Nima Fathi

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 Personal GitHub | 🌐 Personal Website | in LinkedIn

Highlights

- **6+ years** of experience in deep learning research and engineering across *LLMs*, *Generative AI*, and *Medical Imaging*.
- **First-author at ICLR, COLM, MIDL, MICCAI** on topics including Diffusion Language Models, Counterfactual Generation, and Vision-Language Reasoning.
- **2+ years of industry experience**, delivering scalable ML systems (Divar, Yektanet); led infra teams, built recommender/chat/voice products.
- **Motivated by AGI**: I'm driven by the pursuit of scalable, general-purpose intelligence — inspired by Turing's vision: "We can only see a short distance ahead, but we can see plenty there that needs to be done."

Education

- **McGill University** — *M.Sc. in Electrical and Computer Engineering*   *Montreal, Canada — Sept. 2022 – Aug. 2025 (Expected)*
  - Student Researcher at Mila - Quebec AI Institute. **GPA: 4.0/4.0**
- **Sharif University of Technology** — *B.Sc. in Computer Engineering*   *Tehran, Iran — Sept. 2017 – Dec. 2021*
  - **GPA: 3.85/4.0 (18.12/20.0)**

Research Experience

- **ServiceNow Research** — *Visiting Researcher*   *Montreal, Canada — Jul. 2024 – Mar. 2025*
  - Built one of the first diffusion-based language models (DLMs).
  - Proposed a framework unifying LLMs and DLMs for efficient generation.
- **Mila - Quebec AI Institute** — *MSc Researcher (Advisor: Prof. Tal Arbel)*   *Montreal, Canada — Sept. 2022 – Present*
  - Developed a multi-agent system for counterfactual generation using diffusion models and VLMs.
  - Focused on explainability, longitudinal synthesis, and bias mitigation.
- **EPFL** — *Research Intern (Prof. Alexandre Alahi)*   *Remote — Jul. 2021 – May. 2022*
  - Principal developer of UnPOSed, an open-source **toolbox** for **forecasting** a sequence of human poses.
- **Sharif University of Technology** — *Research Assistant*   *Tehran, Iran — Dec. 2020 – Sept. 2021*
  - Vision Transformers and X-ray imaging (Prof. M. H. Rohban).

Industry Experience

- **Divar (Cafe Bazaar Inc.)** — *Software Engineer*   *Tehran, Iran — Jan. 2021 – Jul. 2021*
  - Divar is the biggest Persian classified ads and E-commerce mobile app.
  - *Chat Team*:
    * Improved in-app messaging and VoIP call functionality, boosting user engagement by over 40%.
    * Maintained system ownership across CI/CD, code reviews, and production monitoring.
    * Built moderation tools using ML to detect harassment and scams.
- **Yektanet Inc.** — *Machine Learning Engineer*   *Tehran, Iran — May 2020 – Dec. 2020*
  - *Infrastructure Team*:
    * Led 5-person team building infrastructure for ads recommender systems.
    * Owned backend and database services for internal tooling.

- *Data Science Team*:
    * Built content-based recommenders for ads and personalization.
    * Designed a geolocation system increasing CTR by 6.1%.

Selected Publications

- **ICLR'25**- **DelTa**: *Unifying Autoregressive and Diffusion-Based Sequence Generation* <u>Nima Fathi</u>, Torsten Scholak, Pierre-Andre Noel
- **MIDL'24 (Oral) — Best Paper Finalist**: *DeCoDEx: Confounder Detector Guidance for Improved Diffusion-based Counterfactual* <u>Nima Fathi</u>*, Amar Kumar*, et al.
- **MICCAI'23** - **FAIMI**: *Debiasing Counterfactuals In the Presence of Spurious Correlations* A. Kumar, <u>Nima Fathi</u>, et al.

Honors & Awards

- Graduate Excellence Fellowship (GEF) and McGill Engineering Doctoral Award (MEDA) **[McGill]**
- Google Institutional Research Program **[Mila/Google Brain]**, Tuition Differential Waiver (DFW) **[McGill]**
- Fully Funded Admission: **Mila/McGill**, UBC, UWaterloo, SFU
- Ranked Top 0.1% in Iranian National University Entrance Exam

Skills

- **Frameworks**: PyTorch, JAX, TensorFlow, Transformers, Diffusers, PEFT, Accelerate
- **Infra/Parallelism**: DeepSpeed, Megatron-LM, FlashAttention
- **Agentic AI**: LangGraph, smolagents, LlamaIndex
- **Languages**: Python, GO, Elixir, C/C++, Java, MATLAB, R
- **Tools**: Docker, K8s, Git, LaTeX
- **Databases**: PostgreSQL, MongoDB, RocksDB, Redis, Elasticsearch
- **Web**: Django, Flask, HTML/CSS/Bootstrap, React Native

Teaching Experience

- **McGill University** — Head Teaching Assistant for:
  - *Statistical Computer Vision* (Prof. T. Arbel), *Intro to Computer Vision* (Prof. J. J. Clark), *Applied Machine Learning* (Prof. R. Rabbany)
- **Sharif University of Technology** — Lead or Head TA for:
  - *Design of Algorithms*, *Advanced Information Retrieval*, *Intro to Bioinformatics* (Prof. A. Sharifi-Zarchi, Prof. M. Soleymani)
  - *Artificial Intelligence (Reinforcement Learning)* (Prof. M. H. Rohban)

Research Interests

- Diffusion Language Models, Autoregressive Models
- Counterfactual Generation, Medical Imaging, Vision-Language Models
- Agentic AI, Multi-agent Reasoning, Generative Evaluation