SHAYAN PARDIS

Computer Science Undergraduate Student at MIT

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

EDUCATION

Bachelor of Computer Science and Engineering

MIT (transfer) — GPA: 5.0/5.0

Sep 2022 – May 2025 | Cambridge, Massachusetts

Relevant Coursework:

- NLP
- High-Dimensional Statistics
- Sensorimotor Learning
- Symmetry ML

Sharif University of Technology — GPA: 19.51/20

Oct 2020 – June 2022 | Tehran, Iran

Relevant Coursework:

- Engineering Probability and Statistics
- Programming Language Design
- Artificial Intelligence
- Linear Algebra

WORK EXPERIENCE

Software Engineering Internship

Citadel

June 2024 – now | New York City, New York

Robotics Research Experience

MIT Biomimetics Lab (led by Sangbae Kim) — C++

Feb 2023 – May 2024 | Cambridge, Massachusetts

- Created probabilistic homotopy optimization which enabled solving highly dynamic trajectory optimization problems.
- 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 — CUDA.jl, Julia

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 — CGAL, C++

Sep 2021 – March 2022 | Wuerselen, Germany

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

Data Science Internship

Carriot — Elastic-Search, Scikit-Learn, Python

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.

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

PROJECTS

FaceExplore

June 2023 – Aug 2023 | React, Python

Created FaceExplore, a face search engine utilizing MTCNN, Resnet, and Clustering for face detection in a large image gallery with unsupervised learning techniques. Developed a website using React, Flask, Nginx, and Docker for the user interface.

Sharif AI Challenge

March 2021 - May 2021 | Python

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.

Interactive Music System Project

Sep 2022 - Dec 2022 | Python

Developed (as a team) a sandbox game inspired by the physics of light that allows players to generate creative music.

Simple Python Interpreter

March 2022 | Racket

Developed (as a team) a simplified Python interpreter with Racket. I added support for lazy evaluation and static type-checking.

AlgoBase

2021 – 2022 | C++

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

TEACHING POSITIONS

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.

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).

VOLUNTEERING

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.

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.