Seyed Ali Rashidi

Computer Vision & ML Engineer

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Profile

Computer Vision & ML Engineer with a track record building end-to-end deep learning pipelines for scientific imaging — spanning medical CT/MRI segmentation, astronomical image classification, and spaceborne thermal-infrared systems. Currently Payload Supervisor on the IGNIS CubeSat mission at the University of Naples Federico II, leading SNR modelling, Zemax optical simulation, and imaging performance analysis for a thermal-IR Earth observation payload. Proficient in PyTorch, TensorFlow, OpenCV, and Docker, with production-deployed models on Google Cloud Run. Brings cross-domain depth across computer vision, sensor physics, and containerised ML systems.

Skills

Languages & Frameworks — Python, C++, C, Bash, PyTorch, TensorFlow, Keras, OpenCV, scikit-learn, NumPy, Pandas, SciPy, Matplotlib, Streamlit

Computer Vision & ML — Image classification, object detection, semantic & instance segmentation, CNNs, ResNet, U-Net, YOLOv8, transfer learning, Optuna, data augmentation, class imbalance handling, model evaluation (mAP, IoU, Dice, precision/recall)

Deployment & MLOps — Docker, REST inference APIs, Google Cloud Run, GCP, Git, CI/CD, model versioning, containerised deployment, Linux (Bash), Jupyter, MLflow

Imaging & Sensor Systems — Thermal IR imaging, radiometric modelling, SNR/NETD analysis, FLIR Boson 640, FoV estimation, Zemax OpticStudio, statistical learning, data mining, time-series analysis, anomaly detection

Professional Experience

03/2025 – Present

University of Naples "Federico II" - IGNIS CubeSat Mission
Payload Supervisor — Computer Vision & Imaging Systems

- Built physics-aware SNR and imaging performance models for a thermal-IR CubeSat payload using FLIR Boson 640 data; simulated full optical system in Zemax OpticStudio — modelling FoV, spatial resolution, and ground footprint across orbital scenarios.
- Identified non-optimal launch timing through time-series SNR analysis; recommended a ~5-month delay, directly improving projected early-mission image quality.
- Conducted payload hazard analysis and supported engineering trade-offs with multidisciplinary spacecraft teams.

01/2016 – 12/2023

EZ-Tech — Freelance / Self-Employed
Data Recovery Engineer

- Founded and ran a solo data recovery practice handling 1,000+ cases across HDDs, SSDs/NAND flash, and RAID arrays — performing logical, firmware-level, and physical recovery (head swaps, platter work in controlled environment) using MRT Lab toolchain.
- Diagnosed complex storage failures end-to-end: file-system reconstruction, drive firmware repair via service-area access, and physical component-level intervention; sole technical and commercial owner of the operation.

05/2014 – 11/2015

Fatehan-e-Amaghe Darya
Offshore Commercial Diver — Oil & Gas Sector

Certified offshore diver performing underwater welding and inspection operations for an oil & gas contractor; safety-critical work under strict operational protocols.

Projects

04/2026 – Present

Brain CT Hemorrhage Segmentation
Intracranial Hemorrhage Detection — U-Net CT Segmentation

- Built an end-to-end segmentation pipeline for intracranial hemorrhage detection from CT scans using U-Net in PyTorch; implemented 3D→2D slicing, NIfTI processing, Hounsfield Unit windowing, and balanced patch sampling for class imbalance.

- Custom loss combining BCEWithLogitsLoss and Dice Loss; deployed as a Dockerized REST API on Google Cloud Run with Streamlit inference interface.

08/2024 – 11/2024 **Radio Galaxy Classification**

Morphological Classification of Extragalactic Radio Sources — CNN

- Designed an end-to-end CV pipeline classifying radio galaxies (FR0, FRI, FRII) from ~18,000 grayscale images (50×50px) using a custom CNN in TensorFlow; plain CNN achieved 82.77% test accuracy, outperforming ResNet (77.81%) and Optuna-tuned variants (80.28%).
- Deployed as a Dockerized REST inference API on Google Cloud Run — production-ready, scalable HTTP-based inference.

07/2025 – 11/2025 **Thermal Infrared Heatmap & SNR Prediction**

- Built a Python-based physics-aware simulation framework predicting SNR and imaging performance for a thermal-IR CubeSat payload; modelled signal levels as a function of orbital altitude, viewing geometry, and temperature contrast.
- Generated thermal heatmaps and conducted sensitivity analysis on ground footprint and observation geometry; outputs directly informed IGNIS payload design decisions.

12/2025 – 04/2026 **Brain Tumor Segmentation — YOLOv8 on Multimodal CT/MRI**

- Training a YOLOv8-seg model for automated brain tumor segmentation on multimodal CT and MRI datasets using transfer learning in a GPU-accelerated environment.
- Evaluating with box/mask mAP, precision, recall, and Dice score; applying augmentation strategies for cross-modality robustness.

Education

09/2023 – 12/2026 **University of Naples Federico II**
Naples, Italy **Master's Degree in Data Science**

Thesis: Signal-to-Noise Ratio Characterisation for Thermal-Infrared Microbolometric Imaging in CubeSat Missions (writing phase, defense Q4 2026)

Key courses: Machine Learning, Computer Vision, Statistical Learning, Data Mining, Big Data, Advanced Statistical Modelling

09/2009 – 01/2012 **Islamic Azad University**

BSc in Computer Software Engineering

Data Structures, Algorithms, Systems Design, Programming, Engineering Mathematics

Languages

English	**Italian**	**Persian**
B2	A2	Native

I hereby give consent for my personal data to be processed for recruitment purposes in accordance with EU Regulation 2016/679 (GDPR).