Nima Nilchian

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Education

Kharazmi University   Tehran, Iran
B.Sc. in Computer Engineering   *Sep 2020 – Jan 2025*

- Total GPA: 17.75/20 or 3.78/4 (Credits:136)
- Ranked top 10% among fellow Computer Engineering Students

Research Interests

- Natural Language Processing
- Large Language Models
- Information Retrieval
- Deep Learning
- Applied Machine Learning
- Knowledge Graphs

Publications

O.K. Gargari, G. Habibi, **N. Nilchian**, A. Shafiee. *"Comparative Analysis of Large Language Models in Psychiatry and Mental Health: Focus on GPT, AYA, and Nemotron-3-8B"*, Asian Journal of Psychiatry, 2024.

Research Experiences

Farzan Clinical Research Institute   Apr 2024 – Present
Evaluating LLM's in Psychiatry and Mental Health,

- Involved in multiple research projects **evaluating LLMs in psychiatry and medical domains**.
- Researching on **prompt engineering** techniques to **optimize model output** for desired applications.

Remote Research Assistant at University of Calgary   Jun 2023 – Sep 2023
UWB Real-time Locating Systems (RTLS), Supervisors: [Dr. Askarian](#) , [Dr. Sadeghpour](#)

- Increasing the accuracy of Auto-Positioning with UWB-RTLS devices, for Automation in Construction.
- Worked on **Object Detection**, **Dynamic Tracking** and **Position Estimation** - Data Analysis, **Visualization**, **Optimization** - Embedded Programming (C), **Raspberry Pi**.

Work Experiences

NLP Engineer
[Farzan Institute](#), Iran   *Oct 2023 – Present*

- **Continual-Learning** and **Fine-tuning** LLMs for mental health use cases.
- Developed a **Chatbot** that acts as a therapist. It engages in multi-turn conversations, asks follow-up questions, and generates a comprehensive summary and recommendations at the end.
- **RAG system** with mental health sourcebooks for domain-specific questions.
- **Symptom Checker** which identifies the relevant medical questionnaire based on user symptoms.

Machine Learning Engineer Intern
[Roshan](#), Tehran, Iran   *July 2023 – Aug 2023*

- **Key-Phrase Extraction**: Utilizing statistical and Graph-Based algorithms, transition toward Embed-Rank and Sentence Transformers for Persian text as a low-resource language.

President of Student Scientific Association of Computer Engineering
Kharazmi University,   *March 2023 – May 2024*

- Responsible for holding various events, workshops and meetings.

Editor-in-Chief of Pointer Magazine

Kharazmi University, *Oct 2022 – Sep 2023*

- Author, reviewer, and organizer of Pointer Magazine Issue 19. (outstanding journal in Titr Festival)

Teaching Assistant

Kharazmi University,

- Artificial Intelligence, Fall 2023.
- Advanced Programming, Spring 2024.
- Fundamentals of Programming, Fall 2021, Fall 2023 and Fall 2024.

Selected Projects

Retrieval Augmented Generation (RAG) in Mental-Health Domain Summer 2024
Farzan Institute

- **High-Quality** RAG chatbot, rigorous **evaluations**, **Smart-Chunking** concept, **Prompt Engineering**.

Integrated Evaluation Platform for LLMs Spring 2024
Farzan Institute

- **Evaluating** the efficiency and improvements of *Fine-tuned* or *RAG* models outcomes with multiple-choice or open-ended questions with various lexical, similarity, numerical analysis reported in a structured format.

Binary Stress Detection Summer 2023
IPM Summer Bootcamp *Github*

- **Fine-tuned**, evaluated and compared **LLMs** for binary stress detection and stress category classification.

Web Information Retrieval (3) Spring 2023
Modern Information Retrieval – Prof. Mahdieh Soleymani (Sharif University of Technology) *Notebook*

- **Crawled** 2000 papers. **Link Analysis** using **PageRank** and **HITS** algorithms. Implemented **Personalized PageRank**, **Personalized Search Engine** and **Recommender System**.

Machine Learning and Deep Learning Approach To Information Retrieval (2) Spring 2023
Modern Information Retrieval – Prof. Mahdieh Soleymani (Sharif University of Technology) *Notebook*

- Implemented and Evaluated **Naïve Bayes** Classifier (from scratch) - **Neural Network Model** and **Transformer Based** Classifier to classify documents labels.
- **Clustering** doucuments (**K-means** and **Hierarchical Clustering**), **visualizing** and **evaluating**.

Traditional Information Retrieval (1) Winter 2023
Modern Information Retrieval – Prof. Mahdieh Soleymani (Sharif University of Technology) *Notebook*

- **Positional Inverted Index**, **Index Compression**, **Scoring Documents** and **Search system**

Username Generator Summer 2022
Hamrah Aval Summer AI Bootcamp *Notebook*

- **Encoder-Decoder Sequence Models** for translating English usernames to equivalent Persian names.

Machine Learning Projects Spring 2023
Quera ML Bootcamp *Github*

- **Search analysis** - **Intelligent Search System** - **Polarity Detection**, etc.

Karamoozesh Backend Fall 2022
*Software Engineering and Testing – **First Project** among all by Prof. Mirtaheri.* *Github*

- **Project Manager** of a 9 member team in both Software Engineering and Testing courses. **Developed Back-end** with **Django-Rest Framework**. performed **Unit-Tests** and **Integration-Tests**.

Selected Courses

- Modern Information Retrieval: 19.7/20
- Signals and Systems: 20/20
- Research and Presentation Skills: 19.9/20
- Software Engineering: 20/20
- Artificial intelligence: 17.3
- Linear Algebra: 17.75/20
- Algorithm Design: 18/20
- Software Testing: 19.85/20

Selected Certifications

- **Artificial Intelligence Summer Camp** | IPM   Summer 2023
  Deep Learning, Computer Vision, NLP, Tensorflow, Pytorch. (ranked 3 out of 140)

- **AI and Python Summer Bootcamp** | Hamrah Aval   Summer 2022
  Python, Pytorch, Machine Learning, Deep Learning, NLP, Huggingface.

- **Proffesional Project-Based Course in Machine Learning** | Quera   Spring 2023
  Python, Scikit-Learn, Machine Learning, Superviesed and Unsupervised Learning, Neural Networks.

- **Scrum Foundation Course** | Scrum Alliance   Fall 2024
  Scrum/Agile, Project Management, Leadership, Communication.

- **Advanced Algorithm Thinking and Data Structure** | Quera   Summer 2021
  Solved more than 100 advanced algorithm training examples with C++ and Python.

Technical Skills and Interests

- **Open Libraries**: Pytorch, Scikit-learn, OpenCV, Pandas, Matplotlib.
- **Frameworks**: Django, FastAPI, Huggingface, Langchain, Langgraph.
- **Soft Skills**: Project Management, Responsibilty, Fast-Learner, Flexibility, Hard Working.
- **Languages**: Persian(Native), English(Advance), Turkish(Basic).
- **Interests & Hobbies**: Playing Music (Hangdrum & Setar) - Yoga - Running - Mountain Climbing.

Volunteer Jobs

Social Media Manager & Translator Of Conscious Planet Movement for Persian Language
This Movement was initiated by Sadhguru for a 100-day ride journey to raise awareness about Soil Extinction.

References

- Leili Mirtaheri, Assistant Professor, Kharazmi University, Tehran, Iran; mirtaheri@khu.ac.ir
- Iman Askarian, Assistant Professor, Sharif University, Tehran, Iran; iman.askarian@sharif.edu
- Azadeh Mansouri, Assistant Professor, Kharazmi University, Tehran, Iran; a_mansouri@khu.ac.ir
- Gholam Reza Habibi, CEO of Farzan Institute; grhabibi@gmail.com