



## Tiago Filipe Sousa Gonçalves

📍 Porto, Portugal

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I received my MSc in Bioengineering (Biomedical Engineering) from Faculdade de Engenharia da Universidade do Porto (FEUP) in 2019. Currently, I am a PhD Candidate in Electrical and Computer Engineering at FEUP and a research assistant at the Centre for Telecommunications and Multimedia of INESC TEC with the Visual Computing & Machine Intelligence (VCMI) Research Group. My research interests include machine learning, explainable artificial intelligence (in-model approaches), computer vision, medical decision support systems, and machine learning deployment.

Besides working, I enjoy practising Karate-Do Shotokai or reading about life, philosophy, economy, politics or fundamental science. Moreover, I do not refuse a good TV series or a good film (preferably at the cinema).

### Experience

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2021 – Present

#### Invited Teaching Assistant

Faculty of Engineering | University of Porto

- Invited Teaching Assistant during the 1st Semester of 2022-2023 on the course PRO - Programming (L.EEC004)
- Invited Teaching Assistant during the 1st Semester of 2021-2022 on the course TAIA - Advanced Topics on Artificial Intelligence

2020 – Present

#### Research Assistant

INESC TEC | Centre for Telecommunications and Multimedia

2019 – 2020

#### Research Assistant

Faculty of Engineering | University of Porto

2018 – 2018

#### Junior Researcher

Fraunhofer Portugal AICOS

### Education

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2020 – Present

#### Doctor of Philosophy Electrical and Computer Engineering

Faculty of Engineering | University of Porto

- Thesis Title: "Interpretable Machine Learning and its Application to Medical Decision Support Systems"

2016 – 2019

#### Bachelor of Science & Master of Science Bioengineering – Biomedical Engineering

Faculty of Engineering | University of Porto

- Thesis Title: "Deep Aesthetic Assessment of Breast Cancer Surgery Outcomes"

2013 – 2016

#### Bachelor of Science Bioengineering – Biomedical Engineering

Faculty of Biotechnology | Universidade Católica Portuguesa

### Awards

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- 2021 **MICCAI Hackathon 2021 Best Contribution Award**
- Member of the winning team "HIT" (Helena Montenegro, Isabel Rio-Torto, João Nunes and Tiago Gonçalves) with the work titled "Show Me Consistency! Increasing the quality and consistency of annotations"
- 2021 **2<sup>nd</sup> Place World Data League**
- Member of the team "Tech Moguls" (Joana Morgado, Paulo Maia, Tiago Gonçalves and Tomé Albuquerque) that achieved 2nd place at the World Data League competition on data science

## Extracurricular Activities

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- 2021 – 2022 **VISION Understanding and Machine intelligence (VISUM) Summer School 2022**
- Leader of the Project Committee
  - Member of the Organising Committee
- 2021 – 2022 **2<sup>nd</sup> Workshop on Explainable & Interpretable Artificial Intelligence for Biometrics at WACV 2022**
- Member of the Organising Committee
  - Sponsorship Co-chair
- 2020 – 2021 **VISION Understanding and Machine intelligence (VISUM) Summer School 2021**
- Member of the Organising Committee
  - Member of the Project Committee
- 2020 – 2021 **1<sup>st</sup> Workshop on Explainable & Interpretable Artificial Intelligence for Biometrics at WACV 2021**
- Member of the Organising Committee
  - Sponsorship Co-chair
- 2019 – 2020 **VISION Understanding and Machine intelligence (VISUM) Summer School 2020**
- Member of the Organising Committee
- 2020 – 2021 **Conselho Nacional de Debates Universitários (Portuguese Universities Debating Council)**
- Treasurer of the Board of Directors
- 2019 – 2021 **Sociedade de Debates da Universidade do Porto (University of Porto Debate Society)**
- President of the Audit Committee
  - Treasurer of the Board of Directors
- 2017 – 2019 **Associação Nacional de Estudantes de Engenharia Biomédica (Portuguese Biomedical Engineering Students' Association)**
- Treasurer of the Board of Directors
  - Founder and Secretary of the General Assembly
- 2017 – Present **European Students, Sustainability Auditing (ESSA Project)**
- Social Responsibility Student Auditor
- 2017 – 2019 **ShARE-UP**
- President of the Board of Directors
  - Network Manager of the Energy Network

- 2016 – 2017 **Uniplaces**
- Uniplaces Academy – Ambassador Program
  - University Partnerships Manager Porto
  - Creative & Social Media Manager Porto
- 2016 – 2018 **Núcleo de Estudantes de Bioengenharia FEUP/ICBAS (Bioengineering Student Association FEUP/ICBAS)**
- Member of the Communication and Image Department
- 2013 – 2016 **Associação de Estudantes da Escola Superior de Biotecnologia (Student's Union of the Faculty of Biotechnology)**
- Treasurer of the Board of Directors
  - Vice-President of the Board of Directors
- 2013 – 2016 **Sociedade de Debates da Católica Porto (Católica Porto Debate Society)**
- President of the Audit Committee
  - Founder and President of the Board of Directors
- 2013 – 2021 **Tuna da Universidade Católica Portuguesa – Porto (Academic Band of Universidade Católica Portuguesa – Porto)**
- President of the Audit Committee
  - Vice-President of the General Assembly
  - Vice-President of the Board of Directors
  - Vice-President of the Audit Committee
- 2015 – 2016 **Erasmus+ Buddy (Faculty of Biotechnology)**
- Member of the Erasmus+ Buddy Committee
- 2013 – 2014 **Clube de Investigadores – Escola Superior de Biotecnologia (Researchers Club – Faculty of Biotechnology)**
- Project “Bacteria around the City”, under the supervision of Professor Célia Manaia
- 2013 – 2016 **Programa de Mentorado – Escola Superior de Biotecnologia (Mentorship Programme – Faculty of Biotechnology)**
- Mentorship Programme under the supervision of the Alumnus José Carlos Pereira
- 2014 – 2015 **Jornadas de Biotecnologia – Escola Superior de Biotecnologia (Journeys of Biotechnology – Faculty of Biotechnology)**
- Treasurer of the Organising Committee
  - BSc Representative of the Organising Committee

## Technical Skills

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### Programming Languages

- Python
- MATLAB
- JavaScript
- C/C++
- HTML
- CSS

### Programming Frameworks

- Bootstrap
- Wordpress
- Django

### Technologies

- Docker

## Personal Skills

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<b>Languages Known</b>	<ul style="list-style-type: none"> <li>• Portuguese: Reading (Native), Writing (Native), Speaking (Native)</li> <li>• English: Reading (Excellent), Writing (Excellent), Speaking (Excellent)</li> <li>• French: Reading (Intermediate), Writing (Intermediate), Speaking (Intermediate)</li> <li>• Spanish: Reading (Fair), Writing (Fair), Speaking (Fair)</li> </ul>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Leadership</li> <li>• Team management</li> <li>• Ability to self-manage</li> <li>• Variety of team members</li> <li>• Personal motivation</li> <li>• Personal communication</li> <li>• Teamwork</li> <li>• Adaptability</li> <li>• Networking</li> <li>• Online marketing</li> <li>• Creative thinking</li> <li>• Social media management</li> <li>• Brand awareness</li> <li>• Distance work</li> <li>• Writing</li> <li>• Public speaking</li> </ul>
<b>Interests</b>	<ul style="list-style-type: none"> <li>• Biomedical Engineering</li> <li>• Machine Learning</li> <li>• Deep Learning</li> <li>• Artificial Intelligence</li> <li>• Biomedical Image Processing &amp; Analysis</li> <li>• Music</li> <li>• Martial Arts (Karate Do Shotokai)</li> <li>• Volunteering</li> <li>• Literature</li> <li>• Politics</li> <li>• Entrepreneurship</li> </ul>
<b>Publications</b>	

1. Tiago Gonçalves, Isabel Rio-Torto, Luís F. Teixeira, and Jaime S. Cardoso. A survey on attention mechanisms for medical applications: are we moving toward better algorithms? *IEEE Access*, 10:98909–98935, 2022
2. Pedro C. Neto, Tiago Gonçalves, Marco Huber, Naser Damer, Ana F. Sequeira, and Jaime S. Cardoso. Orthomad: Morphing attack detection through orthogonal identity disentanglement. In *2022 International Conference of the Biometrics Special Interest Group (BIOSIG)*, pages 1–5, 2022
3. Ana F Sequeira, Tiago Gonçalves, Wilson Silva, João Ribeiro Pinto, and Jaime S Cardoso. An exploratory study of interpretability for face presentation attack detection. *IET Biometrics*, 10(4):441–455, 2021
4. João Ribeiro Pinto, Tiago Gonçalves, Carolina Pinto, Luís Sanhudo, Joaquim Fonseca, Filipe Gonçalves, Pedro Carvalho, and Jaime S Cardoso. Audiovisual classification of group emotion valence using activity recognition networks. In *2020 IEEE 4th International Conference on Image Processing, Applications and Systems (IPAS)*, pages 114–119. IEEE, 2020
5. Tiago Gonçalves, Wilson Silva, Maria J Cardoso, and Jaime S Cardoso. Deep image segmentation for breast keypoint detection. In *Multidisciplinary Digital Publishing Institute Proceedings*, volume 54, page 35, 2020
6. Sara P Oliveira, João Ribeiro Pinto, Tiago Gonçalves, Rita Canas-Marques, Maria-João Cardoso, Hélder P Oliveira, and Jaime S Cardoso. Weakly-supervised classification of her2 expression in breast cancer haematoxylin and eosin stained slides. *Applied Sciences*, 10(14):4728, 2020
7. Ana F Sequeira, Wilson Silva, João Ribeiro Pinto, Tiago Gonçalves, and Jaime S Cardoso. Interpretable biometrics: Should we rethink how presentation attack detection is evaluated? In *2020 8th International Workshop on Biometrics and Forensics (IWBF)*, pages 1–6. IEEE, 2020
8. Tiago Gonçalves, Wilson Silva, Maria J Cardoso, and Jaime S Cardoso. A novel approach to keypoint detection for the aesthetic evaluation of breast cancer surgery outcomes. *Health and Technology*, pages 1–13, 2020
9. Tiago Gonçalves, Wilson Silva, and Jaime Cardoso. Deep aesthetic assessment of breast cancer surgery outcomes. In *Mediterranean Conference on Medical and Biological Engineering and Computing*, pages 1967–1983. Springer, 2019