Aref Azizian

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Tehran, Iran

Summary

Top-ranked Master's student at Amirkabir University of Technology with a perfect GPA of 4.0 and a strong academic background in machine learning and deep learning. Co-author of two IEEE conference papers, with over four years of experience as a Senior .NET Developer, combining theoretical knowledge with practical problem-solving skills.

Research Interests

I am broadly interested in machine learning, particularly in enhancing model performance in challenging real-world environments. My research focuses on areas such as label noise detection, model calibration, and novel optimization techniques. I aim to explore applications of these methods in fields like anomaly detection, supervised learning, and emerging machine learning applications. I am committed to advancing machine learning's impact across various domains by developing robust, scalable models.

- Machine Learning, Model Calibration, Noisy Label Detection, Optimization, Loss Functions, Anomaly Detection

Education

- **Amirkabir University** *2023 - Present*
  M.Sc. Computer Science Tehran, Iran
  - GPA: 19.71/20
  - Ranked top 1 student
- **Amirkabir University** *2018 - 2023*
  B.Sc. Computer Science Tehran, Iran

Research Experience

- **NORC Lab at Amirkabir University [🌐]** *November 2023 - Present*
  Full-Time Researcher Tehran, Iran
  - Collaborated with two PhD candidates on research focused on anomaly detection and noisy labels, leading to the co-authorship of two conference papers.
  - Contributed to writing research papers, reports, and presentations, advancing the lab's focus on practical machine learning applications.
  - Contributed to various projects led by the lab director, collaborating on research initiatives that advanced the lab's focus on machine learning and data science.

Teaching Experience

- **Deep Learning Teaching Assistant** *Spring 2025*
  For Dept. of Math & CS Master's Students
- **Machine Learning Teaching Assistant** *Fall 2024*
  For Dept. of Math & CS Master's Students
- **Advanced Programming Teaching Assistant** *Fall 2022*
  For Dept. of Math & CS Bachelor's Students

Languages

- **English:** Advanced - IELTS score of 8
- **Persian:** Native

Work Experience

- **Novinmana [🌐]** *January 2024 - Present*
  Senior .NET Developer Tehran, Iran
  - Developed a Content Management System (CMS) and a funding application [🌐], improving business workflows and user experience.
- **Exon IT [🌐]** *November 2022 - January 2024*
  Senior .NET Developer Tehran, Iran
  - Designed and implemented a microservice architecture using BDD (Behavior Driven Development), achieving over 100% test coverage for the codebase.
- **Dotin [🌐]** *April 2022 - September 2022*
  DevSecOps Engineer Tehran, Iran
  - Applied secure coding principles and developed a Static Application Security Testing (SAST) pipeline, improving code security and compliance.
- **DPE [🌐]** *January 2020 - April 2022*
  .NET Developer Tehran, Iran
  - Designed and implemented a microservices architecture for a novel Uber-like application, enabling scalable and maintainable software solutions.

Projects

- **Recommendation System for Large-Scale Datasets** *July 2024*
  Tools: Python, Pandas, NumPy, SciPy, Matplotlib [GitHub]
  - Developed a user-to-user collaborative filtering recommendation system using the MovieLens 20M dataset, which required sparse matrix representation to reduce memory usage and optimize computation.
  - Scraped Instagram for user interaction data, collecting metrics for enhanced personalized recommendations.
- **Comparative Analysis of GNNs and Classic Machine Learning Models** *July 2024*
  Tools: Python, PyTorch, Torch Geometric, Scikit-learn, Pandas [k]
  - Compared Graph Neural Networks (GCN, GraphSAGE, GAT) with traditional models like Random Forest and MLP, analyzing accuracy and scalability on superhero datasets.
  - Constructed graph adjacency matrices using multiple techniques (e.g., KNN and real data relationships) and implemented GNNs with PyTorch Geometric for node classification.
- **Implementation and Enhancement of Spam Detection on Twitter** *January 2024*
  Tools: Python, PyTorch, Scikit-learn, NLTK [GitHub]
  - Implemented a neural network-based spam detection model following the methodology proposed in a paper, using their self-collected dataset, focusing on traditional and context-specific spam on Twitter.
  - Improved the model's performance by optimizing key components, surpassing the original results in several areas.

Publications

C=Conference, J=Journal, P=Patent, S=In Submission, T=Thesis

[C.1] A. Azizian, et al. (2024). **Enhanced Multi-Modal Gas Leakage Detection with NSMOTE: A Novel Over-sampling Approach**. In *8th International Conference on Smart Cities, Internet of Things and Applications (SCIoT)*, pp. 94-99. IEEE. 2024, Mashhad, Iran. DOI: 10.1109/SCIoT62588.2024.10570108

[C.2] A. Azizian, et al. (2024). **Preventing Overfitting on Noisy Labels Through Adaptive Checkpointing**. In *10th International Conference on Signal Processing and Intelligent Systems (ICSPIS)*, pp. 94-99. IEEE. 2024, Shahrood, Iran. DOI: 10.1109/SCIoT62588.2024.10570108