

# João Tremoco

## Senior A.I. Engineer / Researcher

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### ABOUT ME

Senior AI Engineer/Researcher with 3.5+ years of dedicated experience in Computer Vision, specializing in applying deep learning to complex image and video analysis challenges. Proven track record of delivering production-ready solutions, including a certified liveness detection system, and contributing to published research. My background in Physics Engineering provides a strong analytical foundation, coupled with a proactive, collaborative and innovative mindset and strong adaptability honed in a dynamic startup environment.

### TECHNICAL SKILLS

- **Programming Languages:** Python, R, MATLAB, java
- **AI/ML Frameworks & Libraries:** PyTorch, OpenCV, NumPy, Scikit-learn, Pandas, Tensorflow
- **Tools & Platforms:** Docker, DVC, Hydra, MLFlow, ONNX, MongoDB, Git, Linux
- **ML Architectures:** CNN, ViT, GAN, Diffusion, Transformers, VLM
- **Cloud Platforms:** AWS, Azure

### PROFESSIONAL EXPERIENCE

#### Youverse - Lisbon, Portugal | Senior AI Researcher | September 2021 – Present

- Engineered a production-ready liveness detection system, certified for ISO/IEC 30107-3 (iBeta Level 2).
- Developed and improved deepfake detection models to enhance security in identity verification pipelines.
- Designed a robust morphing attack detection system, achieving 2nd place at SYN-MAD 2022 Competition.
- Built ICAO-compliant face-image quality assessment models for ID/travel document verification purposes.
- Developed solutions for synthetic data gen., injection attack detection, and fraudulent document matching.
- Standardized research workflows using MLOps tools, promoting team-wide best practices.
- Organizer and lead of the Adversarial Attack Challenge on Secure Face Recognition - IJCB 2025.

#### Talkdesk - Coimbra, Portugal | Algorithms Intern | June 2019 – August 2019

- Designed and implemented signal processing algorithms for analyzing call and email time-series data.
- Contributed directly to U.S. patent 11,146,681: "Systems and Methods for Scheduling Deferred Queues".

#### LIBPHYS-FCTUC - Coimbra, Portugal | Research Intern | March 2019 – June 2019

- Performed simulations of electric fields in particle detectors using COMSOL Multiphysics and SolidWorks.

### EDUCATION

#### BSc and MSc, Physics Engineering | University of Coimbra | September 2016 – October 2021

- Final Grade: 17.1 / 20.0 - Achieved top 5% University prize.

#### Erasmus+ Exchange | University of Groningen | September 2019 – January 2020

### CERTIFICATIONS

- **Generative AI with Large Language Models** – DeepLearning.AI-AWS / Coursera | Apr 2025
- **Machine Learning in Production** – DeepLearning.AI / Coursera | Apr 2025
- **Ladybird Guide to Spacecraft Communications** – ESA Academy | Jan 2019

### PUBLICATIONS

- QualFace: adapting deep learning face recognition for ID and travel documents with quality assessment.
- Towards understanding the character of quality sampling in deep learning face recognition.
- SYN-MAD 2022: Competition on face morphing attack detection based on private synthetic training data.

### LEADERSHIP & INVOLVEMENT

- **JEKnowledge (Junior Enterprise)** - Innovation Consultant | December 2018 – April 2020
- **Physis (Physics Student Group)** - Career Prospects Department Lead | March 2020 – November 2020
- **NEDF/AAC (Student Association)** - Image and Communication Coordinator | May 2018 – June 2019
- **Coimbra Space Summer School** - Attendee and Winner | September 2018

**LANGUAGES** : Portuguese (Native), English (C1 – certification)