

Mohsen Pirmoradiyan

AI Lead & Computer Vision Engineer

Linköping, Sweden mohsenpirmoradian@gmail.com  

PROFILE

Computer-vision and AI engineer who builds production deep-learning systems for drone and aerial imagery: segmentation, self-supervised learning and geospatial ML. Before moving into machine learning I spent fourteen years in seismic field operations, which shaped how I work: start from the signal, check the data before trusting it, and think in geometry. The full story, from the oil fields to computer vision, with a page for each step of my career and my learning notes, is on my website: mohsenpirmoradian.com.

EXPERIENCE

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| Feb 2022 – present | <p>AI Lead & Computer Vision Engineer
Arboair AB, Linköping, Sweden · drone and aerial analytics for forestry</p> <ul style="list-style-type: none">• Designed and lead the company's computer-vision platform: one config-driven system covering data ingestion, training-data preparation, model training, geospatial evaluation and GPU inference in production.• Train modern deep-learning segmentation models for tree species and forest-damage mapping, from transformer-based architectures with foundation-model backbones to classic CNNs, across semantic, instance and panoptic tasks.• Built self-supervised pretraining on unlabelled aerial imagery and semi-supervised pseudo-labelling to make the most of scarce annotations.• Built the training-data foundation: a versioned data lake with provenance, intake of finished annotation jobs, reproducible dataset recipes and leakage-safe splits.• Turn pixel predictions into GIS-ready maps: tiled inference over very large GeoTIFFs, vectorisation, geometry repair and certainty scoring.• Contributed to the orthomosaic pipeline: LiDAR terrain models, direct georeferencing from drone metadata, seamline mosaicking and photogrammetric true orthophotos.• Led the tree stem-diameter estimation project end to end, from field reference data and aerial height data to a production model with staged releases.• As AI lead, set up an AI-agent-assisted engineering workflow and designed an AI-agent research process supporting the company's strategy work. |
| Jan – Jun 2021 | <p>Master's Thesis, Ericsson Research
Ericsson AI Research, with Linköping University</p> <ul style="list-style-type: none">• Built a random-forest classifier that flags moments of high end-to-end latency in measurements from Ericsson's 5G test network.• Used causal Bayesian networks (structure learning with the PC algorithm, then causal-effect estimation) to find which network measurements actually drive the latency, not just move with it.• Thesis: <i>Anomaly detection and causal inference in 5G mobile networks</i>, Linköping University, 2021. Summary and report. |
| 2005 – 2019 | <p>Seismic Data Acquisition QC Supervisor (junior to senior)
National Iranian South Oil Company (NISOC), Khuzestan, Iran</p> <ul style="list-style-type: none">• Quality control of 2D and 3D land seismic acquisition in deserts, sand dunes and mountains: recording quality, geometry and field procedures.• Supervised acquisition in more than five oil fields, with dynamite and vibroseis sources; reviewed survey design and field data before processing.• Mentored junior geophysicists; recognised as one of the company's best seismic acquisition supervisors in 2015. |

EDUCATION

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| 2019 – 2021 | <p>MSc Statistics and Machine Learning
Linköping University, Sweden</p> <p>Two-year programme (120 ECTS); thesis with Ericsson Research (see Experience).</p> |
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2009 – 2012

MSc Geophysics (Seismology)

Institute of Geophysics, University of Tehran, Iran

Thesis: *Petroleum reservoir characterization using seismic data analysis* (prestack seismic inversion).

2000 – 2004

BSc Petroleum Exploration Engineering

Petroleum University of Technology, Ahvaz, Iran

SKILLS

Computer vision	Semantic, instance and panoptic segmentation; object detection; vision transformers and foundation-model backbones; self- and semi-supervised learning; OpenCV
Deep learning	PyTorch, Hugging Face Transformers, Detectron2, segmentation-models-pytorch, timm; TensorFlow/Keras
Geospatial	Rasterio, GDAL, GeoPandas, Shapely, PDAL; LiDAR; GeoTIFF/GeoPackage
Data & tooling	Python, NumPy, Polars, DuckDB, Pydantic, pytest, Streamlit, Dash, CVAT
Statistics	Regression, validation design, Bayesian methods, causal inference
Basic / working knowledge	Docker, AWS (S3, SQS, SageMaker), GitHub Actions; photogrammetry, orthorectification and remote sensing (learning); C++ (learning)