




JOÃO RIBEIRO PINTO

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Summary

I am a specialist in computer vision, AI, and biometrics, contributing to creating innovative solutions to real-life problems. I want to use my knowledge and experience to build practical and realistic AI solutions in exciting new projects. I am passionate about innovation, bringing AI from research to reality, leading teams, and mentoring talented people. Beyond work, I love design, history, geography, heraldry, languages, and everything related to world cultures.

Work Experience

Senior Deep Learning Engineer

[Bosch Portugal, Braga, Portugal \(04/2022 - Present\)](#)

- Developed machine learning and deep learning solutions for automated driving scenarios
- Implemented architectures for road lane estimation, semantic segmentation, and sensor blockage
- Improved AI models efficiency for deployment in low processing power devices
- Managed a project on cybersecurity, privacy, and biometrics for autonomous vehicles
- Conducted AI technical interviews and screenings for recruiting new team members
- Played a key role in the conceptualisation of future projects and strategies for automated driving

Biometrics and Computer Vision Researcher

[INESC TEC, Porto, Portugal \(10/2017 - 04/2022\)](#)

- Developed novel, robust, and optimised algorithms for ECG and face biometrics
- Created a simpler, faster, and more accurate method for biometric security in deep learning
- Contributed to the development of personalised driver drowsiness monitoring systems
- Explored architectures for tasks such as classification, segmentation, object detection, metric learning
- Developed temporal neural networks for multi-sensor emotion and activity monitoring
- Implemented an AI violence detection system from conceptualisation to in-vehicle deployment

Deep Learning and Signal Processing Researcher

[Faculty of Engineering, University of Porto, Porto, Portugal \(08/2017 - 09/2018\)](#)

- Developed the first end-to-end model for ECG biometric recognition, achieving 56% lower error rates
- Designed tailored data augmentation and transfer learning strategies for ECG signals

Signal Processing and Machine Learning Intern

[CardioID Technologies, Lisbon, Portugal \(07/2016 - 07/2017\)](#)

- Compiled the most complete survey on ECG biometrics to date (over 180 citations)
- Developed a complete machine learning solution for vehicle driver biometrics in challenging settings
- Benchmarked ECG biometric algorithms in edge scenarios from digital signal processing to decision

Education

PhD in Electrical and Computer Engineering

[University of Porto, Porto, Portugal \(2022\)](#)

- Thesis: "Seamless Multimodal Biometrics for Continuous Personalised Wellbeing Monitoring"
- Conducted research on biometrics, wellbeing monitoring, and other ML/CV topics
- Authored 38 scientific articles with my research
- Received the Max Snijder 2022 Award by the European Association for Biometrics



MSc in Bioengineering, Biomedical Engineering

University of Porto, Porto, Portugal (2017)

- Thesis: "Continuous Personalised Wellbeing on the Steering Wheel" (grade 20/20)
- Obtained strong foundations in machine learning, programming, and computer vision
- Authored 2 journal articles on image analysis and biometrics

Tech Skills

- **Most used:** Python, PyTorch, Lightning, Pillow, Pandas, Scipy, Numpy, Git, Jira, Scrum, Agile
- **Frequently used:** Keras/Tensorflow, OpenCV, Scikit-Learn, Scikit-Image, HTML, CSS
- **Occasionally used:** MATLAB, PHP, SQL, TensorRT, ONNX, TorchScript, XGBoost, LightGBM
- **Basic knowledge:** C, C++, Java, JavaScript, jQuery, Microsoft SEAL

Stats

- **42** scientific publications
- **11** journal papers
- **18** international conference papers
- **590+** citations
- **16** theses supervised
- **20+** interns mentored
- **15** scientific events organised
- **5** awards

Selected Publications

- Electrocardiogram Lead Conversion from Single-Lead Blindly-Segmented Signals, [BMC Medical Informatics and Decision Making](#), 2022
- Secure Triplet Loss: Achieving Cancelability and Non-Linkability in End-to-End Deep Biometrics, [IEEE Transactions on Biometrics, Behavior and Identity Science \(T-BIOM\)](#), 2021
- Self-Learning with Stochastic Triplet Loss, [International Joint Conference on Neural Networks \(IJCNN\)](#), 2020
- Explaining ECG Biometrics: Is It All In The QRS?, [International Conference of the Biometrics Special Interest Group \(BIOSIG\)](#), 2020
- An End-to-End Convolutional Neural Network for ECG-Based Biometric Authentication, [IEEE International Conference on Biometrics Theory, Applications and Systems \(BTAS\)](#), 2019
- Evolution, Current Challenges, and Future Possibilities in ECG Biometrics, [IEEE Access](#), 2018

Main Awards

- **EAB Max Snijder Award 2022** by the European Association for Biometrics (EAB)
- **Computers Journal Best Paper Award** at the IWBF 2020 conference

Soft Skills

- Creativity, self-drive, and resilience
- Teamwork and autonomy
- Always searching for realistic results
- Multidisciplinary background
- Communication and writing skills
- Leading and mentoring people

Languages

- Portuguese (native language)
- English (full professional proficiency)

