

# SHAYAN PARDIS

## Computer Science Undergraduate Student at MIT

 [shayan-p.github.io](https://github.com/shayan-p)

 Shayans-P

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## EDUCATION

### Bachelor of Computer Science and Engineering

#### MIT (transfer)

GPA: 5.0/5.0

 Sep 2022 – May 2025

 Cambridge, Massachusetts

#### Sharif University of Technology

GPA: 19.51/20

 Oct 2020 – June 2022

 Tehran, Iran

## WORK EXPERIENCE

### Robotics Research Experience

#### MIT Biomimetics Lab (led by Sangbae Kim)

C++

 Feb 2023 – now

 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

 Wuersele, 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.

### Web Developer (Part-Time)

#### Abarkelas

JS (Nuxt)

Python (Django)

 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).

## 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

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### 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.

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### 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

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### 🌐 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.

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### 🌐 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.