.

Google Summer of Code   Mountain View, CA (Remote)

Julia Language Developer   June 2023 - Sep 2023

- Developed GPU support (CUDA) for QuantumClifford.jl, a Julia package designed for Quantum Stabilizer circuits (details).

SIMCON   Wuerselen, Germany (Remote)

Geometric Algorithm Design Internship   Sep 2021 - March 2022

- Designed and implemented an algorithm converting 3D Mesh into simplified skeleton Graph with substantial accuracy improvement.

Carriot   Tehran, Iran

Data Science Internship   July 2021 - Sep 2021

- Designed and developed a model to parse addresses and find the corresponding locations with OSM (geocoding problem).

Abarkelas   Tehran, Iran

Web Developer (Part-Time)   Oct 2020 - June 2021

- Developed backend (Django) and frontend (NuxtJs). Set up Prometheus and Grafana for monitoring. Created PWA for the website.

Awards

Gold medal (rank 10) in International Olympiad in Informatics (2020)   **ICPC 2021 World Finalist** (Asia-Tehran region champion)

Gold medal (rank 1) in Iran National Olympiad in Informatics (2019)   **Silver medal (rank 24)** in Asia-Pacific Informatics Olympiad

Projects and Voluntary Work

Novel Shape Generation with SO3-Equivariant Auto-Encoders   April 2024 - May 2024

Designed an SO(3) equivariant autoencoder using spherical harmonics and a latent space traversal that separates rotation from deformation.

Better Offline RL with S4 Models   April 2024 - May 2024

Reimplemented Decision Transformer replacing transformer with S4 model and demonstrated improved performance in credit assignment tasks.

Formal Complexity Verification   Oct 2023 - Dec 2023

Formulated time complexity verification of a program as synthesizing a fix-point function. The demo uses a custom language with Python syntax.

FaceExplore   June 2023 - Aug 2023

Created a face search engine that uses a custom clustering method on ResNet vector embeddings (unsupervised). The UI is a scalable website.

Graph Theory Book   Feb 2020 - Dec 2021

Started and contributed in writing an Online Graph Theory book in Persian that teaches Graph Theory with an algorithmic approach.