

Ahmad Hassanpour

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Summary

A Postdoctoral Researcher focuses on creating LLMs-based agent safeguards for healthcare applications. From Jan. 2021 till Aug. 2024, I was a Marie Curie fellow in the framework of Marie Curie ITN Privacy Matters ([PriMa](#)) project and a Ph.D. candidate at Norwegian University of Science and Technology (NTNU), mainly working on privacy and machine learning paradigms. Before this, I was an AI engineer at Sensifai company as a member of Surveillance Intelligence Team for two years.

Technical Skills

AI Skills Concepts: Computer vision, Privacy in machine learning, Federated learning, Multi-modal multi-task models, Agent-based LLMs, Generative models.

Experience: Training generative/multi-modal models, Fine-tuning LLMs/speech-to-text, Face detection/recognition, Analyzing ECG/EEG data.

Tools: Tensorflow, Pytorch, JAX, Opencv, LangChain, Streamlit, Apache Spark, Keras.

Software Skills Concepts: Software development life cycle, Design patterns, Software architecture, Version control systems, CI/CD, Cloud computing.

Experience: Developing AI-based summarization tool (Lexifai.com), Analyzing video streams using several AI models, developing websites.

Tools: Kubernetes, Docker, RabbitMQ, Django, Python, Microsoft Azure, PostgreSQL, SQLite, Git, Restful APIs, Javascript, FastAPI.

Education

PhD in Information Security - NTNU, Norway (Jan 2021 - 2024) Research Topic: Preserving Privacy in Machine Learning

MSc in Software Engineering - Shiraz University, Iran (Sep 2015 - Jan 2018) Research Topic: Detecting Lung Nodules Using Deep Learning Models

Research Interests

Machine Learning Federated Learning, Multi-modal multi-task models, Multi-agent LLMs.

Privacy/Fairness Differential Privacy. Attacks on Machine Learning Models (e.g., Membership Inference Attacks). Health Digitalization

Work Experience

Biofy Company

AI Engineer - part-time

- Developing several computer vision models (e.g., deploying face recognition and people counting models on Jetson Nano kit).

Gjovik, Norway

June 2022 - July 2024

Trustworthy Lab, SAP Company

Research Visitor

- Working on Privacy and Fairness in Machine Learning.

Nice, France

Nov 2022 - Feb 2023

BiDA Lab, UAM University

Research Visitor

- Working on biometric applications (Eyes2Face papers).

Madrid, Spain

Nov 2021 - Feb 2022

Sensifai Company

AI Engineer

- Member of Surveillance Intelligence Team, working on anomalies detection, face recognition, fire detection.

Tehran, Iran

Jan 2019 - Dec 2020

Nervana System Company

Software Developer

- Java and PHP application developer.

Tehran, Iran

Apr 2012 - Sept 2015

References

Bian Yang Professor at NTNU university & CEO of Biofy company, email: Bian.yang@ntnu.no

Christoph Busch Professor at NTNU university, email: Christoph.Busch@ntnu.no

Kiran Raja Professor at NTNU university, email: kiran.raja@ntnu.no

Julian Fierrez Professor at UAM university, email: Julian.fierrez@uam.es

Anderson SANTANA DE OLIVEIRA Group leader at SAP Company, email: anderson.santana.de.oliveira@sap.com

Publications

- Hassanpour, A., Kowsari, Y., Shahreza, H.O., Yang, B. and Marcel, S., **ChatGPT and biometrics: an assessment of face recognition, gender detection, and age estimation capabilities**. *International conference on image processing*, 2024.
- Hassanpour, A., Mallat, K., Kaplan C., Oliveira, AS., Yang, B., **The Impact of Generalization Techniques on the Interplay Among Privacy, Utility, and Fairness in Image Classification**, submitted to *Privacy Enhancing Technologies Symposium*, 2025. [here](#)
- Hassanpour, A., Jamalbafrani, F., Yang, B., Raja, K., Veldhuis, R., and Fierrez, J., **E2F-Net: Eyes-to-Face Inpainting via StyleGAN Latent Space**, *Pattern Recognition*, 2024.

- Hassanpour, A., Raja, K., and Yang, B., **Synthetic Face Generation Through Eyes-to-Face Inpainting**, *IEEE International Joint Conference on Biometrics (IJB 2023)*
- Daryani, A.E., Mirmahdi, M., Hassanpour, A., Shahreza, H.O., Yang, B. and Fierrez, J., 2023. **IRL-Net: Inpainted Region Localization Network via Spatial Attention**. *IEEE Access*.
- Hassanpour, A., Utsash, M., Yang, B., **The Impact of Linkability On Privacy Leakage**, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM2023)*.
- Hassanpour, A., Yang, B., **PriMe: A Novel Privacy Measuring Framework for Online Social Networks**, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, 2022.
- Hassanpour, A., Daryani, A.E., Mirmahdi, M., Raja, K., Yang, B., Busch, C. and Fierrez, J., 2022. **E2F-GAN: Eyes-to-Face Inpainting via Edge-Aware Coarse-to-Fine GANs**. *IEEE Access*, 10, pp.32406-32417.
- Hassanpour, A., Moradikia, M., Yang, B., Abdelhadi, A., Busch, C. and Fierrez, J., 2022. **Differential Privacy Preservation in Robust Continual Learning**. *IEEE Access*, 10, pp.24273-24287.
- Hassanpour, A., Farzi, P., Tehrani, A. and Akbari, R., 2020. **Software defect prediction based on deep learning models: Performance study**. arXiv preprint arXiv:2004.02589.
- Hassanpour, A., Moradikia, M., Adeli, H., Khayami, S.R. and Shamsinejadbabaki, P., 2019. **A novel end-to-end deep learning scheme for classifying multi-class motor imagery electroencephalography signals**. *Expert Systems*, 36(6), p.e12494.

Highlighted Real-World Projects With Key Features

Project: Developing A Summarization Tool

Description: An AI-based tool for summarizing conversations between doctors and patients has been developed for Norwegian language. This project comprises three key AI components: a **speech-to-text model**, a **speech verification model**, and a **summarization model** to extract the most relevant portions of the conversation. To improve accuracy for Norwegian, we fine-tuned the **Whisper model** using 200 hours of collected audio-text data. Additionally, the **Llama2 13B** model was customized with **Retrieval-Augmented Generation (RAG)** techniques to further enhance the summarization performance. **Microsoft Azure** was leveraged for cloud infrastructure and scalable computing. The backend is built using a combination of **Django** for web framework management, **RabbitMQ** for message queuing, **multi-threading** for concurrent processing, and **FastAPI** for efficient API routing. **Docker** was used for containerization, ensuring consistent environments, while **Kubernetes** handled orchestration, scaling, and management of containers.

Project: Developing An AI-Based Call Center Tool

Description: I developed an AI-Based Call Center for doctors' offices, automating routine call-handling tasks and improving patient communication. It uses **Azure Speech**, **Azure Language** and **Azure OpenAI** (GPT-3) services to analyze call center transcripts. Other used tools: **Azure Service Bus**, **Azure Kubernetes Service**, **Redis**, **FastAPI**, **Docker**, **React.js**, **Bootstrap**, **Twilio**, **PostgreSQL**.

Project: Face Recognition & People Counting Tool

Description: I developed a **Face Recognition & People Counting** Tool on **Jetson Nano** using **PyTorch** and **ONNX** for optimized model inference. I implemented **multi-threading** for real-time processing. A high accurate and [shallow face recognition model](#) developed and prepared for this purpose.

Project: Fire Detection Tool

Description: I developed a Fire Detection Tool for surveillance videos, starting with data collection, using both real-world and synthetic fire datasets. I trained deep learning models like **YOLOv5** and **EfficientNet** for high-accuracy detection. Used tools for this purpose are: **OpenCV**, **PyTorch**, **GStreamer**, **RSTP protocol**, **FFmpeg**, **Scikit-learn**, **ONNX**, **data augmentation**, **transfer learning**.

Project: Real-time Search in Video Tool

Description: A Search in Video Tool, enabling users to search for specific objects or people in video feeds, such as faces (using **face detection & recognition**), people (**YOLOv5 model**) wearing special clothes (**Cloth detection**), bicycles, bags of specific colors (**color analyzer**), and faces with accessories like hats and eyeglasses (finetuned YOLOv5 for this). Scalability was achieved through the integration of **Apache Hadoop** for distributed storage and **Spark** for real-time data processing. **FAISS** library for searching in high-dimensional face embedding vectors.

Languages

English: Fluent Norwegian: A2 Persian: Fluent

*permanent resident in Norway.