MOSLEM SHOKROLAHI

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Summary

Deep learning researcher with 7 years of experience working on generative models, lifelong learning, and machine unlearning. Skilled in building and deploying computer vision systems using PyTorch and OpenCV, with practical experience on Edge AI platforms.

Work Experience

AI CONSULTANT | KNOWQUEST | TORONTO| SEPT. 2023 – PRESENT

- Improving the core feedback and recommendation system with an LLM-facilitated RAG (Retrieval-Augmented Generation) framework. The enhancement brought a 23% improvement in Mean Reciprocal Rank (MRR) and considerably enhanced user engagement.
- Enhancing trustworthy feedback and reviews by developing a textual out-of-distribution detection method to identify anomalous utterances in dialogue systems, leveraging RoBERTa-large and LLaMA-2-7B models.

RESEARCH ASSISTANCE | UAI LAB | QUEEN'S UNIVERSITY | MAY 2021 – PRESENT

- Designing a robust framework for safe and fair diffusion-based image generation, enabling high-quality and ethically responsible outputs. The approach significantly improved the fairness of image distribution across age, gender, and race attributes, while maintaining FID scores close to the upper performance bound.
- Designing a generative text-to-image model that significantly improves brain tumor detection accuracy by synthesizing high-fidelity medical images for diagnostic support.
- Developing continual learning algorithms based on deep metric learning to mitigate catastrophic forgetting, achieving state-of-the-art classification performance with ResNet.
- Proposing novel machine unlearning techniques for efficient data erasure from trained models.

MACHINE VISION ENGINEER | SAESPADAN | ISFAHAN | IRAN | SEPT. 2018 – MAY 2021

- Designing a real-time machine vision system for stone classification, leveraging an ensemble of ResNet and EfficientNet models. Achieved a 40% reduction in human error and about 30% increase in throughput by using weighted averaging of model predictions.

Education

PH.D. IN COMPUTER ENGINEERING | MAY 2021 | QUEEN'S UNIVERSITY, KINGSTON, ON

M.SC. IN COMMUNICATION SYSTEMS | SEPT. 2015 | IUT | ISAFAHAN, IRAN

Skills & Abilities

- **Programming Languages:** Python (expert), C# (proficient), C++(proficient)
- **Frameworks and Tools:** PyTorch, TensorFlow, OpenCV, scikit-learn, SQL, AWS, Git, MATLAB
- **Machine Learning and Software Expertise:** Diffusion models, Safe and fair Ge. AI, LLMs and Agents, RAG, Algorithm design, Test-driven development in Python.