Isabel Barradas

Education

Free University of Bozen-Bolzano (Faculty of Engineering) — Bolzano, IT
PhD in Advanced-Systems Engineering (*cum laude*), Supervisor: Prof. Angelika Peer — 2019–2024

- Thesis: "Multimodal Emotion Estimation from Peripheral Physiological Signals through a Dynamic Modelling Approach"

University of Lisbon (Faculty of Sciences) — Lisbon, PT
MSc in Biomedical and Biophysics Engineering (Profile: Medical Signals and Images), GPA: 17/20 — 2015–2018

- Thesis: "New Methods for the Investigation of Dynamics of Functional Magnetic Resonance Imaging Data", Supervisors: Prof. Alexandre Andrade and Prof. Dimitri Van De Ville

University of Lisbon (Faculty of Sciences) — Lisbon, PT
BSc in Biomedical and Biophysics Engineering, GPA: 15/20 — 2011–2015

- Thesis: "Mechanisms of Transcranial Direct Current Stimulation of Motor Cortex for the Treatment of Chronic Pain in Spinal Cord Injury", Supervisors: Prof. Nuno Matela and Dr. Ricardo Salvador

Academic Experience

Free University of Bozen-Bolzano (Faculty of Engineering) — Bolzano, IT
Research Assistant at the unibz macroarea Human-centered Intelligent Systems — Dec 2024 –present

- Project **Human-centered intelligent systems in applications**: responsible for the conception, implementation and evaluation of a series of intelligent systems that stay in close interaction with humans by taking advantage of equipment, materials, and software available in the various labs of the macro-area.

Free University of Bozen-Bolzano (Faculty of Engineering) — Bolzano, IT
Research Assistant at the Human-centered Technologies and Machine Intelligence Lab — Nov 2022 –Nov 2024

- Project **ORFARO**: responsible for an automation in the detection of an ILF-neurofeedback (NF) parameter – optimal reward frequency (ORF) – to support therapists in its detection, to accelerate and improve the progress of the ILF-NF-based therapy.

  Acquired Skills: planning and setting up studies with healthy subjects and patient population (including experiments' design, and data privacy and ethics applications) in collaboration with NF practitioners; integration of different devices to perform NF therapy while measuring physiological signals in real-time; recording and processing of physiological data; programming (MATLAB); dynamic systems modelling. *Skills to be acquired:* automatic control

Free University of Bozen-Bolzano (Faculty of Science and Technology) — Bolzano, IT
Research Assistant at the Human-centered Technologies and Machine Intelligence Lab — Sep 2019–Sep 2022

- Project **Dynamic Emotion Models**: responsible for the development of dynamic emotion models from physiological signals, including the design of adequate experiments, capturing of physiological signals, processing of recorded data, and ultimate models for emotion recognition.

  Acquired Skills: programming (MATLAB); recording and processing of physiological data; planning and setting up studies with healthy subjects (including experiments' design, and data privacy and ethics application); machine learning; dynamic system models

Early Research Experience

École Polytechnique Fédérale de Lausanne & University of Geneva   Geneva, CH
Master's Researcher at the Medical Image Processing Lab   Oct 2016–Jun 2017

- Project: "New methods for the investigation of dynamics of functional magnetic resonance imaging data"; responsible for the application and adaptation of recent pipelines to investigate dynamics of functional magnetic resonance imaging data using point process analysis and clustering approaches, as well as statistical comparisons between a healthy group and a patient population during a task and in resting state.
  Acquired Skills: programming (MATLAB); signal processing; data analysis (including patient population *vs.* healthy group)

Spaulding Rehabilitation Hospital - Harvard Medical School   Boston, USA
Summer Intern at the Spaulding Neuromodulation Center   Summer 2015

- Project: "Mechanisms of transcranial direct current stimulation (tDCS) of motor cortex for the treatment of chronic pain in spinal cord injury"; in contact with mechanisms of tDCS in patients and with scientific studies management
  Acquired Skills: scientific studies management; modelling; data analysis; assistance in experiments with a patient population (chronic pain)

Other Professional Experience

Askblue   Lisbon, PT
Junior IT Consultant   Jan 2019–Jul 2019
IT Developer Trainee   Jan 2018–Dez 2018

- Responsible for the development and testing of new features in web applications, the improvement and support of existing software, and the cooperation and communication with other development teams and business analysts
  Acquired Skills: programming (C#, SQL, JavaScript, HTML); teamwork; work in collaboration with end-users; business knowledge; time management.

Additional Training

Seminar "How to get away with your talk: A survival guide to deliver good technical talks" (2024), Free University of Bozen-Bolzano, Bolzano, IT

Summer School "Human AI: Modelling, Simulation and Analysis of Adaptive Human Mental, Social and Health-Related Processes" (2021), Vrije Universiteit Amsterdam, Amsterdam, NL [online]

Publications

Journal Papers

1. *Barradas, I.*, Tschiesner, R., & Peer, A. (2025). Dynamic emotion intensity estimation from physiological signals facilitating interpretation via appraisal theory. *PloS one*, 20(1), e0315929.

Conference Papers

1. *Barradas, I.*, Tschiesner, R., & Peer, A. (2024, May). Emotion-Undifferentiated Intensity Estimation: Dynamical Models and Physiological Insights. In *2024 IEEE 4th International Conference on Human-Machine Systems (ICHMS)* (pp. 1-6). IEEE. [presentation]

2. *Barradas, I.*, Tschiesner, R., & Peer, A. (2022, June). Towards a dynamic model for the prediction of emotion intensity from peripheral physiological signals. In *International Conference on Human-Computer Interaction* (pp. 18-35). Cham: Springer Nature Switzerland. [presentation]

3. *Barradas, I., Kloc, A., Weng, N.*, & Treur, J. (2021, September). A Second-Order Adaptive Network Model for Exam-Related Anxiety Regulation. In *Biologically Inspired Cognitive Architectures Meeting* (pp. 42-53). Cham: Springer International Publishing. [presentation]

4. *Veríssimo, I. S., Barradas, I. M., Santos, T. T.*, Miranda, P. C., & Ferreira, H. A. (2016, August). Effects of prefrontal anodal transcranial direct current stimulation on working-memory and reaction time. In *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)* (pp. 1790-1793). IEEE. [poster]

Doctoral Consortium Contributions

1. *Barradas, I.* (2021, July). Dynamic models for emotion estimation from physiological signals. In *Joint Proceedings of Interactive Experiences and Doctoral Consortium at CHItaly 2021 co-located with 14th Biannual Conference of the Italian SIGCHI Chapter* (pp. 23-27). [presentation and poster]

Other Venues

1. *Barradas, I.M.*, Bolton, T.A., Jochaut, D., Giraud, A., and Van De Ville, D., (2017, Jan). De-CAPs-ulating functional network organization in ASD participants during resting state and movie watching. In *Alpine Brain Imaging Meeting.* [abstract and poster]

AWARDS

- 3rd Prize - Best Poster Award in the Workshop on Biomedical Engineering (Lisbon, PT)   2016

  Title of the poster: "Effects of Prefrontal Anodal Transcranial Direct Current Stimulation on Working-Memory and Reaction Time"

OTHER ACADEMIC ROLES

- Participation in the promotion of the Faculty of Engineering of the Free University of Bozen-Bolzano to schools, universities and companies in internal and external events, often within the context of laboratories of the faculty macro-area Human-centered Intelligent Systems (2019-present)

- Reviewer for the 33rd ACM International Conference on Multimedia themed around Engagement, Experience, Systems and Understanding (2025)

- Volunteer in various roles during the Automatica.it 2024 event (2024)

- Reviewer for the journal User Modeling and User-Adapted Interaction published by Springer Nature (2023)

- Contribution to the writing of the RC2022 proposal ORFARO (2021-2022)

- Coordinator of the Marketing Department of the Faculty of Sciences of the University of Lisbon Biomedical and Biophysics Engineering Students Association (2014-2015)

- Organizer of different editions of the Workshop on Biomedical Engineering (WBME) at the Faculty of Sciences of the University of Lisbon, as regular staff (2013 - 2014) and as Graphic Design Coordinator (2015)

- Volunteer in the European Researchers' Night in Lisbon (2015)

- Participant in the event "Futurália" representing Biomedical and Biophysics Engineering course and Department of Physics of Faculty of Sciences of the University of Lisbon (2015)

Hard Skills

- **Programming:** MATLAB, R, C programming, C#, HTML, JavaScript, SQL
- **Text:** Microsoft Office, LaTeX
- **Data Analysis & Signal Processing:** signal processing of physiological data (EEG, fMRI, HR, etc.), statistical analysis, dynamic systems modelling, machine learning
- **Experiment Design & Clinical Research:** human-subject experiment design, data acquisition (EEG and other physiological signals), data privacy and ethics approval processes, collaboration with clinicians and patients
- **Project Management & Communication:** scientific writing and presentations, interdisciplinary collaboration, study coordination, public engagement

Soft Skills

- Detail-oriented and analytical problem-solving
- Self-directed learning
- Teamwork, collaboration, and adaptive communication
- Emotional awareness and openness to feedback
- Proactive project coordination and adaptability in the face of challenges

Languages

- **Portuguese:** Native
- **English:** Fluent
- **Italian:** Conversational
- **Spanish:** Conversational