Curriculum Vitae
João Rodrigues

Personal Identification

Full Name:

João Manuel de Almeida Rodrigues

Birth Date:

21/06/1992

Contact

Email:

rjoao06@gmail.com (personal)

jmd.rodrigues@fct.unl.pt (professional)

Phone:

+351936687594

Languages

Portuguese – Native

French – C1

English – C1

Japanese – A1

Education

01/04/2018 - ongoing	**PhD in Biomedical Engineering**
	PhD Thesis: Occupational Exposure Logging – Mechanisms for visualization, search, and inference on individual and collective ergonomic information (in partnership with Volskwagen Autoeuropa)
	Universidade Nova de Lisboa Faculdade de Ciências e Tecnologia, Portugal
01/09/2010 – 30/09/2015	**Integrated Master in Biomedical Engineering**
	Major in Instrumentation and Biomaterials
	Universidade de Coimbra Faculdade de Ciências e Tecnologia, Portugal

Career

01/04/2016 -
Now

Researcher at LIBPhys-UNL

Universidade Nova de Lisboa Faculdade de Ciências e Tecnologia, Portugal

01/12/2021-
01/4/2022

Fulbright Scholar at Eamonn Keogh's Lab

Department of Computer Science, University of Riverside California

01/08/2018-
01/05/2020

Teaching Assistant in Physics Classes
Supported Professors in classes related with Physics (Electromagnetism, Mechanics and Thermodynamics)

Universidade Nova de Lisboa Faculdade de Ciências e Tecnologia, Portugal

Projects

01/04/2020 -
31/03/2023

Operator: Digital Transformation in Industry with a Focus on the Operator4.0
http://operator-i40.com/

Participated in this project to help define a system that could be used to monitor workers motion and posture with inertial sensors and develop algorithms to process the data and give occupational exposure feedback to prevent injuries. Developed an algorithm for work cycle segmentation.

01/02/2020 –
01/02/2023

PrevocupAI: Prevention of Occupational Disorders on the Public Administrations based on Artificial Intelligence
http://biosi.gnals.org/projects_pages/prevocupai/prevocupai.html

Participated in this project to help define a setup that would be used to monitor posture of office workers and provide visual feedback of their occupational exposure throughout the day. Developed a concept for a self-assessment system of occupational exposure in office settings.

01/08/2014-
01/04/2018

INSIDE: Intelligent Networked Robot Systems for Symbiotic Interaction with Children with Impaired Development

Participated in this project to monitor the ECG of children with impaired development while performing recreational tasks with a robot. Developed an algorithm for noise detection of these signals.

Distinctions

2021	Best Paper Award
	2021 Seventh International conference on Bio Signals, Images, and Instrumentation (ICBSII)
2021	Fulbright Scholarship in Partnership with FCT
	Had the chance to work at the laboratory of prof. Eamonn Keogh. His lab is famously focused on time series data mining. The project was related with the development of a tool to use natural language for pattern search on time series. Department of Computer Science Department of the University of California Riverside
2022	Hanse Wissenschaftskolleg Scholarship
	I was awarded a scholarship to work in collaboration with the Cognitive Systems Lab, supervised by prof. Tanja Schultz in the project LabLinking, a new concept for remote laboratory experiments. A use-case of motion synchrony was explored for this new paradigm.

Professional Experience

Computer Science	Proficient in programming languages (by order of proficiency): Python, Matlab, Web (HTML, Javascript and CSS) and C++
	Experience in algorithm development for time series data mining: time series classification, segmentation, summarization and pattern search.
	Proficiency in visualization of data and interactive tools with Bokeh and Dash Plotly.

Research Activity	Participated in 3 national projects
	Designed acquisition protocols for data acquisition in controlled environments as well as industrial settings
	Experience in ergonomic analysis and occupational health based on inertial motion sensors and biosignals.
	Experience in writing journal and conference publications (4 book chapters, 7 conference papers, 5 journal articles) and applications for national projects (2 national projects accepted).

List of Publications

List of Publications

A. Journal Publications

1. M. L. Nunes et al., "Posture Risk Assessment in an Automotive Assembly Line Using Inertial Sensors," in IEEE Access, vol. 10, pp. 83221-83235, 2022, doi: 10.1109/ACCESS.2022.3196473.

2. Mollaei N, Fujao C, Silva L, Rodrigues J, Cepeda C, Gamboa H. Human-Centered Explainable Artificial Intelligence: Automotive Occupational Health Protection Profiles in Prevention Musculoskeletal Symptoms. International Journal Environment Research and Public Health. 2022 Aug 3;19(15):9552. doi: 10.3390/ijerph19159552. PMID: 35954919; PMCID: PMC9368597.

3. Assunção, Ana; Mollaei, Nafiseh; Rodrigues, João; Osório, Daniel; Veloso, António; Cautela, Filomena; Gamboa, Hugo. A genetic algorithm approach to design job rotation schedules ensuring homogeneity and diversity of exposure in the automotive industry, Heliyon, Volume 8, Issue 5, e09396 (2022). https://doi.org/10.1016/j.heliyon.2022.e09396

4. Ramos, G.; Vaz, J. R.; Mendonça, G. V.; Pezarat-Correia, P.; Rodrigues, J.; Alfaras, M.; Gamboa, H.. "Fatigue Evaluation through Machine Learning and a Global Fatigue Descriptor". Journal of Healthcare Engineering 2020 (2020): 1-18. http://dx.doi.org/10.1155/2020/6484129.

5. Rodrigues, João; Folgado, Duarte; Belo, David; Gamboa, Hugo. "SSTS: A syntactic tool for pattern search on time series". Information Processing and Management 56 1 (2019): 61-76. http://dx.doi.org/10.1016/j.ipm.2018.09.001.

6. Melo, Francisco S.; Sardinha, Alberto; Belo, David; Couto, Marta; Faria, Miguel; Farias, Anabela; Gamboa, Hugo; et al. "Project INSIDE: towards autonomous semi-unstructured human–robot social interaction in autism therapy". *Artificial Intelligence in Medicine* (2018): http://dx.doi.org/10.1016/j.artmed.2018.12.003.

7. Rodrigues, João; Belo, David; Gamboa, Hugo. "Noise detection on ECG based on agglomerative clustering of morphological features". *Computers in Biology and Medicine* 87 (2017): 322-334. http://dx.doi.org/10.1016/j.compbiomed.2017.06.009.

B. Book Chapter

1. Santos, Sara; Folgado, Duarte; Rodrigues, João; Mollaei, Nafiseh; Fujão, Carlos; Gamboa, Hugo. "Exploring Inertial Sensor Fusion Methods for Direct Ergonomic Assessments". In *Communications in Computer and Information Science*, 289-303. Springer International Publishing, 2021.

2. Gamboa, Patricia; Quaresma, Cláudia; Varandas, Rui; Canhão, Helena; de Sousa, Rute Dinis; Rodrigues, Ana; Jacinto, Sofia; et al. "Design of an Attention Tool Using HCI and Work-Related Variables". In *IFIP Advances in Information and Communication Technology*, 262-269. Portugal: Springer International Publishing, 2021.

3. Rodrigues, João; Gamboa, Hugo; Mollaei, Nafiseh; Osório, Daniel; Assunção, Ana; Fujão, Carlos; Carnide, Filomena. "A Genetic Algorithm to Design Job Rotation Schedules with Low Risk Exposure". In *IFIP Advances in Information and Communication Technology*, 395-402. Portugal: Springer International Publishing, 2020.

4. Cepeda, Catia; Rodrigues, Joao; Dias, Maria Camila; Oliveira, Diogo; Rindlisbacher, Dina; Cheetham, Marcus; Gamboa, Hugo. "Mouse Tracking Measures and Movement Patterns with Application for Online Surveys". In *Machine Learning and Knowledge Extraction*, 28-42. Springer International Publishing, 2018.

C. Conference Paper

1. Silva, Sara; Cepeda, Catia; Rodrigues, João; Probst, Phillip; Gamboa, Hugo. "Assessing Occupational Health with a Cross-platform Application based on Self-reports and Biosignals". Paper presented in *BIOSTEC*, *Virtual*, 2022.

2. Alves, Rita; Rodrigues, João; Ramou, Efthymia; Palma, Susana; Roque, Ana; Gamboa, Hugo. "Classification of Volatile Compounds with Morphological Analysis of e-nose Response". *Virtual*, 2022.

3. Mollaei, Nafiseh; Cepeda, Catia; Rodrigues, Joao; Gamboa, Hugo. "Biomedical Text Mining: Applicability of Machine Learning-based Natural Language Processing in Medical Database". *Virtual*, 2022.

4. Rodrigues, Joao; Probst, Phillip; Gamboa, Hugo. "TSSummarize: A Visual Strategy to Summarize Biosignals". 2021.

5. Santos, António; Rodrigues, João; Folgado, Duarte; Santos, Sara; Fujão, Carlos; Gamboa, Hugo. "Self-Similarity Matrix of Morphological Features for Motion Data Analysis in Manufacturing". 2021

6. Rodrigues, Joao; Gamboa, Hugo; Kublanov, Vladimir; Dolganov, Anton. "Storage of Biomedical Signals: Comparative Review of Formats and Databases". Paper presented in *Multi-Conference on Engineering, Computer and Information Sciences (SIBIRCON)*, *Yekaterinburg*, 2019.

Lisbon, 03rd November 2022,

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(João Manuel de Almeida Rodrigues)