FRANCISCO LOURENÇO

3D Data Specialist | ML & CV Engineer

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🆔 https://orcid.org/0000-0001-7081-5641   📅 Date of Birth: 23-04-1996

SUMMARY

Versatile and passionate Machine Learning Engineer with strong expertise in Computer Vision, 3D data processing, and end-to-end system development. Experienced in designing, building, and deploying production-grade ML solutions across diverse domains, from industrial automation to large-scale 3D applications. Skilled in leading research-driven projects from prototyping to deployment, blending creativity, technical depth, and practical engineering. Thrives in fast-paced, collaborative environments and is highly motivated to tackle challenging problems that require innovative and reliable AI solutions.

WORK EXPERIENCE

Machine Learning Engineer
Anything World

📅 Jan 2023 – Apr 2025   📍 London, UK (Remote)

- Designed and deployed ML pipelines for 3D shape classification, canonical alignment, and part segmentation used in the Animate Anything tool and Anything World API.
- Achieved 95.6% F1-score on the rotated ModelNet40 benchmark through a customized multi-view GCN architecture optimized for rotation invariance and computational efficiency.
- Developed a proprietary 3D rotation estimation system (Symmetry-Aware and Base-Plane-Aided) achieving 2.47° median angular error across 220+ characters.
- Built an optimized 3D shape segmentation pipeline with a GCN model reaching 88.8% mIoU on ShapeNet Part; reduced training and inference time significantly compared to the prior system.
- Led research and experimentation to adapt SOTA 3D vision techniques to real-world deployment under production constraints.
- Contributed to cross-team initiatives in ML optimization, deployment efficiency, and API feature expansion.

3D Computer Vision Engineer
coatingAI

📅 Sep 2021 – Jan 2023   📍 Barcelona, Spain

- Solely designed and developed a multi-camera RGB-D 3D scanning system for automated part inspection in powder coating lines.
- Built and deployed a full pipeline for 3D reconstruction, camera pose estimation, and point cloud fusion from stereo and depth data.
- Led physical prototyping and iterative hardware-software validation to match real-world factory conditions.
- Enabled downstream AI-based inspection systems by delivering high-fidelity, real-time 3D models in production environments.

Junior Researcher
Institute of Systems and Robotics

📅 Jan 2021 – Jun 2021   📍 Coimbra, Portugal

- Developed an anomaly detection system for glass bottle production lines, combining classical computer vision and machine learning methods.
- Worked with real-world industrial datasets under high-throughput and high-accuracy inspection constraints.
- Supported experimental design, data annotation, and model validation phases of the research project.

EDUCATION

MSc in Electrical and Computer Engineering
University of Coimbra

📅 2015 – 2021   📍 Portugal

- Specialized in Computer Vision and Machine Learning.
- Thesis: *6DoF Object Pose Estimation from RGB-D Images using ML* — graded 19/20.

MSc Exchange Program
Aalto University

📅 2018 – 2019   📍 Espoo, Finland

- Coursework focused on AI and Robotics.

PUBLICATIONS

Intel RealSense SR305, D415 and L515: Experimental Evaluation and Comparison of Depth Estimation
VISIGRAPP 2021

Evaluation of the Accuracy of Pose Estimation Based on Relative Pose
RECPAD 2021

TECHNICAL SKILLS

Python   PyTorch   TensorFlow   OpenCV
Open3D   C++   SQL   HTML   CSS
MatLab   ROS   Blender   CAD   Docker

FIELDS OF INTEREST

Machine Learning   Computer Vision
Point Clouds   Data Science   Mathematics
Coding   Health Care   Robotics
Automation and Control
Self Driving Vehicles   3D Animation