Fatemeh Doudi

Ph.D. Student in Electrical Engineering
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LinkedIn GitHub

Education

Ph.D. in Electrical Engineering
Texas A&M University Jan 2023 – Present
Advisor: Prof. Dileep Kalathil
GPA: 4.0/4.0
Relevant Courses: Deep Learning, Reinforcement Learning, Convex Optimization, Stochastic Systems, Bandit Algorithms

M.Sc. in Electrical Engineering
Sharif University of Technology Oct 2020 – Dec 2022
Advisors: Prof. F. Ashtiani, Prof. M. A. Maddah-Ali
GPA: 17.78/20
Relevant Courses: Stochastic Modeling, Game Theory, Queuing Theory, Software-Defined Mobile Networks

B.Sc. in Electrical Engineering
Sharif University of Technology Sep 2015 – Dec 2019
GPA: 16.77/20

Research Interests

- Generative AI, Transformer Models, In-Context Learning
- Reinforcement Learning, Multi-Arm Bandits
- Stochastic Modeling, Queueing Theory, Game Theory

Projects

Transformers Learn Mixture of Experts In-Context
Texas A&M University Jan 2024 – Aug 2024
Supervisors: Prof. Dileep Kalathil, Prof. Debdeep Pati

- Analyzed transformer models for Mixture of Experts (MoE) in in-context learning.
- Trained GPT-2 to empirically demonstrate MoE capabilities.
- Implemented custom one-layer transformers to explore attention mechanisms.

Exploring Large Language Models in the Electric Energy Sector
Texas A&M University Jan 2024 – Mar 2024
Supervisors: Prof. Dileep Kalathil, Prof. Le Xie

- Investigated the use of multimodal models for power grid management.
- Developed a RAG pipeline using Langchain for power system protocols.
- Applied GPT-4 for fault detection in insulators through prompt engineering.

Skills

- **Programming:** Python, MATLAB, C/C++
- **Methodologies:** Machine Learning, Deep Learning, Generative Models, Queueing Theory