Arad Maleki Toolabi

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Education

Sharif University of Technology Sep 2020 – Present
- *B.Sc. in Computer Engineering* | Current GPA: 19.06/20 *Tehran, Iran*

Published Papers

Scanning Trojaned Models Using Out-of-Distribution Samples Accepted at NeurIPS 2024
Hossein Mirzaei, Ali Ansari, Bahar Dibaei Nia, Mojtaba Nafez, Moein Madadi, Sepehr Rezaee, Zeinab Sadat Taghavi, ***Arad Maleki****, Kian Shamsaie, Mahdi Hajialilue, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban*

Papers Submitted for Publication

A Contrastive Teacher-Student Framework for Novelty Detection under Style Shifts Submitted to ICLR 2025
3rd Author, *Authors anonymized due to double-blind review*

A Survey on Multi-GPU systems Submitted to ACM Computing Surveys
Atiyeh Gheibi, ***Arad Maleki****, Amirsaeed Ahmadi, Masoud Mohammadi, Sahand Zoufan, Mahdi Alinejad, Mohammad Alizadeh, Komeil Yahyazadeh, Negar Akbarzadeh, Sina Darabi-Moghadam, Shaahin Hessabi, Hamid Sarbazi-Azad*

PatchGuard: Adversarially Robust Anomaly Detection and Localization Submitted to CVPR 2025
2nd Author, *Authors anonymized due to double-blind review*

Papers in Progress

Mitigating Hallucinations in LVLMs Open Text Generation Planned for submission at TACL journal
Arad Maleki

Learning-Based Cache Bypassing in Multi-GPU Architectures Planned for submission at MICRO 2025
Arad Maleki*, Atiyeh Gheibi, Hamid Sarbazi-Azad*

Research Experience

My research interests lie at the intersection of enhancing **Efficiency** and **Trustworthiness** in ML systems.

Research Assistant Mar 2024 – Present
Sharif University of Technology - Prof. Sarbazi-Azad's HPCAN lab *Tehran, Iran*
- Participated in research regarding Multi-GPU systems, resulting in a comprehensive survey.

Research Assistant Sep 2023 – Mar 2024
Sharif University of Technology - Prof. Rohban's Robust and Interpretable ML lab *Tehran, Iran*
- Participated in multiple research projects, resulting in a publication and two preprints submitted to top venues.

Research Intern Jun 2023 – Sep 2023
Ruhr University Bochum *Bochum, Germany*
- Remote internship under Prof. Setareh Maghsudi researching robustness in Inverse RL systems.

Research Intern Feb 2023 – Jun 2023
Sharif University of Technology - Prof. Heydarnoori's Intelligent Software Engineering lab *Tehran, Iran*
- Worked on offline large-scale workload sharing across multiple GPUs.

Teaching Assistance Experience

Machine Learning: Fall 2024, Spring 2024, Fall 2023 | **Intro Bioinformatics**: Fall 2024 | **Mobile**: Spring 2024
Fundamentals of Programming: Spring 2022, Fall 2021 | **Advanced Programming**: Spring 2022, Fall 2021

Working Experience

ML Engineering Intern | *Danesh Solutions* Sep 2024 – Present

- Working on efficiently fine-tuning LLMs to assist Persian users seeking banking transactions, focusing on optimizing data pipelines and designing scalable model architectures tailored for production deployment.

Voluntary Experience

Educational Content Curator | *National AI Olympiad for high schoolers* Nov 2024 – Present

- Designing educational material on multiple topics, including Probability & Statistics, Linear Algebra, and Deep Learning, for high schoolers participating in Iran's 1st National AI Olympiad.

Scientific Staff | *Rayan AI Contest – Organized by Prof. Rohban* Jul 2024 – Nov 2024

- Collaborated on the design and implementation of Phase 2 of the challenge.

Honors and Awards

Iran's Nationwide Universities Exam | *Ranked 105th amongst more than 155,000 Students* 2020
Iran's National Mathematics Olympiad | *Certificate of Honorable Mention* 2019
Iran's National Informatics Olympiad | *Reached 3rd stage (Top 1%) in consecutive years* 2018 & 2019

Selected Coursework

AI & Learning: Reinforcement Learning (Graduate, 18.2/20), Machine Learning (19.1/20), Artificial Intelligence (20/20), Linear Algebra (18.8/20), Intro to BioInformatics (20/20), Signals & Systems (18/20)
Algorithmic: Data Structures & Algorithms (20/20), Game Theory (20/20), Design of Algorithms (19.5/20), Theory of Machines & Languages (20/20), Discrete Structures (20/20)
Architecture: Computer Structure & Lang (19.1/20), Computer Architecture (18.4/20), Compiler (20/20)

Skills

Programming Languages: Java, Python, C/C++, C#, SQL, Golang, Unity
Languages: Persian (Native), English (Full Professional proficiency), Arabic (Elementary Proficiency)

Notable Projects

BioInformatics Project | *Python, R, BioConda, PCA*

- Completed multiple BioInformatics-related tasks such as Analyzing the impact of Social Behaviour in the context of Neurobiology
- Used several BioInformatics tools and concepts including BLAST, DGE, RNA-Seq, and Genome Alignment

Face Recognition | *Python, Numpy, Matplotlib*

- Developed a notebook which inputs the image of some human faces and is expected to tell which faces are novel when prompted with the face of the same humans but in a different state (smiling)
- Used Linear Algebra & ML concepts such as PCA, Image mean, Eigenvectors, etc.
- Improved my theoretical knowledge of Linear Algebra as this project required some problem analysis skills

Mini Kafka | *Python, Docker, Go, CI/CD, Docker Compose*

- Created a small queue architecture inspired by Kafka, with features like fault tolerance and scalability
- Used popular software engineering tools such as Docker, Docker Compose, GitHub Actions, etc.

YoGiOh! | *Java, LibGDX, Gradle, GSON*

- Implemented our version of the popular game Yu-Gi-Oh! with Java and the graphics library LibGDX
- Worked in a team of 3 to contribute over 20,000 lines of code
- Implemented OOP concepts and computer network concepts, resulting in a multiplayer game with the option to play on a connected network

Micromaster | *Android Studio, Java, Gradle, JUnit, Room database, GSON*

- Implemented a mobile app to help users take university courses, submit homework, and download course material
- Implemented three entities: Lecturer, Student, and Teaching Assistant. Each entity has its own accesses and restrictions, and users interact with each other accordingly (Student submits homework, TA corrects it, etc.)