

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 (*Expected Graduation: Sep 2026*) Tehran, Iran

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

Allameh Jafaru High School (NODET) Marand, Iran

- Higher Secondary Education, **Math and Physics** 2018 – 2021

RESEARCH EXPERIENCES

Sharif University of Technology (B.Sc. Thesis)

- **Optimization in Reinforcement Learning** Oct 2024 – Present
Supervisor: Prof. [Hamed Shah-Mansouri](#)
 - I'm trying to find Adam's bottlenecks in optimizing TRPO and trying to come with a proper solution to mitigate them.

University of Amsterdam

- **Backpack Model** Aug 2024 – Present
Supervisor: Prof. [Mohammad Aliannejadi](#)
 - This project transformed the BackPack decoder-only model into an encoder using an unsupervised approach, optimizing it for ranking and mitigating biases like gender bias through a modular architecture.Expected Submission: [ARR Conference 15 April 2025](#)

Max Planck Institute for Intelligent Systems

- **Learning-to-Defer (L2D) in Bayesian Machine Learning** April 2024 – Sep 2024
Supervisor: [Amin Charusaie](#) & Prof. [Samira Samadi](#)
 - In this project, I worked on Learning-to-Defer. We aimed to utilize human feedback to enhance the performance of machine learning models. We have tested L2D performance on Bayesian layers.

WORK EXPERIENCES

[Tabdeal](#)

- **LLM Researcher** May 2024 – Present
Tabdeal is a crypto exchange that provides a platform for more than 1 million users to trade digital currencies.
Topic: Working on RAG for the company's chatbot and integrating it with the company's website.

SELECTED ADVANCED COURSES

- **Undergraduate Courses:** Linear Algebra - [19.8/20](#), Introduction to Machine Learning - [19.5/20](#), Signals and Systems - [19.2/20](#), Convex Optimization - [17/20](#), Game Theory - [17.8/20](#), Numerical Methods in Optimization, *Real Analysis*[†]

- **Graduate Courses:** Deep Learning - [17.2/20](#), Reinforcement Learning - [20/20](#), Stochastic Process[†], 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 *Italic courses are currently enrolled or studying*

SELECTED ADVANCED COURSE PROJECTS

- Poster presentation on "Robust Reinforcement Learning" and other related projects [[code and report](#)]
- Adaptive Filter for Noise Cancellation and other Signal Processing projects [[code and report](#)]
- Implementation of GANBERT model for text classification task [[code and report](#)]
- Presentation on "BGA" on Optimization Seminar [[simulations and slides](#)]
- High Dimensional Analysis of Neural Tangent Kernel [[code and report](#)]
- Expectation Maximization for Mixture of Gaussians [[code and report](#)]
- 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)
 - Mathematical Methods in Engineering (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 at the Electrical Engineering department at Sharif University of Technology.
- **Head**, Head of First AIVengers Summer School June 2023 – Sep 2023
AIVengers is a student event in AI and ML, featuring Ph.D. students from Stanford and SUT as instructors.
- **Central Council Member**, [ReACT 2024](#) Dec 2024
ReACT 2024, a major Iranian conference, hosted over 1,500 attendees and featured top global researchers.

SKILLS AND INTERESTS

- **Programming:** Python (PyTorch, OpenCV, LangChain, Django, etc.), MATLAB, C++, Java, MySQL
- **Languages:** Persian, English, Turkish, Russian & Ukrainian (Elementary)

HONORS AND AWARDS

- **Ranked 51st** in the Mathematics and Physics University Entrance Exam among 165,000 participants 2021
- **Ranked in the Top 20%** among 200 students in the EE department (**3rd** among Control students) 2025