

# Arman Zarei

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## EDUCATION

- **University of Maryland, College Park** Maryland, USA  
*Ph.D. in Computer Science - Advised by Prof. S. Feizi*  
Aug. 2023 - Present  
GPA: 4.0/4.0
- **Sharif University of Technology** Tehran, Iran  
*B.Sc. in Computer Engineering*  
Sep. 2018 - Feb. 2023

## RESEARCH INTERESTS

Generative Models, Image Synthesis, Diffusion Models, Vision Language Models, Computer Vision, Deep Learning

## RESEARCH EXPERIENCE

- University of Maryland, College Park** Maryland, United States  
• *Research Assistant - Image Generative Models*  
Supervisor: Prof. S Feizi  
○ Enhancing the compositional abilities, localizing and editing knowledge, and improving image editing capabilities of Text-to-Image Generative Models, while exploring their interpretability and analyzing failure cases
- Netflix** Los Gatos, United State  
• *Research Scientist Intern*  
Jan 2026 - Apr 2026 (Expected)
- ByteDance - TikTok** San Jose, United State  
• *Research Scientist Intern*  
Compositionality of Text-to-Image Models  
Aug 2025 - Oct 2025
- Pinterest** Remote, United State  
• *Machine Learning Intern*  
Personalization of Text-to-Image Diffusion Models  
May 2025 - Aug 2025
- École Polytechnique Fédérale de Lausanne (EPFL)** Lausanne, Switzerland  
• *Research Assistant (Summer Internship) - Machine Learning and Signal Processing*  
Supervisor: Prof. M Shoaran  
○ Seizure detection using EEG recordings of brain activity with robust feature representation and domain adaptation
- Sharif University of Technology** Tehran, Iran  
• *Research Assistant - Robustness in Deep Learning*  
Supervisor: Prof. MH Rohban  
○ Robust out-of-distribution detection / Improving adversarial training using data-centric approaches
- University of Arizona** Arizona, United States  
• *Research Assistant (Summer Internship) - 3D Vision*  
Supervisors: Prof. TL Swetnam, Prof. E Lyons  
○ 3D point cloud segmentation  
July 2021 - Sep. 2021

## PUBLICATIONS

- **Localizing Knowledge in Diffusion Transformers**  
A Zarei, S Basu, K Rezaei, Z Lin, S Nag, S Feizi  
NeurIPS 2025
- **Understanding and Mitigating Compositional Issues in Text-to-Image Generative Models**  
A Zarei, K Rezaei, S Basu, M Saberi, M Moayeri, P Kattakinda, S Feizi  
Under Review
- **Enhancing Epileptic Seizure Detection with EEG Feature Embeddings**  
A Zarei, B Zhu, M Shoaran  
IEEE BioCAS 2023 (Oral)
- **Your Out-of-Distribution Detection Method is not Robust!**  
M Azizmalayeri, A Soltani Moakar, A Zarei, R Zohrabi, MT Manzuri, MH Rohban  
NeurIPS 2022

Please refer to [Google Scholar](#) for other publications.

## ACADEMIC SERVICES

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- Conference Reviewer, ICLR 2024 - ICML 2024 - ICLR 2025 - NeurIPS 2025 - ICLR 2026
- Backend Lead, **Sharif AI Challenge**, Iran's Largest AI Competition 2021
  - Managed the entire software development lifecycle, including architecture, solution design, and maintenance.

## SELECTED ACADEMIC PROJECTS

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- **Image Generative Models - PyTorch Implementation from Scratch:** [source-code](#)  
A PyTorch implementation (from scratch) of various image generative models — Diffusion Models, GANs, VAEs, and Autoregressive Models — with detailed explanations, visualizations, and key mathematical formulas.
- **Improve Seizure Detection using Adaptive Learning:** [source-code](#)  
Implemented pipelines for adaptive learning concerning seizure detection using EEG signals - Compared and analyzed the results of various models and methods - Developed tools to facilitate the seizure detection procedure at different stages
- **3D Lettuce Soil Point Cloud Segmentation:** source-codes: [1](#) - [2](#) - [3](#)  
Designed and implemented containerized pipelines for both annotating point clouds and training models for soil/lettuce point cloud segmentation - Developed tools to facilitate the aforementioned procedure at various stages
- **Selected Course Projects:**  
Image Processing: [link](#) | Machine Learning: [link](#) | Modern Information Retrieval: [link](#) | Compiler Design: [link](#)
- **Others:** [Github](#)

## WORK EXPERIENCE

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### Sooton

- *Software Engineer* *Jan. 2022 - Apr. 2022*
  - A company providing Cloud and AI services
  - Project: Designed a Human Resource Management System
  - Technologies: Python, Django, Docker, HTML/CSS, Javascript, jQuery, Bootstrap

### Snappfood

- *Software Engineer* *Aug. 2020 - Feb. 2021*
  - Leading online food ordering company in Iran
  - Back-End Developer in Menu Squad - Maintained menu APIs and designed new features
  - Technologies: PHP, Symfony, MySQL, Redis, Elasticsearch, Docker, RabbitMQ, HTML/CSS/Bootstrap, JS/jQuery

## TEACHING ASSISTANT EXPERIENCE

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- **Algorithms** *Fall 2023*
- **Machine Learning | Artificial Intelligence | Probability and Statistics** *Fall 2022*
- **Artificial Intelligence | Technical Presentation** *Spring 2022*
- **Artificial Intelligence | Design of Algorithms (2x)** *Fall / Spring 2021*
- **Compiler Design | Data Structures and Algorithms | Advanced Programming** *Fall / Spring 2020*

## RELEVANT COURSEWORK

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|---|--|
| - Machine Learning: 20/20   | - Design of Algorithms: 20/20                                |
| - Advanced Information Retrieval: 19.9/20                               | - Image Processing: 19.4/20                                  |
| * Advanced Computer Graphics: 4.0/4.0 (A <sup>+</sup> )                 | * Visual Learning and Recognition: 4.0/4.0 (A <sup>+</sup> ) |
| * Foundations of Deep Learning: 4.0/4.0 (A <sup>+</sup> )               | * Multimodal Foundation Models: 4.0/4.0 (A <sup>+</sup> )    |
| - Stanford CS229 - Machine Learning (online, audited)                   |  |
| - Stanford CS231n - Deep Learning for Computer Vision (online, audited) |  |
| - Generative Adversarial Networks (GANs) Specialization (Coursera)      |  |

## TECHNICAL SKILLS

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- **Programming Languages:** Python, Java, C/C++, PHP, JavaScript, Golang
- **Machine Learning Libraries:** PyTorch, NumPy, Diffusers, Transformers, OpenCV, Scikit-Learn, Pandas, ...
- **Web Development & Database:** Laravel, Symfony, Django, NodeJS, ExpressJS, Wordpress, React, HTML/CSS, jQuery, Bootstrap, MySQL, Redis, MongoDB, Elasticsearch, RabbitMQ, ...
- **Miscellaneous:** Docker, Git, Linux

## HONORS AND AWARDS

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- Ranked **1<sup>st</sup>** in different Front & Back Development Contests (by SnappTrip, CodeCup, Edalat-Khaneh)
- Ranked **2<sup>nd</sup>** in the Provincial Chess Tournament
- Ranked among the top **1%** in the Nation-Wide University Entrance Exam

## LANGUAGES

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- **Persian:** native
- **English:** proficient (TOEFL 113: W30, S29, R27, L27)