# Mohammad Ghiasvand Mohammadkhani

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*GScholar: /mghiasvand1*

## EDUCATION

**Amirkabir University of Technology (Tehran Polytechnic)**　　　　Tehran, Iran
*Bachelor in Computer Science*　　　　*Sep. 2022 – June 2025*

○ Early graduation in **6** semesters (**1 year** ahead of standard)
○ GPA: **3.92** / 4.0

## RESEARCH INTERESTS

I'm interested in ML and NLP, particularly in **large language models**, specifically, but not limited to, structured high-quality synthetic data generation by LLMs, improving them using such data, and LLM evaluation.

## PUBLICATIONS[1]

[1] Gap-Filling Prompting Enhances Code-Assisted Mathematical Reasoning
**Mohammad Ghiasvand Mohammadkhani**
*arXiv preprint arXiv:2411.05407*

[2] Zero-Shot Learning and Key Points Are All You Need for Automated Fact-Checking
**Mohammad Ghiasvand Mohammadkhani**, Ali Ghiasvand Mohammadkhani, Hamid Beigy
*FEVER Workshop at EMNLP 2024*

[3] Element to Tuple Prompting Improves Aspect Sentiment Tuple Prediction
**Mohammad Ghiasvand Mohammadkhani**, Niloofar Ranjbar, Saeedeh Momtazi
*Under Review at Neural Networks Journal*
　* **Completed in my 3rd undergraduate semester** *

## RESEARCH EXPERIENCE[2]

**Amirkabir University of Technology**　　　　Tehran, Iran
*Advisor: Mohammad Akbari*　　　　*Dec. 2022 - Feb. 2025*

○ Working on my own bachelor's thesis on task-specific instruction tuning using synthetic data for customized evaluation.
○ Collaborated on the tweet stream summarization NLP project during my **1st undergraduate year**.
○ Actively participated in weekly lab meetings with graduate students to discuss ongoing NLP projects.

**Sharif University of Technology**　　　　Tehran, Iran
*Advisor: Hamid Beigy*　　　　*July. 2024 - Aug. 2024*

○ Worked on developing a simple yet effective strategy for zero-shot, explainable, automated fact verification using large language models, leading to P2, which *significantly improved the shared task baseline*.

**Amirkabir University of Technology**　　　　Tehran, Iran
*Advisor: Saeedeh Momtazi*　　　　*Sep. 2023 - Feb. 2024*

○ Worked on improving small language models with annotated data for the Aspect Sentiment Tuple Prediction task, which led to the *state-of-the-art* paper P3, with fruitful contributions and thorough analysis, conducted during my **3rd undergraduate semester**.

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[1]Notably, given my goal of early graduation, I had only two years from my university entrance until now, to build this profile.
[2]Importantly, no suitable GPUs or funding for the use of proprietary LLMs were available within the university.

## INDUSTRIAL EXPERIENCE

**Karlancer**                                                                                                      Remote
*ML/NLP Part-Time Freelancer*                                                                    *Sep. 2024 - Nov. 2024*

○ I provided effective solutions and implemented strategies for projects across various topics and needs in the fields of machine learning and natural language processing.

**Teamyar ERP**                                                                                                Karaj, Iran
*NLP Intern | Certificate*                                                                          *July 2024 - Aug. 2024*

○ During this internship, I worked on retrieval-augmented generation and customized a large language model for customer service to automatically answer FAQ-related questions.

*Self-Employed*                                                                                                    Remote
*Freelance Web Developer*                                                                           *July 2022 - Nov. 2023*

○ I developed full backend solutions with Django and Django Rest Framework and handled frontend server communication using Vue.js for web applications on a contract basis.

## HONORS

○ Granted admission from the Talented Student Office of Amirkabir University of Technology.
○ Ranked among the top 0.5% in the Iranian Nationwide University Entrance Exam for the Mathematics and Physics discipline, and admitted to Amirkabir University of Technology as a distinguished student.

## PROFESSIONAL SERVICES

○ **Conference Workshop Reviewer**: *MATH-AI* at NeurIPS 2024, *FEVER* at EMNLP 2024

## SELECTED PROJECTS

○ Worked on a tweet stream summarization project, where tweets were first crawled and preprocessed to remove noise. KNN and Random Forest classifiers were then trained for tweet semantic filtering, followed by sentiment analysis and LDA topic modeling to categorize data points related to entities extracted via named entity recognition. Finally, pretrained models were used for the manual summarization of tweet clusters, creating coherent summaries of large tweet streams.
○ Code implementation of the "Gap-Filling-Prompting", "Zero-Shot Learning and Key Points" and "Element to Tuple Prompting" research papers.
○ Implemented a customized retrieval-augmented generation framework for FAQ question answering by utilizing large language models for customer service.
○ The core version of my first implemented full-stack web project, an e-commerce website, was built using Django, Django Rest Framework, and Vue.js.
○ Implemented a basic Persian search engine using word embeddings to find similarities in mathematical textual explanations.

## SKILLS

○ **Programming Languages**: Python, SQL, LaTeX
○ **Coursera Certificates**: Natural Language Processing Specialization and Machine Learning Specialization
○ **ML and NLP**: Hugging Face, NumPy, Pandas, Matplotlib
○ **Web Development**: HTML, Django, Django Rest Framework, Vue.js

## MENTORING

○ **Ali Ghiasvand Mohammadkhani**: High School Student                                        *June 2024 - July 204*

## LANGUAGE PROFICIENCY

○ **English:** (IELTS) **8.0**/9.0 (Listening, **8.5** | Reading, **8.0** | Speaking, **7.5** | Writing, **7.0**)
○ **Persian:** Native