SHAYAN PARDIS

Computer Science Undergraduate Student at MIT

🌐 shayan-p.github.io   🐙 Shayan-P   in shayan-pardis   @ shayanpardis82@gmail.com   @ shayanp@mit.edu

EDUCATION

Master of Engineering Candidate
MIT

📅 Sep 2025 – May 2026   📍 Cambridge, Massachusetts

Bachelor of Computer Science and Engineering
MIT (transfer)   **GPA: 5.0/5.0**

📅 Sep 2022 – May 2025   📍 Cambridge, Massachusetts

Relevant Coursework:
- Analysis and Design of Algorithms
- Software Construction
- NLP
- High-Dimensional Statistics
- Computation Structures
- Secure Hardware Design
- Sensorimotor Learning
- Symmetry ML

Sharif University of Technology   **GPA: 19.51/20**

📅 Oct 2020 – June 2022   📍 Tehran, Iran

WORK EXPERIENCE

Software Engineering Internship
Citadel

📅 June 2024 – now   📍 New York City, New York

Developing tools for distributed system infrastructure.

Robotics Research Experience
MIT Biomimetics Lab (led by Sangbae Kim)

📅 Feb 2023 – May 2024   📍 Cambridge, Massachusetts

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

Google Summer of Code Contributor
Julia Language Organization

📅 June 2023 – Sep 2023   📍 Remote

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

Geometric Algorithm Design Internship
SIMCON

📅 Sep 2021 – March 2022   📍 Wuerselen, Germany

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

ACHIEVEMENTS

🏆 **ICPC 2021 World Finalist**
1st place regional ACM-ICPC team, advanced to the World Finals

🏆 **Gold Medal. IOI 2020**
Ranked 10th in 32th International Olympiad in Informatics, Singapore

🏆 **Gold Medal. INOI 2019**
Ranked 1st in Iran National Olympiad in Informatics

🏆 **Silver Medal. APIO 2020**
Ranked 24th in Asia-Pacific Informatics Olympiad 2020, Indonesia

RECENT PROJECTS

🐙 Novel Shape Generation with SO3-Equivariant Auto-Encoders

📅 April 2024 – May 2024

Designed an SO(3) equivariant autoencoder using spherical harmonics. Formulated an interpolation for latent space traversal that separates rotation from object deformation.

🐙 Better Offline RL with S4 Models

📅 April 2024 – May 2024

Empirically demonstrated improved performance of the RL agent in the Decision Transformer architecture by using S4 models instead of transformers.

🐙 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

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

Data Science Internship

Carriot

📅 July 2021 – Sep 2021　　📍 Tehran, Iran

Designed and developed a model to parse addresses and find the corresponding locations with OSM (geocoding problem). Tuned Elastic Search engine to store and retrieve the OSM data.

Web Developer (Part-Time)

Abarkelas

📅 Oct 2020 – June 2021　　📍 Tehran, Iran

Developed both backend and frontend using Django and NuxtJs. Set up Prometheus and Grafana for monitoring. Turned the website to PWA (Progressive Web Application).

TEACHING POSITIONS

LA: Natural Language and Computation (6.S051)

Professor Robert Berwick

📅 Sep 2022 – Dec 2022　　📍 Cambridge, Massachusetts

Revised and created new lab practices covering the topics: Segmentation, Parsers (CKY, Earley), Semantic Parsing with Lambda Calculus, and Grammar Inference (inside-outside algorithm).

INOI Algorithm Course Coordinator

Iranian National Olympiad in Informatics Summer Camp

📅 July 2021 – Aug 2021　　📍 Tehran, Iran

Organized and invited guest lecturers while also serving as a course instructor. Member of the scientific committee and designed 3 out of 9 questions for the final exams.

Sharif AI Challenge

📅 March 2021 - May 2021

Developed (as a team) an AI agent for a distributed game that ranked 4th in the competition. Used Huffman-code for cost-efficient communication and A* algorithm for shortest path detection over a not-fully-explored map.

AlgoBase

📅 2021 – 2022

The collection of Algorithms that my team implemented for the ICPC competition.

VOLUNTEERING

Graph Theory Book

📅 2019 – 2020　　📍 Tehran, Iran

Started and Contributed in writing an Online Graph Theory book that helps many students learn Graph Theory in an algorithmic approach. The book is written in Persian.

Website for QML seminar

📅 Feb 2022　　📍 Tehran, Iran

Developed a website for a seminar in Quantum Machine Learning using React, Docker, and Nginx. Used Material-UI for design.