ALIAKBAR NAFAR

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SUMMARY

PhD in NLP and LLMs with NAACL 2025 Outstanding Paper. 5+ years building production LLM and neuro-symbolic AI models. Open-source project lead with 12+ cross-institution collaborators. Specialty in fine-tuning & training LLMs, in-context learning & reasoning.

RESEARCH EXPERIENCE

- **Interactive Agentic Code Generation with to fine-tune LLMs** *Aug 2024 - Present*
  - Build interactive agentic coder with LangGraph, FastAPI, & RAG to generate and debug code to fine-tune collaborative LLMs
  - Train LLMs using reinforcement learning (GRPO and DPO), reducing model size by 45%. Planned submission for JAIR
- **Human–AI Trust & Relationship Modeling in Conversational Agents** *Mar 2025 - Oct 2025*
  - Design prompts, A/B testing framework, and full-stack agentic chatbot UI with FastAPI and LangChain to assess trust
  - 2x user engagement and improve user task completion by 30% among 12 pilot users in phase 1 by optimal prompting strategy
- **In-Context Learning vs Retrieval for Data-Efficient LLM Reasoning** *Jan 2024 - Dec 2024*
  - Propose a framework to identify and manipulate Large Language Models' in-context learning (ICL) mechanisms
  - Achieve data efficiency up to 90%, resulting in a publication in NAACL 2025 (**Outstanding Paper Award** 🏆)
- **Reasoning over Text that includes Uncertainties using Generative LLMs** *May 2023 - Jul 2025*
  - Create Bayesian Inference Dataset. Prompt-engineer coding methods improve accuracy 40%, resulting AAAI 2025 publication
  - Use LLMs to emulate expert probability judgments. Improve Bayesian Network accuracy by 7%. Submitted to AAAI 2026
- **Developing a Neuro-Symbolic Deep Learning Library for Constraint-Based Learning** *Jan 2021 - Sept 2025*
  - Research varying methods of constraint utilization and merge them to library resulting in EMNLP 2021 Demo publication
  - Build the first benchmark for evaluation of neuro-symbolic methods and embeddings resulting in AAAI 2023 publication
  - Architect interactive deep learning coding pipeline (GPT-4) that boosted developer speed by 500% published at NeSy 2024

WORK EXPERIENCE

Project Lead / Software Developer @ DomiKnowS *Jan 2021 - Dec 2025*
- Lead and mentor a cross-functional team of 12+ researchers and developers
- Foster collaboration and communication in designing and implementing a Neuro-Symbolic framework using Python & Pytorch
- Manage project resources and timelines, ensuring on-time delivery

AI Researcher @ Michigan State University (Dow Chemicals) *Jan 2022 - Jan 2023*
- Collaborate with a multidisciplinary team to assimilate domain knowledge into Deep Learning models for freight management
- Build & ship production UI that operationalize models for technical & non-technical stakeholders, improving decision-making

AI Engineer @ Innobrain *Aug 2019 - Dec 2019*
- Deploy ML and DL techniques to improve classification of EEG signals in the working pipeline for downstream tasks

DevOps Engineer @ Shaya Smart Solutions *Jul 2018 - Sep 2018*
- Utilize Docker to enhance modularity and scalability of core company systems, enabling implementation of CI/CD tools

SPECIAL SKILLS AND TOOLS

- **LLMs & APIs**: LangChain, LangGraph, AutoGen, Haystack, Microsoft Azure, OpenAI, Anthropic Claude, Google Gemini, Meta Llama, Unsloth, vLLM, Text Generation Inference (TGI), Ollama, Ray Serve, Hugging Face Transformers, PEFT, spaCy, NLTK
- **Cloud**: Amazon Web Services (AWS), Bedrock, SageMaker, Google Cloud, Vertex AI ,AI Foundry, AI Studio, Kubernetes
- **Coding** : Python, PyTorch, TensorFlow, scikit-learn, Pandas, Java, C++, SQL, MATLAB, FastAPI, Django, Flask, Docker, Git

SELECTED PUBLICATIONS

- **A. Nafar** et al. "learning vs retrieval: the role of in-context examples in regression with llms" **NAACL'25 Outstanding Paper** 🏆
- **A. Nafar**, K. B. Venable, P. Kordjamshidi. "reasoning over uncertain text by generative large language models" **AAAI 2025**
- **A. Nafar**, K. B. Venable, P. Kordjamshidi. "teaching probabilistic logical reasoning to transformers" **EACL 2024** Findings
- H. Faghihi, **A. Nafar**, et al. "prompt2demodel: declarative neuro-symbolic modeling with natural language" **NeSy 2024**
- H. Faghihi, **A. Nafar**, et al. "gluecons: a generic benchmark for learning under constraints" **AAAI 2023**

EDUCATION

PhD in Computer Science, Michigan State University (GPA: 3.7/4) *Jan 2021–Jan 2026*
Advisor: Parisa Kordjamshidi
Research: Large Language Models (LLMs), In-Context Learning, Generative AI (Gen AI), Artificial Intelligence, Machine Learning (ML)

B.Sc. in Software Engineering, Sharif University of Technology (GPA: 3.5/4) *Sep 2014 - Jul 2019*

SELECTED HONORS & AWARDS

- **Outstanding Paper Award, NAACL 2025** (top 1% of 864 accepted papers) *2025*
- **Gold Medal, National Informatics Olympiad of Iran (INOI)** (top 0.05% of the 15,000 participants) *2013*