


JOÃO RIBEIRO PINTO

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Summary

I am a research engineer working 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, and mentoring talented people.

Work Experience

Senior Biometrics Research Engineer

Amadeus, Lisbon, Portugal (since 01/2024, 1 yr. 3 m.)

- Developed complete AI solutions for passenger tracking across multiple cameras and over time
- Improved existing face biometrics algorithms for new airport/border e-gate product releases
- Provided expert technical and scientific support to sales teams in contact with clients
- Contributed to biometrics for border control within the iMARS and SafeTravellers European projects
- Improved team development efficiency through process automatisation
- Contributed to biometric data acquisition and labelling endeavours
- Promoted connection with academia through MSc jury participations and a PhD supervision
- Conducted AI and coding technical interviews to select new team members

Senior Deep Learning Engineer

Bosch Portugal, Braga, Portugal (04/2022 - 12/2023, 1 yr. 9 m.)

- 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, 4 yr. 6 m.)

- 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, 1 yr. 1 m.)

- Compiled the most complete survey on ECG biometrics to date (over 200 citations)
- 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

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
- 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, C++, PyTorch, Lightning, Pillow, 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, Java, JavaScript, jQuery, Pandas, Microsoft SEAL

Stats

- **8** research projects
- **47** scientific publications
- **14** journal papers
- **19** international conference papers
- **900+** citations
- **1** PhD thesis supervised
- **16** MSc dissertations supervised
- **20+** interns mentored
- **10** MSc dissertations examined
- **15** scientific events organised
- **5** awards

Selected Publications

- Multimodal PointPillars for Efficient Object Detection in Autonomous Vehicles, [IEEE Transactions on Intelligent Vehicles, 2024](#)
- 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, rigour, and resilience
- Teamwork and autonomy
- Multidisciplinary background
- Communication and writing skills
- Leading and mentoring people

Languages

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

