Iason Manesis

Place of birth: Athens, Greece | **Nationality:** Greek | **Phone number:** (+30) 6947212245 (Mobile) | **Email address:** iasonasman@gmail.com | **Website:** https://jasonmanesis.github.io/ | **LinkedIn:** https://www.linkedin.com/in/jasonmanesis/ | **GitHub:** https://github.com/jasonmanesis | **Orchid:** https://orcid.org/0009-0006-8103-5601 | **Address:** Antigonis, 14122, Irakleion, Greece (Home)

ABOUT ME

Results-driven Geoinformatics Engineer with a strong academic foundation and extensive experience applying Machine and Deep Learning techniques to Earth Observation challenges. Skilled in developing and deploying efficient, high-performance pipelines for diverse geospatial data processing and analysis tasks.

WORK EXPERIENCE

GEOSPATIAL DEEP LEARNING ENGINEER – HELLENIC SPACE CENTER – 10/2025 – Current – ATHENS, GREECE

Project: Automated Land Cover Mapping System for Greece

- **Vision-Centric MLOps (Human-in-the-Loop):** Designed and managed an end-to-end active learning pipeline; transformed model inferences into vector geometries for expert review in a database, subsequently converting corrected vectors back to raster masks for iterative model retraining.
- **State-of-the-Art (SOTA) Implementation:** Developed a large-scale land cover mapping system for Greece using VHR imagery; integrated DINO-based feature extraction and SAM (Segment Anything Model) for precise boundary refinement and semantic segmentation.
- **Advanced Remote Sensing Preprocessing:** Engineered high-performance workflows including MAJA atmospheric correction, Pansharpening, and Super-resolution; implemented artifact-free stitching and tiling to ensure seamless nationwide data consistency.
- **Bio-Physical Modeling:** Integrated Canopy Height Estimation models utilizing spectral and geometric features to deliver multi-layered environmental insights beyond standard classification.

GEOSPATIAL DEEP LEARNING ENGINEER – RED EDGE – 03/2025 – Current – ATHENS, GREECE

Project Title: "Development, evaluation and validation of SAR to SAR co-registration methodologies."

- **High-Precision SAR Co-registration:** Designed and implemented a robust pipeline for the co-registration of Very High Resolution (VHR) SAR data; engineered algorithms using optical flow, keypoint matching, and deep learning to align multitemporal datasets across Spotlight, Stripmap, and Scan modes.
- **SAR Preprocessing & ARD Generation:** Developed a comprehensive workflow for converting RAW SAR data (SLC) into Analysis-Ready Data (ARD); implemented rigorous radiometric calibration, despeckling filters, and orthorectification to ensure spatial and radiometrical consistency across heterogeneous sensors.
- **Algorithm Optimization:** Optimized co-registration performance for large-scale datasets, reducing processing time while maintaining sub-pixel alignment accuracy.

GEOSPATIAL DEEP LEARNING ENGINEER – NATIONAL TECHNICAL UNIVERSITY OF ATHENS – 03/2022 – 10/2025 – ATHENS, GREECE

Project Title: "Intelligent Early Warning System for Oil Spill Detection (Arabian Gulf & Red Sea)"
In collaboration with Saudi Aramco Marine Environment Research Center (KAUST)

- **Autonomous End-to-End Pipelines:** Architected, developed, and deployed automated, Near-Real-Time (NRT) MLOps pipelines (preprocessing, inference, final analytics, and insights) for oil spill detection, integrating multi-sensor data (SAR and Optical) into containerized (Docker) production environments.
- **Satellite Data Preprocessing:** Engineered automated Python workflows for multispectral and SAR data; implemented Sen2Cor and Acolite corrections alongside custom SNAP/Snappy wrappers for SAR GRD-to-Sigma0 processing to ensure high-fidelity Analysis-Ready Data (ARD).
- **Custom Dataset & Architecture Design:** Created multi-sensor large-scale geospatial datasets; designed and trained lightweight semantic segmentation architectures using hardware-specific optimizations to maximize inference speed for NRT results.
- **Strategic Technical Leadership:** Acted as primary technical lead, translating complex requirements into well-scoped experiments, CI/CD workflows, and automated QA tools; enforced high standards for clean, typed Python code and rigorous peer code reviews.
- **Advanced Analytics & Visualization:** Developed custom internal tooling for spectral analysis and spatial visualization, transforming raw model outputs into actionable georeferenced insights for environmental decision-making.

AI RESEARCH ENGINEER – NATIONAL TECHNICAL UNIVERSITY OF ATHENS – 01/2025 – 06/2025 – ATHENS , GREECE

Project Title: "Edge SpAIce - Novel Edge-AI system for accurate NRT plastic detection and monitoring in marine environment"

- **Space-Edge Architecture Design**: Engineered an ultralight U-Net architecture for on-board marine plastic detection; optimized the model to fit within the extreme power and memory constraints of orbital hardware.
- **Model Compression & Optimization**: Developed pruning, transfer learning, and quantization workflows to enable real-time inference on low-power chips; maintained high radiometric accuracy for multispectral data while meeting strict computational latency targets.

GEOINFORMATICS ENGINEER – HELLENIC MILITARY GEOGRAPHICAL SERVICE – 03/2023 – 10/2023 – ATHENS, GREECE

Project Title: "Automated Strategic Camouflage for National Aerial Orthophotography"

- **Automated Image Declassification:** Developed an automated system to identify and apply optical and spectral camouflage to military facilities within aerial imagery; enabled the secure declassification and public distribution of national orthophotographic datasets.
- **Big Data Geospatial Processing:** Engineered a high-performance manipulation engine for large-scale aerial datasets, implementing parallelized multiprocessing and advanced tiling to handle terabytes of high-resolution imagery efficiently.
- **Full-Stack GIS Development:** Designed and implemented a fully functional UI for the application, allowing for the precise management of spatial datasets, visualization of camouflaged outputs, and streamlined quality control.
- **Strategic Obfuscation:** Leveraged advanced image synthesis techniques to ensure radiometric and texture consistency between camouflaged areas and their natural surroundings, preventing detection via automated visual or spectral analysis.

EDUCATION AND TRAINING

16/12/2013 – 01/02/2022 Athens, Greece
RURAL, SURVEYING AND GEOINFORMATICS ENGINEER National Technical University of Athens

Fields of specialization: Remote Sensing, Data Science, Machine Learning, Deep Learning

Website https://www.survey.ntua.gr/en/ | **Field of study** Rural, Surveying and Geoinformatics Engineering | **Final grade** 7.7/10 |

Level in EQF EQF level 7 | **Type of credits** ECTS | **Number of credits** 300 |

Thesis Ship Detection on Remote Sensing Synthetic Aperture Radar Data via Deep Learning Techniques

01/10/2023 – 01/10/2025 Athens, Greece
GEOINFORMATICS ENGINEER National Technical University of Athens

Fields of specialization: Remote Sensing, Data Science, Machine Learning, Deep Learning

Website https://geoinformatics.ntua.gr/ | **Field of study** Geoinformatics | **Final grade** 9.5/10 | **Level in EQF** EQF level 7 |

Type of credits ECTS | **Number of credits** 120 | **Thesis** Oil Spill Mapping in SAR Imagery via Deep Learning and Test-Time Domain Adaptation

SKILLS

Programming Languages and Platforms:

Python | C++ | Matlab | SQL | Bash

Machine Learning and Deep Learning Frameworks:

Detectron2 | PyTorch | PyTorch Lightning | Keras | TensorFlow

Data Processing Libraries:

Dask | Xarray | SciPy | Numpy | Pandas | OpenCV

Geospatial Data Libraries:

Rioxarray | Rasterio | Geopandas | Shapely | Fiona | Pyproj | GDAL/OGR

Data Visualization Tools:

Matplotlib | Plotly | Seaborn

Development Tools and Platforms:

Docker | Kubernetes | Git | Linux | VS Code

PUBLICATIONS

2021

Manesis, I., Argialas, D., Protopapadakis, E., "Automated Lunar Crater Mapping, Through a Deep CNN Architecture, from DEM Extracted Images", Ziti Publications, 2021.

2025

Manesis, I., Mikeli, P., Kikaki, K., Kakogeorgiou, I., Karmas, A., Karantzalos, K., "Detecting Marine Pollutants using Sentinel-1 SAR and Sentinel-2 Optical Imagery", Proceedings of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Accepted for publication.