Shayan Pardis

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Education

Massachusetts Institute of Technology — Cambridge, MA
Master of Engineering Candidate; ***Artificial Intelligence track*** — May 2025 - May 2026
Bachelor of Science in Computer Science and Engineering; ***GPA: 5.0/5.0*** — Sep 2022 - May 2025
Relevant coursework Sensorimotor Learning, High-Dimensional Statistics, Symmetry ML, NLP, Robotics Manipulation, Analysis and Design of Algorithms, Software Construction, Computation Structures, Secure Hardware Design

Sharif University of Technology — Tehran, Iran
Transferred to MIT after second year; ***GPA: 3.9/4.0*** — Sep 2020 - May 2022

Experience

Citadel LLC — New York City, NY
Quantitative Developer Intern in Central Risk Engineering — June 2024 - Aug 2024
- Developed tools for distributed system infrastructure and secured a return offer; Kubernetes, gRPC, multiprocessing, Cloud Run, Redis.

MIT Biomimetics Robotics Lab (lead by Prof. Sangbae Kim) — Cambridge, MA
Undergraduate Researcher — Feb 2023 - May 2024
- Published in IROS 2024: Designed Probabilistic Homotopy Optimization method; solves 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 — 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).

Awards

Gold medal (rank 10) in International Olympiad in Informatics (2020)
Gold medal (rank 1) in Iran National Olympiad in Informatics (2019)
ICPC 2021 World Finalist (Asia-Tehran region champion)
Silver medal (rank 24) in Asia-Pacific Informatics Olympiad

Projects

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.

Teaching Experiences

Natural Language and Computation (MIT 6.S051, Prof. Robert Berwick) — Sep 2022 - Dec 2022
Revised and created new lab practices on: Segmentation, Parsers, Semantic Parsing with Lambda Calculus, and Grammar Inference.

Algorithm Course Coordinator (Iranian National Olympiad in Informatics Summer Camp) — July 2021 - Aug 2021
Organized and invited lecturers while also serving as a course instructor. Designed 3 out of 9 questions for the final exams.