Mahsa Raeisinezhad

Description

Highly skilled AI Research Scientist with 4+ years of experience designing, developing, and deploying ML solutions. Skilled in Python, C++, SQL, and parallel/distributed computing, with publications in leading journals.

Work Experience

Jan 2025-Present **Artificial Intelligence Engineer**, *Pascalle AI*

- Designed an end-to-end machine learning pipeline for enabling data-driven decision making.
- Automated ETL workflows from Instagram/Facebook APIs and integrated pipelines with AWS (Amplify, Lambda, S3, DynamoDB) for seamless data flow.
- Replaced Amazon Rekognition with free pretrained models, reducing inference costs by 20%.
- Built a personalized predictive decision-making pipeline using ZenML + MLflow + ViT, deployed on AWS Batch/EC2 with automated monitoring, fine-tuning, and retraining; cut compute costs by 20%.

May 2021 - Jan 2025 **Artificial Intelligence Research Scientist**, *Apsy*

- Designed a DSPy + OpenAI API app-generation platform (function calling, tool use, prompt optimization automation) used by 75 customers; reduced manual workload for 80 employees by 60%.
- Implemented quantization (8-bit/4-bit), mixed-precision, and batch/throughput optimizations, reducing LLM computational costs by 20%.
- Helped scaling seed stage startup from 5 to more than 100 employees.

Jan 2024–Jan 2025 **Artificial Intelligence Engineer**, *Lighthouse Regulatory Consulting Group*

- Built a deep reinforcement learning solution with POMDPs for real-time sensor-driven decision making, reducing risk and uncertainty.
- Developed fine-tuning jobs with Mixture-of-Experts (MoE) and RAG pipelines to improve information retrieval and decision making in health care industry.

Aug 2023-Jan 2024 **Tech Lead of Engineering Team**, *Katz Graduate School of Business - University of Pittsburgh*

- Developed deep learning pipelines for anomaly detection and predictive maintenance using IoT devices, boosting system efficiency by 30% and reducing system downtime by 25%.
- Led a five-person cross-functional engineering and analytics team.

Aug 2021-Aug 2024 **P.h.D Research Assistant**, *University of Pittsburgh*

- Designed an explainable (Kernel-SHAP + LIME) double-agent actor-critic Deep Reinforcement Learning-based control algorithm for replacing manual control strategies resulting in a 50% cost reduction in nuclear power plant operations and maintenance.
- Leveraged Kalman filter, sensor fusion, and Vision Transformer (ViT) to estimate a robot's state, to improve autonomous decision-making.

Education

- M.S., Mechanical Engineering, University of Pittsburgh 2021–2023
- M.S., Computer Science, Rowan University 2019–2021
- B.S., Computer Science, Shiraz University 2013–2017

Publications

Mahsa Raeisinezhad, et al. "Explainable, Deep Reinforcement Learning–Based Decision Making for Operations and Maintenance." NUCLEAR TECHNOLOGY

Mahsa Raeisinezhad, et al. "Design Optimization of a Pneumatic Soft Robotic Actuator Using Model-Based Optimization and Deep Reinforcement Learning" Frontiers in Robotics and AI

Mahsa Raeisinezhad, et al. "Intelligent Soft Robotic Pad for Pressure Injury Prevention" IEEE

Technical Skills

Softwares/Tools NLP, MLOps, ZenML, MLflow, XAI, Spacy, CoreNLP, NLTK, TensorFlow, PyTorch, Hugging Face, GPT, BERT, LLAma, DeepSeek, Mistral, QLoRA, LoRA, Agentic AI, Zero-Shot & Meta Learning, RLHF, GANs, DPO, QCML, YOLO, vision Transformer, R-CNN, DINOv2, Optuna, LLaVA, NVIDIA GPUs (cuDNN, TensorRT), Docker, VectorDBs: FAISS, Pinecone, DynamoDB.

Certificate Artificial Intelligence on Microsoft Azure (Coursera)

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