Pardissadat Zahraei

■ paradisez2001@gmail.com ③ Google Scholar in Linkedin ⑤ Github ⑤ Website

Education

B.Sc In Computer Engineering

Oct 2020 - Expected Jun. 2025

Sharif University of Technology

Tehran, Iran

• FinalGrade: 18.4/20 (GPA: 3.87/4)

Publications

WSC+: Enhancing The Winograd Schema Challenge Using Tree-of-Experts

Authors: Pardis Sadat Zahraei, Ali Emami

The 2024 Conference of the European Chapter of the Association for Computational Linquistics (EACL)

TuringQ: Benchmarking AI Comprehension in Theory of Computation

Authors: Pardis Sadat Zahraei, Ehsaneddin Asgari

Findings of the Association for Computational Linguistics: EMNLP 2024

Detecting Bias and Enhancing Diagnostic Accuracy in Large Language Models for Healthcare

Authors: Pardis Sadat Zahraei, Zahra Shakeri Revision- Nature npj Digital Medicine Journal

Translate With Care: Addressing Gender Bias, Neutrality, and Reasoning in LLM Translations

Authors: Pardis Sadat Zahraei, Ali Emami

UnderReview- The 63rd Annual Meeting of the Association for Computational Linguistics: ACL 2025

Research Interests

- LLM Reasoning and Problem-Solving
- NLP Resources and Evaluation
- Multilingual NLP and Machine Translation
- Information Retrieval
- AI Ethics and Fairness
- Healthcare AI

Research Experience

University of Maryland, College Park

Jul 2024 – Present

Professor Jordan Boyd-Graber

• Contributing to the development of real-time question-answering (QA) systems, focusing on enhancing the efficiency and relevance of responses in dynamic applications.

Qatar Computing Research Institute

Feb 2024 – Present

Professor Ehsaneddin Asgari

- Developed TuringQ, a benchmark for evaluating LLMs' reasoning in theory of computation. Explored LLMs' potential as judges in decision-making processes.
- Currently investigating LLMs' cultural understanding, while conducting a survey on generative AI.

HIVE Lab, University of Toronto

Jul 2024 – Oct 2024

Professor Zahra Shakeri

• Evaluated and benchmarked LLMs in clinical health, focusing on mitigating bias and analyzing demographic factors in medical diagnosis. Proposed two novel benchmarks and a specialized LLM to address these issues.

Brock University Jul 2023 – Jul 2024

Professor Ali Emami

- Investigated LLMs' common sense reasoning and identified the Generation-Evaluation Inconsistency phenomenon, where models struggle to answer their own generated questions. Developed the 'Tree-of-Experts' (ToE) Prompting method to enhance model reasoning accuracy.
- Proposed a new translation challenge, uncovered hidden biases in machine translations, and fine-tuned an LLM with cross-lingual learning techniques.

• English (Advanced)(TOEFL iBT: 113/120, R:28, L:28, S:28, W:29)

• Persian (Native)

Honors & Awards

DSI Research Grant Award, 2024

 $Granted\ CDN\ \$10,000\ DSI\ Critical\ Investigation\ of\ Data\ Science\ Research\ Grant\ for\ a\ proposal\ with\ Prof.\ Zahra\ Shakeri$

Top Performer in Machine Learning Course, 2023

Secured 1st place in all Sharif University's Kaggle Machine Learning competitions.

Full Tuition Scholarship Award, 2020

Received full scholarship from Sharif University of Technology for B.Sc. degree.

Distinguished Academic Ranking, 2020

Ranked in the top 1% nationally among 155,000 participants in the Iranian University Entrance Exam.

Teaching Assistant Experiences at Sharif University of Technology

- Natural Language Processing (Graduate Course)
- Machine Learning (Graduate Course) × 4
- \bullet Artificial Intelligence \times 3
- Advanced Information Retrieval

- Linear Algebra \times 2
- ullet Engineering Probability and Statistics \times 2
- Compiler Design \times 2
- Numerical Computation × 2

Relevant Courses

- Generative Models (Grad Level) | Ongoing
- Natural Language Processing (Grad Level) | 20/20
- Machine Learning (Grad Level) | 20/20
- Artificial Intelligence | 19.8/20
- Data Structures and Algorithms | 20/20

- Linear Algebra | 20/20
- Engineering Probability and Statistics | 19.4/20
- Generative AI with LLMs | Certificate
- Data Visualization | Certificate
- Text Retrieval and Search Engines | Certificate
- Text Mining | Certificate

Independent Projects

Advanced Information Retrieval Course Project (7) Github

Created a search engine from scratch using techniques such as indexing, word embeddings, clustering, and web crawling.

Machine Learning Course Project (7) Github

Implemented machine learning algorithms including Decision Trees, Regression, Naïve Bayes, SVM, and Neural Networks.

Sentiment Analysis on Twitter and YouTube Data ? Github

Conducted sentiment analysis using lemmatization, tokenization, spell checking, and custom linguistic methods.

Persian Summarization and Named Entity Recognition NER Model Summarizer

 $Created\ transformer-based\ models\ for\ Named\ Entity\ Recognition\ and\ Persian\ text\ summarization.$

Persian Formal-Informal Text Translation PersianTextFormalizer PersianEase

Fine-tuned Persian language models to translate between formal and informal text styles.

Technical Skills

- NLP Skills: Transformers, Torch, Scikit-learn, Fine-tuning (SFT, TRL, DPO), PEFT & LoRA, Prompt Engineering, Web Crawling & RAG Systems, Distillation & Quantization
- Programming Languages: Python, Java, C, C++, R

Volunteering and Service

EMNLP 2024 Student Volunteer

Assist the EMNLP 2024 AV Technician Team in managing various online content tasks.

Sharif University Winter Seminar Series on Advanced Topics in Computer Science

 $Served\ on\ the\ executive\ team\ for\ the\ 8th\ and\ 9th\ Winter\ Seminar\ Series.$

Sharif University Environmental Enthusiasts Scientific Association

Participate in yearly environmental awareness events.