Rahim Tooranian

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Personal Website · GitHub

Research Interests

Machine Learning; Computational Creativity; Music Informatics

Education

M.Sc. in Computer Science (AI), University of Pisa, Italy Dec 2023 – Jan 2026 (expected)
Merit scholarship recipient; Year-2 Erasmus+ exchange at **Leiden University**, **Creative Intelligence and Technology** programme Netherlands.

B.Sc. in Computer Engineering, Shiraz University, Iran Sep 2018 – Feb 2023
GPA: **17.34/20.00**. Ranked **top 2.5%** in the national university entrance exam; graduated in the **top 20%** of class.

Research & Engineering Experience

Music Informatics & Machine Learning Intern, MUSAiC, KTH Royal Institute of Technology, Stockholm Aug 2025 – Present

- Fine-tuning symbolic music generators with RL policy optimization (e.g., GRPO) supervised Prof. Bob Sturm; exploring preference models and audio-reference rewards to improve novelty and diversity.

Data Science Intern, Walgreens Boots Alliance (remote) Apr 2022 – Dec 2022

- Built and deployed classification/regression models for specialty pharmacy patients on Azure Databricks.
- Engineered features with Spark SQL/transformations; prepared production pipelines.
- Integrated experiment tracking and monitoring with MLflow.

ML Engineer Intern (Bachelor's Project), Derak Cloud Dec 2022 – Feb 2023

- Designed and Implemented an automated ML pipeline supporting multiple models with experiment/artifact tracking, deployment, and monitoring using **ClearML** and **MLRun**.

Teaching Experience

Teaching Assistant, Shiraz University 2022 – 2023

- *Introduction to AI* (Spring 2023)
- *Data Structures & Algorithms* (Fall 2022)
- *Database Design* (Spring 2022)
- *Fundamentals of Programming* (Spring 2022)

Selected Training

Winter School on Software Engineering — HSE University
Computational Creativity & Generative Art — Simon Fraser University

Some Projects

Pulse Clash — V2_ Lab for the Unstable Media Jun 2025
Two-player arcade game where players' heart rates (via sensors) modulate opponent difficulty; exhibited at multiple venues in the Netherlands.

PCG Mosque — Game AI Spring 2025
Developed an algorithmic system to generate adaptive Persian-style mosques in **Minecraft**, analyzing terrain for suitable building sites and procedurally constructing prayer halls, domes, pools, and minarets.

Chicago Accidents — Data Mining Fall 2024
Clustered Chicago police beats by crash patterns; predicted department damage class (low/high) using public crash data.

Music Lyrics Emotion Recognition — NLP project Spring 2024
Predicted presence of nine core emotions from song lyrics using transformer baselines combined with lexicon features.

Nethack: Exploration, Path Finding, and Combat — Artificial Intelligence Fundamentals Fall 2023
Designed and implemented a hybrid agent combining A* search, greedy heuristics, and logic programming for object discovery and combat in the Nethack environment.

2D Cellular Automata Duet — Computational Creativity & Generative Art Spring 2023
Designed cellular automata rules to generate scale-constrained melodies in **Max/MSP**.

Software Test Case Generation — Software Testing Spring 2022
Implemented randomized and deterministic test-generation on **LLVM IR** to satisfy coverage criteria for C programs.