Paula A Graça

✉ paula.graca@fe.up.pt
🖺 orcid.org/0000-0002-6317-0897
⌨ paulaaagraca
in paulaaagraca

EDUCATION

2021–/ **PhD in Electrical and Computer Engineering**, *Faculty of Engineering of the University of Porto*, Porto, Portugal.
Focus on underwater acoustic localization, reconfigurable digital systems and signal processing.
GPA (curricular component): 18/20

2015–2020 **Integrated Masters in Electrical and Computer Engineering**, *Faculty of Engineering of the University of Porto*, Porto, Portugal).
Branch: Telecommunications, Electronics and Computers - Microelectronics and Signal Processing
GPA: 15/20

2018–2019 **ERASMUS+ Program**, *Technical University of Munich*, Munich, Germany.
Minor courses in communication acoustics, signal processing for audio, VLSI design and nanoelectronics.
GPA: 15/20

EXPERIENCE

Oct 2020 – / **Invited Assistant Lecturer**
Department of Electrical and Computer Engineering (DEEC), Faculty of Engineering, University of Porto
Porto, Portugal

Oct 2020 – / **Research Assistant**
Centre of Robotics and Autonomous Systems (CRAS) at INESC TEC
Porto, Portugal

Feb – Oct 2020 **Undergraduate Researcher**
Centre of Robotics and Autonomous Systems at INESC TEC
Porto, Portugal

Jun – Sep 2019 **Technical Supporter**
CIRC E-scooters
Munich, Germany

TEACHING & EDUCATIONAL ACTIVITIES

Invited Assistant Lecturer

• **Integrated Masters in Electrical and Computer Engineering (MIEEC)** | Department of Electrical and Computer Engineering (DEEC) | Faculty of Engineering, University of Porto

2020/2021 **EEC0006: Laboratory of Digital Systems (LSDI)**, 7.5 ECTS.

2020/2021 **EEC0010: Electric Circuits (CIRC)**, 7 ECTS.

• **Bachelor in Electrical and Computer Engineering (LEEC)** | Department of Electrical and Computer Engineering (DEEC) | Faculty of Engineering, University of Porto

2023/2024 **L.EEC016: Thermodynamics and Structure of Matter (TEM)**, 4.5 ECTS.

2023/2024 **L.EEC005: Digital Systems (SD)**, 6 ECTS.

2022/2023 **L.EEC005: Digital Systems (SD)**, 6 ECTS.

| 2021/2022 | **L.EEC005: Digital Systems (SD)**, 6 ECTS. |
| 2021/2022 | **L.EEC008: Circuits 2 (CIR2)**, 6 ECTS. |

Bachelor Internship Supervisor

Mar – Jul 2022	**Reconfigurable pinger for underwater acoustics applications: acoustic signal synthesis**, Tutor: José Carlos Alves, PhD.
	Faculty of Engineering, University of Porto
Mar – Jul 2022	**Reconfigurable pinger for underwater acoustics applications: parameterization, temporization and low-power modes**, Tutor: José Carlos Alves, PhD.
	Faculty of Engineering, University of Porto

PUBLICATIONS

Peer-Reviewed Journals

| 2023 | Paula A. Graça, José C. Alves, Bruno M. Ferreira, "Sensor Placement in an Irregular 3D Surface for Improving Localization Accuracy Using a Multi-Objective Memetic Algorithm", In: *Sensors*, vol. 23, no. 14, pp. 1424-8220, Oct. 2023, DOI: 10.3390/s23146316. |
| 2023 | Bruno M. Ferreira, Paula A. Graça, José C. Alves, Nuno A. Cruz and ,, "Single Receiver Underwater Localization of an Unsynchronized Periodic Acoustic Beacon Using Synthetic Baseline", In: *IEEE Journal of Oceanic Engineering*, vol. 48, no. 4, Oct. 2023, DOI: 10.1109/JOE.2023.3275611. |

Peer-reviewed Conference Proceedings

| 2022 | Paula A. Graça, José C. Alves, Bruno M. Ferreira,, "Multi-Objective Optimization of Sensor Placement in a 3D Body for Underwater Localization"., In: *OCEANS 2022, Hampton Roads*, Hampton Roads, VA, USA, 2022, pp. 1-7, DOI: 10.1109/OCEANS47191.2022.9977053. |
| 2022 | Bruno Ferreira, José Alves, Nuno Cruz, Paula A. Graça,, "On the localization of an acoustic target using a single receiver", In: *OCEANS 2022, Hampton Roads*, Hampton Roads, VA, USA, 2022, pp. 1-6, DOI: 10.1109/OCEANS47191.2022.9977130. |

Peer-reviewed Abstracts

| 2020 | Filipa S. Barros, Paula A. Graça and Hélio S. Mendonça, Experimenting with RF-433MHz for Low-Cost Short Range for Edge Device Communications, IJUP 2020 - 13th Meeting of Young Researchers of the University of Porto. URL: https://www.up.pt/ijup/edicao-2020/. |

Dissertations

| 2020 | Paula A. Graça, Relative Acoustic Localization with USBL (Ultra-Short Baseline), Master's Dissertation, Faculty of Engineering, University of Porto, Supervised by José Carlos Alves and Bruno Ferreira. URL: https://hdl.handle.net/10216/132656. |

PROJECTS

2021 – /	**SPRING** Strategic planning for water resources and implementation of novel biotechnical treatment solutions (reference 821423), CRAS at INESC TEC, inesctec.pt/spring
2020 – 2021	**AutoMon**, Automated monitorization of hydric resources, CRAS at INESC TEC, inesctec.pt/automon
2020	**GROW**, Long-range broadband underwater wireless communications, CRAS at INESC TEC, inesctec.pt/grow
2023 – 2024	**CoralSol**, Real-time diver tracking for monitoring of the Coral Sol, CRAS at INESC TEC

ACADEMIC SERVICE AND AFFILIATIONS

Peer Reviewer

[Elsevier] Journal of the Franklin Institute - 1 Full Paper

Member of Committees

2023 **Technical Program Member**, Symposium on Electrical and Computer Engineering, 5th Doctoral Congress Engineering (DCE23).
Faculty of Engineering, University of Porto

2022-2023 **Mentorship Program Co-coodinator**, Department of Electrical and Computer Engineering.
Faculty of Engineering, University of Porto

2018 **Head of Branding**, IEEE R8 Student & Young Professional Congress 2018 syp.ieee-pt.org.
Porto, Portugal

Volunteer Activities

2021 **XXXVI Conference on Design of Circuits and Integrated Systems (DCIS'2021)** as Student Volunteer, Vila do Conde, Portugal, dcis2021.fe.up.pt

Affiliations

2022 – / **IEEE Oceanic Engineering Society**, Member.

2016 – / **IEEE University of Porto Student Branch**,
2019/2020: Secretary of the Executive Committee
2017–2022: Robotics and Automation Society (RAS) co-funder and member
2017–2020: Design and Communication department.

2020 – 2022 **Social Media Manager**, IEEE Portugal Section.
Communications team coordination, content creation and scheduling.

GRANTS, HONORS & AWARDS

Grants

2022 – / **Fellowship for PhD Research**, ref. 2022.09452.BD , by FCT – Fundação para a Ciência e a Tecnologia (Portuguese Foundation for Science and Technology)
Porto, Portugal

2021 – 2022 **Research Grant (BI)**, SPRING project (ref. 821423), at INESC TEC
Porto, Portugal

2022 **Huawei Merit Scholarship**, by Huawei Portugal and .PT programadebolsashuawei.pt
Lisbon, Portugal

Honors & Awards

2021 **National 3rd / international 1060th (of 5570)**, IEEEXtreme 15.0 ieeextreme.org
Porto, Portugal (Online)

2019 **National 6th / international 714th (of 4134)** , IEEEXtreme 13.0 ieeextreme.org
Maia, Portugal

2019 **4th (of 10)** , Neeeil It at CEiiA
Matosinhos, Portugal

2017 **1st place**, BEST SciTeCH'17 scitech.bestporto.org
Matosinhos, Portugal

2017 **2814th**, Google Hashcode 2017 hashcode.com
Porto, Portugal

ADDITIONAL TRAINING

Set 2023 — **Reliable AI for Marine Robotics (REMARO) Fall School Porto 2023** by the REMARO program: 4 day attendance in sessions regarding the future of marine robotics, focusing on computer vision, formal verification, digital twins and deep ocean exploration. Porto, Portugal remaro.eu

Oct 2022 — **Course on Self-managed Monitoring Program for Coasts** by the Argentine Institute of Oceanography: selected candidate (7 participants in total) with full fellowship for a 5 day course on the development of low-cost monitoring systems for coastal areas. Bahía Blanca, Argentina allatlanticocean.org/course

Set 2022 — **REPMUS 2022** by NATO: 4 day attendance in the annual military exercise for testing underwater unnamed systems with the support of the Portuguese Navy. Troia, Portugal marinha.pt/REPMUS22 nato.int/REPMUS22

Jul 2022 — **Marine Robotics Summer School** by the MIT Portugal, LSTS - Laboratório de Sistemas e Tecnologias Subaquáticas - and Okeanos - Institute of Marine Sciences: selected candidate (20 participants in total) for a 2 weeks intensive course on oceanography and underwater robotics. Açores, Portugal mitportugal.org/marine-robotics-summer-school

Jun 2022 — **International Conference on Underwater Acoustics 2022 (ICUA'22)** by the Institute of Acoustics: 4 days of technical sessions and networking. Southampton, United Kingdom icua2022.org

Jan 2022 — **Online CubeSat Concurrent Engineering Workshop 2022** by European Space Agency (ESA) Academy: selected candidate (19 participants in total) for a 50-hour training. Online esa.int/OCCEW22

Jul 2021 — **DEEPFIELD - Deep Learning for Image Classification and Segmentation** by Polytechnic University of Milan: 24-hour training. Online deepfieldproject.com

Jul 2021 — **22nd European Agent Systems Summer School (EASSS 2021)** by Artificial Intelligence and Computer Science Lab of the University of Porto (LIACC): selected candidate for a 30-hour training. Online easss2021.fe.up.pt

Jun 2020 — **Introduction to Machine Learning with Python** by OERN - Ordem dos Engenheiros Região Norte: 16-hour training, score 17/20. Online oern.pt

May 2020 — **Introduction to Python** by OERN - Ordem dos Engenheiros Região Norte: 16-hour training, score 20/20. Online oern.pt

Oct 2019 — **EUvsVirus Hackathon**, Participant in team Euphonic, Domain: Social & Political Cohesion euvsvirus.org
Porto, Portugal (Online)

Nov 2019 — **Introduction to real-time video processing on heterogeneous computing platforms - Zynq SoC** by Prof. Tomasz Kryjak, Computer Vision Laboratory in AGH University of Science and Technology Kraków Poland: 6-hour training. Online

Oct 2019 — **IEEE Leadership Camp 2019** by IEEE Portugal: 24-hour training. Lisbon,Portugal

Fev 2017 — **Microsoft IoT Labs** by Microsoft Portugal: 6-hour training. Faculty of Engineering of the University of Porto

Oct 2016 — **POP'16 - Programming for Optimization and Performance** by SPeCS research group: 5-hour programming competition. Porto, Portugal specs.fe.up.pt

LANGUAGES & SKILLS

Languages — Portuguese (native), English (advanced), German (elementary), Spanish (elementary)

Technology — Matlab $^{(4/5)}$, C $^{(4/5)}$, C++ $^{(4/5)}$, Signal Processing $^{(4/5)}$, VHDL $^{(3/5)}$, Verilog $^{(3/5)}$, Python $^{(3/5)}$, Embedded Systems $^{(3/5)}$

Soft Skills   Teamwork, Communication, Critical Thinking, Observation, Problem-Solving, Adaptability

Tools   Autodesk Fusion 360, Adobe Photoshop, Adobe Premiere, Adobe Illustrator