EBRAHIM MOUSAVI

Generative AI Researcher and Engineer

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WORK EXPERIENCE

AI Instructor and Developer
Freelancer / Contract Roles

📅 Aug 2024 – Now | Ⓜ Medium (AI Tutorials)

- Authored and published 100+ advanced tutorials on machine learning, deep learning, and NLP on Medium.
- Extensive experience in LLM development, fine-tuning (including architecture customization, instruction tuning, multi-GPU training), parameter-efficient methods like LoRA, tokenizer design, and deploying large-scale models.
- Developed specialized LLMs for code generation and PTM detection in protein sequences, along with a comprehensive building extraction pipeline from data collection to deployment.

AI Team Lead
Resana (in partnership with Rutelia Company, Japan)

📅 Feb 2024 – Aug 2024   📍 Tehran

- I developed and led the implementation of Image Generative AI and worked on LLM-based AI agents for intelligent document processing.

Senior Computer Vision Developer
AIHomeDesign in Vancouver, Canada

📅 Sep 2023 – Feb 2024   📍 Canada, Tehran's office

- Developed and deployed diffusion and vision-language models for real estate, including item removal, virtual staging, and day-to-dusk changes. Improved image synthesis by integrating advanced diffusion models and collaborated with teams to scale AI tools for interior design.

Deep Learning Researcher and Developer
Baharan Company & Freelance

📅 Jan 2021 – Aug 2023   📍 Tehran, Iran / Remote

- Deep Learning Developer, focusing on computer vision and NLP (Jan 2021 – Mar 2022).
- Continued independently as a Deep Learning Freelancer, delivering AI solutions for various clients (Apr 2022– Aug. 2023).

Network & Systems Engineer | Linux Expert
Freelance / Contract Roles

📅 Feb 2017 – Mar 2020   📍 Iran

- Designed, configured, and maintained secure network infrastructures using Cisco (CCNA-level) and Microsoft systems (Active Directory, DNS, DHCP, Group Policy).

SUMMARY

"AI developer with experience in deep learning, computer vision, and NLP, experienced in publishing peer-reviewed research and mentoring others. Interested in leading innovative projects in LLM research and development."

MOST PROUD OF

🧠 **Publishing Peer-Reviewed Research in AI and Education**
Co-authored Q1 journal papers on AI.

💻 **Educating Future AI Engineers**
Taught and mentored hundreds of students across five semesters as a Machine Learning and Deep Learning instructor and TA — sharing knowledge via hands-on GitHub repositories and detailed Medium tutorials.

STRENGTHS

`Hard-working` `Detail-Oriented` `Team Player` `Instructor & Mentor`

`Python` `Machine Learning` `Deep Learning` `Generative AI` `LLMs` `MCP` `NLP` `Computer Vision` `Diffusion Models`

`AI Agents` `LangChain & LangGraph` `AutoGen & CrewAI` `Transformers` `LoRA & Fine-Tuning` `Multi-GPU Training`

LANGUAGES

Persian ●●●●●

English ●●●●○
(IELTS 6.0 – Duolingo 110)

Turkish ●●●○○

TEACHING & MENTORING

Teaching Assistant in Machine Learning course

Tarbiat Modares University

📅 Mar 2020 – Jul 2024   📍 Tehran, Iran

- Taught and assisted in Machine Learning and Neural Networks courses for five semesters, demonstrating strong communication and pedagogical skills.
- Designed and teach a comprehensive Machine Learning course using Python, scikit-learn, and PyTorch.
- Created and maintained an open-source GitHub repository with lectures, code notebooks, and assignments.

Research Assistant

LBB Laboratory, University of Tehran

📅 May 2024 – Jan 2025   📍 Tehran, Iran

- Supervised by Prof. Ali Masoudi-Nejad.
- Conducting research on systems biology and bioinformatics, including data analysis and model development.

AI & Machine Learning Writer

- Authored a series of tutorials on machine learning, deep learning, and Python programming aimed at simplifying complex concepts for a broad audience.
- Covered practical topics such as model training, evaluation, and neural network design, with hands-on code examples.

SELECTED RESEARCH PROJECTS

Large Language Model with PyTorch

- Implemented a custom LLM from scratch using PyTorch, focusing on training efficiency and text generation, showcasing strong foundational understanding of LLM architectures.
- Designed the architecture using Transformer blocks and integrated tokenization, positional encoding, and attention mechanisms.

Protein Language Model

- Developed a Transformer-based model to learn embeddings from protein sequences, inspired by NLP techniques, demonstrating interdisciplinary research capabilities.
- Focused on capturing structural and functional motifs in proteins to enhance downstream tasks like classification and property prediction, highlighting problem-solving and application-oriented research.

Facial Age Estimation

- Prediction of human age from facial images with Transformers.
- Preprocessed datasets, performed data augmentation, and fine-tuned the model to improve prediction accuracy.

EDUCATION

Master of science in IT

Tarbiat Modares University, Tehran, Iran

📅 Sept 2018 – Sep 2021

Thesis title: Designing a fashion recommendation system

B.Sc. in Software Engineering

Islamic Azad University, Isfahan, Iran

📅 Feb 2009 – Feb 2015

Thesis title: Implementation of a pyramid security system with firewall for computer networks

PUBLICATIONS

Q1 Journal Articles

- **ATTENDEE: an AffecTive Tutoring system based on facial EmotioN recognition and heaD posE Estimation to personalize e-learning environment** *Journal: Education and Information Technologies (Springer), 2023*
- **FELA-DNN framework** *Journal: Soil Dynamics and Earthquake Engineering (Elsevier), 2023*

arXiv Preprint

- **How Self-Supervised Learning Can be Used for Fine-Grained Head Pose Estimation?** *arXiv Preprint, 2021*

REFEREES

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