

Forough Shirin Abkenar

Davis, CA | forough.shirin.abkenar@gmail.com | [LinkedIn](#) | [Google Scholar](#) | [Portfolio](#) | [GitHub](#) | [ORCID](#)

Professional Summary

ML researcher and engineer with experience in deep learning, generative AI, and domain adaptation. Proficient in Python and PyTorch, with expertise across the full ML lifecycle and growing specialization in fine-tuning LLMs for decision-making workflows. Passionate about translating cutting-edge research into real-world and high-impact AI solutions.

Education

- Ph.D. in Electrical Engineering and Computer Science** 2018 – 2022
The University of Sydney Recipient of the **Dean's Award for the Best Thesis**
- Master of Science in Computer Science** 2012 – 2014
Sahand University of Technology GPA: 4.0/4.0
- Bachelor of Science in Computer Science** 2008 - 2012
Shahid Madani University of Azarbayjan GPA: 4.0/4.0

Experience

- Postdoctoral Scholar**, University of California – Davis, CA February 2023 – February 2025
- Designed **deep learning models** for **failure prediction** and **anomaly detection**, improving predictive accuracy.
 - Enhanced **model generalization** with **domain adaptation** and improved efficiency via **knowledge distillation**.
 - Mentored **Ph.D. students** in **research methodology**, **technical writing**, and **publication process**.
- Postdoctoral Scholar**, University of California – Irvine, CA February 2022 – February 2023
- Collaborated with Intel AI/ML teams to develop **adaptive ML** models for **time-variant** datasets and real-time data processing, improving performance in **real-world AI applications**.
 - Led **feature engineering** efforts and **statistical analysis** for **large-scale** datasets, optimizing data-driven insights.
- Freelance ML Researcher and Lecturer**, Davis, CA February 2025 – Present
- Pattern recognition and text classification using few-shot prompting, prompt engineering, and **LLM fine-tuning**.
 - Developed agentic AI systems using LangChain/LangGraph.

Selected Publications

- F. Shirin Abkenar et al.** (Full list, 20+ papers with 500+ citations and h-index: 10+, in [Google Scholar](#))
- "Anomaly detection, undupervised/self-supervised learning, federated learning, teacher-student model," [2025](#).
 - "Stress in pregnant women, covariate shift, realtime domain adaptive classification, supervised learning, SVM," [2023](#).
 - "Covariate shift, supervised learning, classification accuracy, false negative ratio," [2023](#).
 - "Anomaly detection, large language models (LLMs) fine-tuning, distilBert, GPT-2, PEFT, LoRA," [2025](#).

Sample Coding Projects

- Encoder-Only Model (BERT-style)** github.com/foroughshirinabkenar/llm_tutorial
- Designed and implemented a lightweight encoder-only model, incorporating input embedding and tokenization, positional encoding, transformer encoder layers, and comprehensive model performance evaluation.
- Decoder-Only Model (GPT-style)** github.com/foroughshirinabkenar/llm_tutorial
- Designed and implemented a lightweight decoder-only model, integrating input embedding and tokenization, positional encoding, causal self-attention layers, and thorough model performance assessment.

Technical Skills

Programming & Frameworks: Python, C++, SQL, PyTorch, Scikit-learn, AWS.

AI & ML: Traditional ML (Random Forest & XGBoost), Deep Learning (CNNs, RNNs, LSTMs), Generative AI (GANs & LLM), Agentic AI (LangChain/LangGraph), Federated Learning, Reinforcement Learning, Transfer Learning.

Mathematical & Statistical Methods: Probabilistic Modeling, Convex Optimization, Bayesian Inference.

ML Lifecycle: Data Collection, Cleaning, Transformation, Feature Engineering, Pipeline Development, Model Integration.

Certifications and Achievements

- Generative AI with LLMs Certification**, Amazon Web Services, 2025.
- Dean's Award for the Best Thesis**, The University of Sydney, 2023.