AMIRREZA VELAE

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RESEARCH INTERESTS

- Machine Learning
- Reinforcement Learning
- Optimization
- Bandit Algorithms
- Game Theory
- High Dimensional Statistics

EDUCATION

Sharif University of Technology — Tehran, Iran

- Bachelor of Science in **Electrical Engineering** — Sep 2021 – Present
- Minor in **Mathematics** — Jan 2023 – Present

Allameh Jafari High School (NODET) — Marand, Iran

- Higher Secondary Education in **Mathematics and Physics** — 2018 – 2021

RESEARCH EXPERIENCES

Sharif University of Technology

- **Optimization in Reinforcement Learning (B.Sc. Thesis)** — Oct 2024 – Aug 2025
  Supervisor: Prof. Hamed Shah-Mansouri
  - Researched improvements to optimization methods in Trust Region Policy Optimization (TRPO).
- **Robust Reinforcement Learning** — Apr 2025 – Present
  Supervisor: Prof. Sajjad Amini
  - Conducting research on robust reinforcement learning techniques.

University of Amsterdam & Stanford University

- **Bias Mitigation in Ranking** — Remote Aug 2024 – Present
  Supervisors: Prof. Mohammad Aliannejadi & Prof. Sanjay Lall — Under review @ EMNLP
  - Transformed BackPack LM into an encoder for ranking and bias mitigation.

Max Planck Institute

- **Learning-to-Defer (L2D) in Bayesian Machine Learning** — Remote Apr 2024 – Sep 2024
  Supervisor: Amin Charusaie
  - Utilized human feedback to enhance machine learning models equipped with Bayesian layers.
- **Second order Methods for Reinforcement Learning** — Pending Visa Apr 2025 – Present
  Supervisor: Prof. Sadegh Soudjani and Dr. Arash Bahari Kordabad
  - Exploring second-order methods for deterministic policy gradients in LQR problems.

WORK EXPERIENCES

Tabdeal

- **LLM Researcher** — Jun 2024 – Apr 2025
  Tabdeal is a cryptocurrency exchange platform serving over 1.5 million users.
  Topic: Developed a Retrieval-Augmented Generation (RAG) system for the company's chatbot and integrated it into the website.

SELECTED ADVANCED COURSES

- **Undergraduate Courses**: Linear Algebra – 19.8/20, Machine Learning – 19.5/20, Signals and Systems – 19.2/20, Convex Optimization – 17/20, Game Theory – 17.8/20, Numerical Optimization – 19/20
- **Graduate Courses**: Deep Learning – 17.2/20, Reinforcement Learning – 20/20, Stochastic Processes†, Convex Optimization II – 18.7/20, High-Dimensional Probability Analysis – 19.3/20, Online Learning†, Optimization Seminar – 18/20, *Information Theory, Statistics, and Learning*, *Graphical Models*, *Bandit Algorithms*†

† Audited `or` Self-studied *Italicized courses are currently enrolled or studying*

SELECTED ADVANCED COURSE PROJECTS

- Poster presentation on "Robust Reinforcement Learning" and related projects [code and report]
- Implementation of the GANBERT model for a text classification task [code and report]
- Presentation on online geometric optimization in the bandit setting against an adaptive adversary [slides]
- High-dimensional analysis of the Neural Tangent Kernel [code and report]
- Expectation-Maximization for a mixture of Gaussians [code and report]
- Non-stationary bandit algorithm [slides]
- Multiple deep learning projects [code]

TEACHING EXPERIENCES

Teaching Assistant, Sharif University of Technology (For more information, please visit my teaching page)

- **Undergraduate Courses**:
  - Probability and Statistics (Spring 2023 & Spring 2024 & Fall 2024)
  - Signals and Systems (Fall 2023 & Spring 2024)
  - Linear Algebra (Fall 2023 & Spring 2024)
  - Machine Learning (Fall 2023, Spring 2024, & Fall 2024 Head Assistant, & Spring 2025)
  - Optimization (Fall 2024, & Spring 2025)
- **Graduate Courses**:
  - Deep Learning (Fall 2024)
  - Reinforcement Learning (Spring 2025)

VOLUNTEER EXPERIENCE

- **Scientific Associate Principal**, Student Association at Sharif University (Resana) June 2023 – July 2024
  Resana is the scientific community of the Electrical Engineering Department at Sharif University of Technology.
- **Central Council Member**, ReACT 2024 Dec 2024
  ReACT 2024 hosted 1,500+ attendees and featured top international researchers.

SKILLS AND INTERESTS

- **Programming**: Python (PyTorch, OpenCV, LangChain, Django, etc.), MATLAB, C++, Java, MySQL
- **Languages**: Azerbaijani, Persian, English, Turkish, Ukrainian (Elementary), German (Beginner)
- **Hobbies**: Chess, Cinema, Soccer, Novels, Poetry (mostly Persian)

HONORS AND AWARDS

- **Ranked 51st** in the Mathematics and Physics University Entrance Exam among 165,000 participants 2021