Omid Ghozatlou

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Summary

R&D engineer and AI researcher with 5+ years of experience in deep learning, computer vision, and image processing across medical and satellite imaging domains. PhD in Deep Learning for Earth Observation (Marie Skłodowska-Curie Fellow) with expertise in generative AI (GANs, diffusion models), physics-aware reconstruction, and multi-modal data analysis. Proven track record of IEEE publications, EU-funded research, and transitioning prototypes into scalable, production-ready systems. Experience with medical image analysis (CT/CBCT) and cross-functional R&D collaboration.

Technical Skills

ML/DL Frameworks: PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV
Generative AI: GANs (StyleGAN2, Pix2Pix, cGAN), Diffusion Models, Vision-Language Models, LLMs
Imaging & Signal Processing: CT/CBCT, SAR, Multispectral, Image Reconstruction, Inverse Problems
Languages: Python, C/C++, MATLAB, SQL
DevOps/Tools: Git, GitLab CI/CD, Docker, REST APIs, Linux, HPC, NVIDIA Omniverse
Domains: Medical Image Analysis, Computer Vision, Remote Sensing, Synthetic Data, Physics-Aware DL

Experience

AI/ML Engineer Apr. 2024 – Present
Reply Technology – Clients: Generali, Lavazza, Porsche *Bucharest, Romania*

- Designed and deployed generative AI pipelines (GANs, synthetic data) for industrial computer vision, including real-time PPE detection and factory digital twin simulation on NVIDIA Omniverse
- Engineered a production multimodal analytics engine integrating video, audio, and text streams in real-time, achieving 92% F1 score on emotion classification
- Built an LLM-powered document mining pipeline (Google Gemini + OAuth2) serving a multilingual platform across 10 languages, demonstrating scalable prototype-to-production workflow
- Developed automated synthetic data generation pipelines producing segmentation masks, depth maps, and bounding box annotations at scale for training domain-specific models

Early Stage Researcher (Marie Curie Fellow) Sep. 2020 – Jan. 2024
CEOSpaceTech – Polytechnic University of Bucharest *Bucharest, Romania*

- Developed physics-aware generative models (StyleGAN2) for synthetic SAR imagery with frequency-domain consistency validation, improving data variability by 20%
- Designed a hybrid GAN with spectral angular distance metrics for image reconstruction and cloud removal from Sentinel-2 multispectral data, achieving state-of-the-art results
- Published 2 IEEE journal papers and delivered oral presentations at IGARSS 2021 (Brussels) and 2023 (Pasadena); invited speaker at ESA Living Planet Symposium 2022
- Mentored PhD student on image classification and compressive learning under Prof. Mihai Datcu (DLR/TU Munich)

Visiting ML Researcher Oct. 2021 – Nov. 2022
Center for Sensorsystems (ZESS) *Siegen, Germany*

- Enhanced image retrieval and anomaly detection by integrating Wavelet Scattering Transform with Deep SVDD, addressing inverse-problem challenges in feature-space robustness
- Benchmarked active learning strategies (WAAL, VAAL) to optimize image classification with minimal labeled data, reducing annotation costs

Research Assistant May 2019 – Mar. 2020
University of Tehran *Tehran, Iran*

- Developed CNN-based dental landmark detection on CT/CBCT medical images; published classification method combining SIFT features with LASSO regression
- Teaching Assistant for Machine Vision and Pattern Recognition courses (M.Sc. level)

Education

Polytechnic University of Bucharest Bucharest, Romania
Doctor of Philosophy – Deep Learning for Earth Observation *Aug. 2020 – Jan. 2024*

University of Tehran Tehran, Iran
Master of Science – Electrical Engineering (Image Processing) *Sep. 2016 – Mar. 2019*

Selected Publications

IEEE Geoscience and Remote Sensing Magazine (GRSM), Vol. 12, Issue 3 2024
- A Review and Perspective of Deep Active Learning for Remote Sensing Image Analysis

IEEE J. Selected Topics in Applied Earth Observations (JSTARS), Vol. 16 2023
- Query by Example in RS Image Archive Using Enhanced Deep Support Vector Data Description

IEEE IGARSS – Oral Presentations 2021, 2023
- Hybrid GAN and Spectral Angular Distance for Cloud Removal (2021); GAN-Based Ocean Pattern SAR Image Augmentation (2023)

Certifications & Languages

Certifications: Google Professional Machine Learning Engineer (2025); Generative AI for ML Engineers; Prompt Engineering
Languages: Persian (Native), Turkish (Native), English (C1), German (B2), Romanian (B1)