

João Pedro Dias



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Summary João Pedro Dias is a Software Engineer and researcher exploring the intersection of hardware and software. He leads and architects a message and event central platform at Kuehne+Nagel, where he focuses on scalable, resilient systems that support global logistics operations. João holds a BSc+MSc and a Ph.D. in Informatics Engineering from FEUP, where he also taught Software Engineering and Operating Systems as an Invited Assistant Professor for seven years. He has supervised over 15 MSc theses and contributed to public-funded projects at LIACC and INESC TEC, helping bridge academic research with industry needs. His research spans IoT systems, software engineering, security, and privacy, with publications in top-tier venues (h-index 20). Outside work, he enjoys CTF competitions, SDR experiments, web development, hardware reverse engineering, and nature photography.

Professional Appointments

- 2023— **Software Engineer**, Kuehne + Nagel Porto IT Tech Hub
Porto, Portugal
- 2022–2024 **Invited Assistant Professor**, Department of Informatics Engineering (DEI)
Faculty of Engineering, University of Porto
- 2021–2023 **Software Engineering Specialist**, BUILT CoLAB
Collaborative Laboratory for the Built Environment of the Future, Porto, Portugal
- 2017–2022 **Invited Assistant Lecturer**, Department of Informatics Engineering (DEI)
Faculty of Engineering, University of Porto
- 2017–2021 **Researcher**, Centre for Information Systems and Computer Graphics (CSIG/HumanISE)
Institute for Systems and Computer Engineering, Technology and Science (INESC TEC)
Porto, Portugal
- 2016–2017 **Researcher**, LIACC — Artificial Intelligence and Computer Science Laboratory
Faculty of Engineering, University of Porto
- 2015 (4 mo.) **Summer Engineering Intern**, ShiftForward, S.A. (*a.k.a.* Velocidi, Inc., acquired by Kevel)
Porto, Portugal
- 2014 (4 mo.) **IT Department Internship**, Centro Hospitalar do Tâmega e Sousa, E.P.E.
Penafiel, Porto, Portugal

Education

- 2016–2022 **Doctoral Program in Informatics Engineering — ProDEI (PhD)**
Faculty of Engineering, University of Porto, *Unanimously Approved with Distinction (Cum Laude)*.
- 2011–2016 **Integrated Masters in Informatics and Computing Engineering — MIEIC (BSc + MSc)**
Faculty of Engineering, University of Porto, *GPA: 15 out of 20*.
- 2008–2011 **Elementary School — Sciences and Technologies**
Externato de Vila Meã, Porto, Portugal, *GPA: 17 out of 20*.

Teaching

Informatics and Computing Engineering¹

			17/18	18/19	19/20	20/21	21/22	22/23	23/24
	Year	ECTS	Classes						
Object Oriented Programming Lab	2	6	-	1	-	-	-	-	-
Operating Systems	2	6	2	1	2	2	2	-	-
Software Engineering	3	6	-	-	-	1	-	-	-
Software Development Lab	4	7.5	-	1	-	-	-	-	-
Software Systems Architecture	4	6	-	1	-	-	-	-	-
Web Languages and Technologies	2	6	-	-	-	-	2	2	2
Large Scale Software Development	2	6	-	-	-	-	-	2	2

Publications

Since 2017 I have (co-)authored **25 articles in conferences with scientific referee** and **8 articles in refereed periodics**. In total, these **31 publications** have attracted over **955 citations**, resulting in an **h-index of 20** and **i10-index of 25**².

PEER-REVIEWED JOURNALS

8. Eduardo Ribeiro, A. Restivo, H. S. Ferreira, and J. P. Dias. "WASMICO: Micro-containers in micro-controllers with WebAssembly". In: *Journal of Systems and Software* 214 (2024), p. 112081. ISSN: 0164-1212. DOI: [10.1016/j.jss.2024.112081](https://doi.org/10.1016/j.jss.2024.112081)
7. J. P. Dias B. Piedade and F. F. Correia. "Visual Notations in Container Orchestrations: An Empirical Study with Docker Compose". In: *Software and Systems Modeling* (2022). ISSN: 1619-1374. DOI: [10.1007/s10270-022-01027-8](https://doi.org/10.1007/s10270-022-01027-8)
6. J. P. Dias, A. Restivo, and H. S. Ferreira. "Designing and Constructing Internet-of-Things Systems: An Overview of the Ecosystem". In: *Internet of Things* (2022). ISSN: 2542-6605. DOI: [10.1016/j.iot.2022.100529](https://doi.org/10.1016/j.iot.2022.100529)
5. D. Reis, B. Piedade, F. F. Correia, J. P. Dias, and A. Aguiar. "Developing Docker and Docker-Compose Specifications: A Developers Survey". In: *IEEE Access* (2021), pp. 1-1. DOI: [10.1109/ACCESS.2021.3137671](https://doi.org/10.1109/ACCESS.2021.3137671)
4. A. S. Lago, J. P. Dias, and H. S. Ferreira. "Managing non-trivial internet-of-things systems with conversational assistants: A prototype and a feasibility experiment". In: *Journal of Computational Science* 51 (2021), p. 101324. ISSN: 1877-7503. DOI: [10.1016/j.jocs.2021.101324](https://doi.org/10.1016/j.jocs.2021.101324)
3. P. Lourenço, J. P. Dias, A. Aguiar, H. S. Ferreira, and A. Restivo. "Experimenting with Liveness in Cloud Infrastructure Management". In: *Communications in Computer and Information Science* 1172 (2020). ISSN: 1865-0929. DOI: [10.1007/978-3-030-40223-5_4](https://doi.org/10.1007/978-3-030-40223-5_4)

¹Integrated Master up until 2020/2021, Bachelor with optional Master degree after.

²Citations and indexes were obtained by using Google Scholar, ID: [sQ2vKIoAAAAJ](https://scholar.google.com/citations?hl=pt&user=sQ2vKIoAAAAJ), on 17 July, 2025

2. D. Amaral, G. Domingues, J. P. Dias, H. S. Ferreira, A. Aguiar, R. Nóbrega, and F. F. Correia. "Live Software Development Environment using Virtual Reality: a Prototype and Experiment". In: *Communications in Computer and Information Science* 1172 (2020). ISSN: 1865-0929. DOI: [10.1007/978-3-030-40223-5_5](https://doi.org/10.1007/978-3-030-40223-5_5)
1. J. P. Dias, Â. Martins, and H. S. Ferreira. "A Blockchain-based Approach for Access Control in eHealth Scenarios". In: *Journal of Information Assurance and Security* 13 (4 2018), pp. 125–136. ISSN: 1554-1010

PEER-REVIEWED CONFERENCE PROCEEDINGS

25. T. Fragoso, D. Silva, J. P. Dias, A. Restivo, and H. S. Ferreira. "SIMoT: A Low-fidelity Orchestrator Simulator for Task Allocation in IoT Devices". In: *1st Int. Workshop on Verification & Validation of Dependable Cyber-Physical Systems part of the 53rd Annual IEEE/IFIP Int. Conf. on Dependable Systems and Networks*. IEEE, 2023. DOI: [10.1109/DSN-W58399.2023.00070](https://doi.org/10.1109/DSN-W58399.2023.00070)
24. M. Duarte, J. P. Dias, A. Restivo, and H. S. Ferreira. "Evaluation of IoT Self-healing Mechanisms using Fault-Injection in Message Brokers". In: *2022 IEEE/ACM 4th Int. Workshop on Software Engineering Research Practices for the Internet of Things (SERP4IoT)*. 2022. DOI: [10.1145/3528227.3528567](https://doi.org/10.1145/3528227.3528567)
23. J. P. Dias, A. Restivo, and H. S. Ferreira. "Empowering Visual Internet-of-Things Mashups with Self-Healing Capabilities". In: *2021 IEEE/ACM 3rd Int. Workshop on Software Engineering Research Practices for the Internet of Things (SERP4IoT)*. 2021. DOI: [10.1109/SERP4IoT52556.2021.00014](https://doi.org/10.1109/SERP4IoT52556.2021.00014)
22. D. Soares, J. P. Dias, A. Restivo, and H. S. Ferreira. "Programming IoT-spaces: A User-Survey on Home Automation Rules". In: *Proc. of the 21st Int. Conf. on Computational Science (ICCS)*. Springer, 2021. DOI: [10.1007/978-3-030-77970-2_39](https://doi.org/10.1007/978-3-030-77970-2_39)
21. Margarida Silva, J. P. Dias, A. Restivo, and H. S. Ferreira. "A Review on Visual Programming for Distributed Computation in IoT". in: *Proc. of the 21st Int. Conf. on Computational Science (ICCS)*. Springer, 2021. DOI: [10.1007/978-3-030-77970-2_34](https://doi.org/10.1007/978-3-030-77970-2_34)
20. M. Silva, J. P. Dias, A. Restivo, and H. S. Ferreira. "Visually-defined Real-Time Orchestration of IoT Systems". In: *Proc. of the 17th Int. Conf. on Mobile and Ubiquitous Systems: Computing, Networking and Services*. MOBIQUITOUS 2020. Online: Association for Computing Machinery, 2020. DOI: [10.1145/3448891.3448938](https://doi.org/10.1145/3448891.3448938)
19. J. P. Dias, T. B. Sousa, A. Restivo, and H. S. Ferreira. "A Pattern-Language for Self-Healing Internet-of-Things Systems". In: *Proc. of the 25th European Conf. on Pattern Languages of Programs*. EuroPlop 20. Irsee, Germany: Association for Computing Machinery, 2020. DOI: [10.1145/3361149.3361165](https://doi.org/10.1145/3361149.3361165)
18. D. Torres, J. P. Dias, A. Restivo, and H. S. Ferreira. "Real-time Feedback in Node-RED for IoT Development: An Empirical Study". In: *2020 IEEE/ACM 24th Int. Symposium on Distributed Simulation and Real Time Applications (DS-RT)*. 2020, pp. 1–8. DOI: [10.1109/DS-RT50469.2020.9213544](https://doi.org/10.1109/DS-RT50469.2020.9213544)
17. B. Piedade, J. P. Dias, and F. F. Correia. "An Empirical Study on Visual Programming Docker Compose Configurations". In: *Proc. of the 23rd ACM/IEEE Int. Conf. on Model Driven Engineering Languages and Systems: Companion Proc. MODELS '20*. Virtual Event, Canada: Association for Computing Machinery, 2020. ISBN: 9781450381352. DOI: [10.1145/3417990.3420194](https://doi.org/10.1145/3417990.3420194)
16. J. P. Dias, B. Lima, J. Pascoal Faria, A. Restivo, and H. S. Ferreira. "Visual Self-Healing Modelling for Reliable Internet-of-Things Systems". In: *Proc. of the 20th Int. Conf. on Computational Science (ICCS)*. Springer, 2020, pp. 27–36. DOI: [10.1007/978-3-030-50426-7_27](https://doi.org/10.1007/978-3-030-50426-7_27)
15. J. P. Dias, A. Lago, and H. S. Ferreira. "Conversational Interface for Managing Non-Trivial Internet-of-Things Systems". In: *Proc. of the 20th Int. Conf. on Computational Science (ICCS)*. Springer, 2020,

- pp. 27–36. DOI: [10.1007/978-3-030-50426-7_29](https://doi.org/10.1007/978-3-030-50426-7_29)
14. J. P. Dias, H. S. Ferreira, and Tiago Boldt Sousa. “Testing and Deployment Patterns for the Internet-of-Things”. In: *Proc. of the 24th European Conf. on Pattern Languages of Programs*. EuroPLop 19. Isee, Germany: Association for Computing Machinery, 2019. ISBN: 9781450362061. DOI: [10.1145/3361149.3361165](https://doi.org/10.1145/3361149.3361165)
 13. A. Aguiar, A. Restivo, F. F. Correia, H. S. Ferreira, and J. P. Dias. “Live Software Development: Tightening the Feedback Loops”. In: *Proc. of the Conf. Companion of the 3rd Int. Conf. on Art, Science, and Engineering of Programming*. Programming ’19. Genova, Italy: ACM, 2019, 22:1–22:6. ISBN: 978-1-4503-6257-3. DOI: [10.1145/3328433.3328456](https://doi.org/10.1145/3328433.3328456)
 12. P. Lourenço, J. P. Dias, A. Aguiar, and H. S. Ferreira. “CloudCity: A Live Environment for the Management of Cloud Infrastructures”. In: *Proc. of the 14th Int. Conf. on Evaluation of Novel Approaches to Software Engineering — Volume 1: ENASE*. INSTICC. SciTePress, 2019, pp. 27–36. ISBN: 978-989-758-375-9. DOI: [10.5220/0007699700270036](https://doi.org/10.5220/0007699700270036)
 11. D. Amaral, G. Domingues, J. P. Dias, H. S. Ferreira, A. Aguiar, and R. Nóbrega. “Live Software Development Environment for Java using Virtual Reality”. In: *Proc. of the 14th Int. Conf. on Evaluation of Novel Approaches to Software Engineering — Volume 1: ENASE*. INSTICC. SciTePress, 2019, pp. 37–46. ISBN: 978-989-758-375-9. DOI: [10.5220/0007699800370046](https://doi.org/10.5220/0007699800370046)
 10. D. Pinto, João P. Dias, and H. S. Ferreira. “Dynamic Allocation of Serverless Functions in IoT Environments”. In: *2018 IEEE 16th Int. Conf. on Embedded and Ubiquitous Computing (EUC)*. Oct. 2018, pp. 1–8. DOI: [10.1109/EUC.2018.00008](https://doi.org/10.1109/EUC.2018.00008)
 9. João P. Dias, F. Couto, A. C. R. Paiva, and H. S. Ferreira. “A Brief Overview of Existing Tools for Testing the Internet-of-Things”. In: *2018 IEEE Int. Conf. on Software Testing, Verification and Validation Workshops (ICSTW)*. Apr. 2018, pp. 104–109. DOI: [10.1109/ICSTW.2018.00035](https://doi.org/10.1109/ICSTW.2018.00035)
 8. João P. Dias, J. P. Faria, and H. S. Ferreira. “A Reactive and Model-Based Approach for Developing Internet-of-Things Systems”. In: *2018 11th Int. Conf. on the Quality of Information and Communications Technology (QUATIC)*. Sept. 2018, pp. 276–281. DOI: [10.1109/QUATIC.2018.00049](https://doi.org/10.1109/QUATIC.2018.00049)
 7. José P. Pinto, João P. Dias, and R. J. F. Rossetti. “Growing Smart Cities on an Open-Data-Centric Cyber-Physical Platform”. In: *2018 IEEE Int. Smart Cities Conf. (ISC2)*. Sept. 2018, pp. 1–6. DOI: [10.1109/ISC2.2018.8656989](https://doi.org/10.1109/ISC2.2018.8656989)
 6. João P. Dias, H. S. Ferreira, and Â. Martins. “A Blockchain-Based Scheme for Access Control in e-Health Scenarios”. In: *Proc. of the Tenth Int. Conf. on Soft Computing and Pattern Recognition (SoCPaR 2018)*. Ed. by Ana Maria Madureira, Ajith Abraham, Niketa Gandhi, Catarina Silva, and Mário Antunes. Cham: Springer Int. Publishing, 2020, pp. 238–247. ISBN: 978-3-030-17065-3. DOI: [10.1007/978-3-030-17065-3_24](https://doi.org/10.1007/978-3-030-17065-3_24)
 5. Guilherme Vieira Pinto, João P. Dias, and Hugo Sereno Ferreira. “Blockchain-Based PKI for Crowdsourced IoT Sensor Information”. In: *Proc. of the Tenth Int. Conf. on Soft Computing and Pattern Recognition (SoCPaR 2018)*. Ed. by Ana Maria Madureira, Ajith Abraham, Niketa Gandhi, Catarina Silva, and Mário Antunes. Cham: Springer Int. Publishing, 2020, pp. 248–257. DOI: [10.1007/978-3-030-17065-3_25](https://doi.org/10.1007/978-3-030-17065-3_25)
 4. Antonio Ramadas, Gil Domingues, J. P. Dias, A. Aguiar, and H. S. Ferreira. “Patterns for Things that Fail”. In: *Proc. of the 24th Conf. on Pattern Languages of Programs*. PLoP ’17. ACM - Association for Computing Machinery, 2017
 3. J. P. Dias, J. P. Pinto, and J. M. Cruz. “A Hands-on Approach on Botnets for Behavior Exploration”.

- In: *Proc. of the 2nd Int. Conf. on Internet of Things, Big Data and Security*. SCITEPRESS - Science and Technology Publications, 2017, pp. 463–469. ISBN: 978-989-758-245-5. DOI: [10.5220/0006392404630469](https://doi.org/10.5220/0006392404630469)
2. Duarte Duarte, H. S. Ferreira, João P. Dias, and Zafeiris Kokkinogenis. “Towards a Framework for Agent-Based Simulation of User behavior in E-Commerce Context”. In: *Trends in Cyber-Physical Multi-Agent Systems. The PAAMS Collection - 15th Int. Conf., PAAMS 2017*. Cham: Springer Int. Publishing, 2018, pp. 30–38. ISBN: 978-3-319-61578-3. DOI: [10.1007/978-3-319-61578-3_3](https://doi.org/10.1007/978-3-319-61578-3_3)
 1. J. P. Dias and H. S. Ferreira. “Automating the Extraction of Static Content and Dynamic behavior from e-Commerce Websites”. In: *Procedia Computer Science* 109 (2017). 8th Int. Conf. on Ambient Systems, Networks and Technologies, ANT-2017 and the 7th Int. Conf. on Sustainable Energy Information Technology, SEIT 2017, 16-19 May 2017, Madeira, Portugal, pp. 297–304. ISSN: 1877-0509. DOI: [10.1016/j.procs.2017.05.355](https://doi.org/10.1016/j.procs.2017.05.355)

INFORMAL PUBLICATIONS & OTHERS

4. B. Piedade, David Reis, J. P. Dias, F. Correia, and A. Aguiar. “Container and Orchestration Specifications: A Survey on Current Practices and Challenges”. Onsite Research Track. 2020. URL: <https://www.agilealliance.org/xp2020/xp-2020-online-program/onsite-research-track/>
3. Filipa Barros, Luis Sousa, J. P. Dias, and H. S. Ferreira. “A Preliminary Study on Mesh Networks and IoT”. in: *Book of Abstracts of the 11th Meeting of Young Researchers of University of Porto (IJUP 2018)* (2018)
2. J. P. Dias and H. S. Ferreira. “Automating the Extraction of Static Content and Dynamic behavior from e-Commerce Websites”. In: *Book of Abstracts of the 10th Meeting of Young Researchers of University of Porto (IJUP 2017)* (2017)
1. J. P. Dias, José P. Pinto, and José Magalhães Cruz. “A hands-on approach on botnets for a learning purpose”. In: *Book of Abstracts of the 9th Meeting of Young Researchers of University of Porto (IJUP 2016)* (2016)

PREPRINTS

1. Andreia Rodrigues, Jose P. Silva, J. P. Dias, and H. S. Ferreira. “Multi-Approach Debugging of Industrial IoT Workflows”. In: *CoRR abs/2009.05828* (2020). arXiv: [2009.05828](https://arxiv.org/abs/2009.05828). URL: <https://arxiv.org/abs/2009.05828>

DISSERTATIONS

- 2022 J. P. Dias. “Increasing the Dependability of Internet-of-Things Systems in the context of End-User Development Environments”. Doctoral Thesis, Faculty of Engineering, University of Porto, Supervised by H. S. Ferreira and J. Pascoal Faria. 2022. URL: <http://hdl.handle.net/10216/140853>
- 2016 J. P. Dias. “Reverse Engineering Static Content and Dynamic behavior of E-Commerce Sites for Fun and Profit”. Master’s Dissertation, Faculty of Engineering, University of Porto, Supervised by H. S. Ferreira. 2016. URL: <http://hdl.handle.net/10216/85374>

Educational Activities

Since 2016, I have been (co-)supervisor of +15 **M.Sc. dissertations** and of +5 **B.Sc. capstone projects**. Most of my (co)supervisions consist of students of the Informatics and Computation Engineering degree by Faculty of Engineering, University of Porto, with several collaborations with colleagues as the

main or co-supervisor. Most of these supervisions are pursued in an academic context (*i.e.*, within the institution that confers the degree). Others took place at companies/external institutions, including: Critical Manufacturing, Smartex.ai, DevScope, Kühne + Nagel, and BUILT CoLAB.

MASTER'S DISSERTATION SUPERVISIONS

16. *Attack Framework for Event-driven Architectures based on Kafka* (Kühne + Nagel) by Nuno Pereira (2024–2025). Main supervisor: André Restivo, PhD. FEUP.
15. *Automated FinOps for Cloud Infrastructure Cost Management* (Kühne + Nagel) by Guilherme Almeida (2024–2025). Main supervisor: André Restivo, PhD. FEUP.
14. *Distributed FinOps: Allocate Infrastructure Costs Across Teams for Centralized Services* (Kühne + Nagel) by João Moreira (2024–2025). Main supervisor: André Restivo, PhD. FEUP.
13. *Incremental Load Test on Event-Driven Architectures with Structured Data* (Kühne + Nagel) by Ângela Coelho (2023–2024). Co-supervisor: António Sernadas, MSc (Kühne + Nagel). FEUP.
12. *AsyncAPI-First Design for Event-Driven Architectures: Improve Developer Experience* (Kühne + Nagel) by José Silva (2023–2024). Co-supervisor: António Sernadas, MSc (Kühne + Nagel). FEUP.
11. *Adopting Continuous Deployment of WebAssembly Applications in Internet-of-Things Systems* by Joel Fernandes (2023–2024). Co-supervisor: André Restivo, PhD. FEUP.
10. *Leveraging Context-awareness in IoT Systems: An Approach with Voice Assistants* by Daniel Gonçalves (2022–2023). Co-supervisor: André Restivo, PhD. FEUP.
9. *Adopting Containers in Microcontrollers for the IoT* by Xavier Pisco (2022–2023). Co-supervisor: André Restivo, PhD. FEUP.
8. *Privacy-aware Rule Conflict Prediction in Home Automation* by Pedro Ponte (2022–2023). Main-supervisor: André Restivo, PhD. FEUP.
7. *Micro-containerization in Microcontrollers for the IoT* by Eduardo Ribeiro (2021–2022). *ref.: 10216/142728*. Co-supervisor: Hugo S. Ferreira, PhD. FEUP.
6. *MQTT Chaos Engineering for Self-Healing IoT Systems* by Miguel Duarte (2020–2021), *ref.: 10216/135470*. Main supervisor: André Restivo, PhD. FEUP.
5. *Visual Programming Language for Orchestration with Docker* by Bruno Piedade (2019–2020), *ref.: 10216/128974*. Main supervisor: Filipe Correia, PhD. FEUP.
4. *Implementing a Multi-Approach Debugging of Industrial IoT Workflows Critical Manufacturing* by Andreia Rodrigues (2018–2019), *ref.: 10216/122773*. Main supervisor: Hugo S. Ferreira, PhD. FEUP.
3. *Dynamic Allocation of Serverless Functions in IoT Environments* by Duarte Pinto (2017–2018), *ref.: 10216/114149*. Main supervisor: Hugo S. Ferreira, PhD. FEUP.
2. *Blockchain as a PKI for Ownership Control of IoT Devices* by Guilherme Pinto (2017–2018), *ref.: 10216/114144*. Main supervisor: Hugo S. Ferreira, PhD. FEUP.
1. *Interoperability In Software Applications For Smart Cities: Towards A Reference Architecture* by José Pedro Pinto (2016–2017), *ref.: 10216/107529*. Main supervisor: Rosaldo Rossetti, PhD. FEUP.

BACHELOR'S CAPSTONE PROJECT SUPERVISIONS

7. *IoT-based Real-Time Helpdesk Occupation Status V2.0*. Co-supervisor: João Paiva Cardoso. André Costa, Fábio Sá, Lourenço Gonçalves, Marcos Pinto. *Group Project* (2022–2023). FEUP.

6. *Hardware Simulation to Assist Software Development for the Textile Industry*. Sérgio Estêvão, *Individual Internship* at **Smartex.ai** (2021–2022). FEUP.
5. *Research Project Management as Scrum Master in the DevScope Academy*. João Baltazar, *Individual Internship* at **DevScope** (2021–2022). FEUP.
4. *Multi-purpose License Manager*. Daniel Gonçalves, Isla Cassamo, André Malheiro, *Group Project* in collaboration with **BUILT CoLAB** (2021–2022). FEUP.
3. *IoT-based Real-Time Helpdesk Occupation Status*. Main supervisor: João P. Cardoso, PhD. João Pinho, Pedro Santos, Tiago Gonçalves, Diogo Vale, *Group Project* (2021–2022). FEUP.
2. *IoT-enhanced HMI — Embedded Mouse*. Main supervisor: Pedro Diniz, PhD. Bruno Mendes, José Costa, David Preda, Fernando Rego, *Group Project* (2021–2022). FEUP.
1. *Ubiquitous Sensing — Sensing, Storing and Processing Plant Sensor Data*. Main supervisor: Pedro Diniz, PhD. Nuno Alves, Miguel Amorim, Mário Travassos, Ricardo Ferreira, *Group Project* (2021–2022). FEUP.

Invited Talks, Presentations & Workshops

Slides and abstracts for most of the presentations are available at jpdias.me/talks.

- 2024 “Patterns in Software: From Alexanders Architecture Patterns to Pattern Languages and Beyond”. Kuehne+Nagel Porto IT Hub DevOps Community. 2024
 “Securing the Cloud: Principles, Patterns, and Tales from the Battlefield”. Kuehne+Nagel Porto IT Hub DevOps Community. 2024
- 2023 “AsyncAPI For Platform Self-Service: A GitOps Tale”. AsyncAPI on Tour Conf., Paris Edition / API-Days Paris – “Software and APIs for Smart, Sustainable and Sovereign Societies”. 2023. URL: <https://www.apidays.global/paris/>
 “How to make buildings intelligent in a sustainable, affordable and scalable way”. Energy Efficient Buildings Workshop by PTPC Energy Efficient Buildings Committee. 2023. URL: <https://www.ptpc.pt/en/home-en/>
 “The S in IoT stands for Security: An overview on the Devices, Protocols, Architectures, and Security Threats of the Internet-of-Things Ecosystem”. “Project and Seminars” of the Information Security, Cybersecurity and Privacy Postgraduate Course at Instituto Superior de Engenharia do Porto (ISEP). 2023. URL: <https://isep.ipp.pt/Course/Course/464>
- 2021 “Internet-of-cheap-Things: A Beginners Guide to the Internet and ESP8266 (Workshop)”. Semana de Informática (SINF), NIAEFEUP, FEUP. 2021. URL: <https://www.sinf.pt/>
 “Internet-of-Things: Surviving the Chaos by Expecting It”. Update 2021, NuCC, FCUP (Online). 2021. URL: <https://nucc.dcc.fc.up.pt/update2021/>
- 2020 “From the Cloud to the Fog and the Mist: A Workshop on the Internet-of-Things (Workshop)”. EU Code Week 2020 by IEEE UP Student Branch (Local Organizer). 2020. URL: <https://codeweek.eu/>
- 2019 “Internet-of-broken-Things: A highly-opinionated overview”. oxOPOSEC Meetup. 2019. URL: <https://www.meetup.com/0xOPOSEC/>
 “Unravelling the Web of Things: Exploring Mozilla Things Framework (Workshop)”. Pixels Camp v3.0 by Bright Pixel. 2019. URL: <https://pixels.camp>
- 2017 “PiHeadquarters or How to Take Control of your House with Raspberry Pi and Docker (Workshop)”.

- Pixels Camp v2.0 by Bright Pixel. 2017. URL: <https://pixels.camp>
- 2016 “A hands-on approach on botnets for a learning purpose”. oxOPOSEC Meetup. 2016. URL: <https://www.meetup.com/0xOPOSEC/>
- 2015 “How To Create Your First Personal Webpage”. ShARE World Seminar 2015 – “Europe vs. Asia: Grass Is Always Greener On The Other Side”. 2015. URL: <http://www.share-share.org/world-seminar/>

Academic Service & Affiliations

Since 2017, I have participated as a reviewer³ in **7 periodicals** and **7 international conferences**. I have also been a member of **11 11 committees** of international and national conferences and I have been a volunteer at 3 different scientific events.

MEMBER OF COMMITTEES

- 2023 **Program Committee Member**, ICSOFT — International Conference on Software Technologies, 18th Edition
- Organizing Committee**, 5th International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT 2023), co-located with the 44th ACM/IEEE International Conference on Software Engineering (ICSE 2023)
- 2022 **Publicity Chair**, 4th International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT 2022), co-located with the 44th ACM/IEEE International Conference on Software Engineering (ICSE 2022)
- 2019 **Track Co-Chair**, Symposium on Informatics Engineering, part of the 3rd Doctoral Congress Engineering (DCE19), Faculty of Engineering, University of Porto
- Program Committee Member**, Talk a Bit — Student Organized Tech Conference, 7th Edition
- 2018 **Makerspace Chair**, 19th International Conference on Agile Software Development (XP 2018)
- Conference Organization Chair**, 13th Doctoral Symposium in Informatics Engineering (DSIE'18)
- Advisor Board Member**, Talk a Bit — Student Organized Tech Conference, 6th Edition
- 2017 **Program Committee Member**, 2017 IEEE 1st Summer School on Smart Cities (IEEE S3C 2017)
- Web Communication Co-chair**, The Second ACM International Workshop on Smart, Autonomous, and Connected Vehicular Systems and Services (ACM CarSys 2017), part of The 23rd Annual International Conference on Mobile Computing and Networking (MobiCom 2017)
- Advisor Board Member**, Talk a Bit — Student Organized Tech Conference, 5th Edition (2017)
- 2016 **Conference Chair**, Talk a Bit — Student Organized Tech Conference, 4th Edition (2016)
- Web Communication Co-chair**, 2016 IEEE 19th International Conference on Intelligent Transportation Systems (ITSC 2016)

AFFILIATIONS

- 2017– **Institute for Systems and Technologies of Information, Control and Communication (INSTICC).**

³All reviews are verified on Web of Science: [wos/O-4128-2018](https://www.webofscience.com/wos/O-4128-2018).

- 2017–2023 **Software Engineering Group** in the Department of Informatics Engineering, Faculty of Engineering, University of Porto.
- 2019–2020 **Association for Computing Machinery (ACM)**, Student Membership.
- 2013–2018 **Institute of Electrical and Electronics Engineers (IEEE)**, Student Membership as part of the University of Porto Student Branch (IEEE UP SB).

REVIEWER ACTIVITY

Reviewer for International Conferences	
IEEE International Smart Cities Conference 2021 (ISC2 2021)	1
IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2019)	1
IEEE Intelligent Vehicles Symposium (IV 2017)	1
IEEE Summer School on Smart Cities (S3C 2017)	3
IEEE 20 th International Conference on Intelligent Transportation Systems (ITSC 2017)	2
AIIPCC 2 nd International Conference on AI, Information Processing and Cloud Computing (AIIPCC 2021)	1
CSAE 4 th International Conference on Computer Science and Application Engineering (CSAE 2020)	1

Table 1: Reviewer for International Conferences

Reviewer for Scientific Journals	
ACM Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies	1
IEEE Access	1
IEEE Internet of Things Journal	1
Elsevier Journal of Information Security and Applications	4
Springer Soft Computing	1
Springer Journal of Grid Computing	1
Taylor and Francis Journal of Experimental & Theoretical Artificial Intelligence	1
Taylor and Francis International Journal of Human-Computer Interaction	1
MDPI Journal of Cybersecurity and Privacy	1
MDPI Electronics	1
MDPI Symmetry	1
Oxford Interacting with Computers: Interdisciplinary Journal of Human-Computer Interaction	1
ITB Journal of ICT Research and Applications	1

Table 2: Reviewer for Scientific Journals

VOLUNTEER ACTIVITIES

- 2017 **Student Volunteer (Media Coverage)**, 18th EPIA Conference on Artificial Intelligence (EPIA 2017), Porto, Portugal
- 2014 **Student Volunteer**, Inter-University Programming Marathon (MIUP 2014), Porto, Portugal
- Student Volunteer**, INForum - Symposium on Informatics (INForum 2014), Porto, Portugal

Grants, Honors & Awards

GRANTS

- 2019–2021 **PhD Scholarship**, by FCT — Fundação para a Ciência e a Tecnologia (Portuguese Foundation for Science and Technology), *ref.* SFRH/BD/144612/2019, 2 years.
- 2017–2018 **NanoSTIMA — Macro-to-Nano Human Sensing: Towards Integrated Multimodal Health Monitoring and Analytics** at INESC TEC, *ref.* NORTE-01-0145-FEDER-000016, 12 months, nanos-tima.inesctec.pt
- 2016–2017 **PEDDIR DEMO: Weight in Motion and Wheels Defect Detection (Sistema de Pesagem Dinâmica e Detecção de Irregularidades dos Rodados)** at LIACC, *ref.* NORTE-01-0247-FEDER-006397, 6 months, peddir.eu

INTERNATIONAL HONORS & AWARDS

- 2017 **427th (of 3350)**, IEEEExtreme — 24h Programming Competition 11.0, ieee.org/xtreme (Online)
- 847th (of 2815)**, Google Hash Code 2017, hashcode.withgoogle.com (Online)
- 2015 **189th (of 2477)**, IEEEExtreme — 24h Programming Competition 9.0, ieee.org/xtreme (Online)
- 2014 **Honorable Mention**, IEEEemadC — IEEE Mobile Application Dev. Contest, ieeemadc.org (Online)
- 2013 **126th (of 2570)**, IEEEExtreme — 24h Programming Competition 7.0, ieee.org/xtreme (Online)
- 2nd Place** at European Final (1st at Local and National rounds), European BEST Engineering Competition, ebec.best.eu.org, Warsaw, Poland.

DOMESTIC HONORS & AWARDS

- 2024 **Pedagogical Merit Award**, Faculty of Engineering, University of Porto, fe.up.pt/diafeup/2025, Porto, Portugal
- 2022 **11th (of 109 Participants)**, Portuguese Cybersecurity Competition by hackrocks, cyberpt.hackrocks.com. Online (Portugal).
- 2021 **7th (of 372 Teams)**, Portuguese Stage of the 2021 MetaRed CTF Championship by RCTS-FCCN (FCT Portugal) and Metared, cert.rcts.pt. Online (Portugal).
- 2020 **6th (of 51 Teams)**, CIBER PERSEU 2020 Portuguese Army Exercise — Capture The Flag component by iHackLabs & exercito.pt. Online (Portugal).
- 9th (of 209 Teams)**, Portuguese Stage of the 2020 MetaRed CTF Championship by RCTS-FCCN (FCT Portugal) and Metared, cert.rcts.pt. Online (Portugal).
- 3th (of 6 Teams)**, Capture The Flag by BSidesPorto, bsidesporto.com. Online (Portugal).
- 2018 **6th (of 31 Participants)**, CIBER PERSEU 2018 Portuguese Army Exercise — Capture The Flag component by [diateam](https://diateam.pt) & exercito.pt. Portuguese Military Academy, Lisbon, Portugal.
- 2011 **1st Place**, PmatE Mat12 — Mathematics Competition, pmate.ua.pt. University of Aveiro, Portugal.
- 2009 **2nd Place**, PmatE Fis12 — Physics Competition, pmate.ua.pt. University of Aveiro, Portugal.

Additional Training

- 2024 **Terraform Associate (003)** by HashiCorp Certified (Online with Proctored Exam)

- 2022 **Redis Certified Developer**, with completion of the modules *Introduction to Redis Data Structures* (RU101), *Redis Streams* (RU202), *Redis Security* (RU330), by Redis University (Online)
- 2020 **Introduction to Reverse Engineering with Ghidra** by Matthew Alt of Voidstar Security, 4-hours training, Hackaday-U (Online)
- Autopsy Basics and Hands On** by Brian Carrier, 8-hours training, Basis Technology Corp. (Online)
- Practical Ethical Hacking - The Complete Course** by Heath Adams, 24.5-hours training, TCM Security, Inc., Udemy (Online)
- Python for Penetration Testers** by Cristi Zot, 2-hours training, Udemy (Online)
- 2018 **1st UPTEC School on the Future of Computing**, 1-week training, UPTEC Science and Technology Park of University of Porto
- 2017 **CyberTalk: Security - Business Enablement**, 4-hours training, Multicert Electronic Certification Services, S.A.
- Project Management**, 12-hours training, ERASMUS+ Mobility for teaching at Faculty of Engineering, University of Porto
- 2016 **AWS Technical Essentials Online**, 1-day training, Amazon Web Services Training and Certification
- 2015 **Practical Workshop in Agile Project Management**, 4-hours training, Strongstep - Innovation in Software Quality
- CERN Spring Campus**, 1-week training, CERN - European Organization for Nuclear Research
- 2014 **M101JS: MongoDB for Node.js Developers**, 25-hours training, MongoDB University (Online)

Pro-Bono & Other Activities

ACADEMIC

- 2013–2015 **Executive Committee Member (Secretary)**, IEEE University of Porto Student Branch
Organization of several technical workshops and other events including *IEEE Day*, *IEEEExtreme* and *IEEEmadC*.

HUMANITARIAN

- 2013–2015 **Founder Member**, *Luz da Vida* Youth Group
Organization of activities on behalf of the village community (Travanca, Amarante, Portugal).

HOBBIES

- 2016–2017 **Football Player**, Grupo Desportivo e Recreativo de Travanca
F.A.D.A. Amateur League, Amarante, Porto, Portugal
- 2008— **Amateur Photographer** — Wildlife, Landscapes and Travel
- Winner of the contest "2nd Photography Contest — Earth Week at FEUP 2024", promoted by Faculty of Engineering, University of Porto, fe.up.pt/20-concurso-de-fotografia-semana-da-terra-na-feup-2024, 2024
- Winner of the quest *Landscapes from Above*, promoted by 500px, 500px.com/quests/1000000106, 2020
- One of the 50 best pictures of #MySocialEurope photo competition - *How should the Future of social Europe look like?*, promoted by the European Commission, 2019

- *Finalist at the Norte Multimédia Contest - Photography Category*, promoted by the Norte Portugal Regional Coordination and Development Commission (CCDR-N), exposed at Trindade Metro Station (Porto), 2018
- *Finalist at the PORTUGAL NUM ISQUEIRO BIC Contest*, promoted by the I Love My BIC initiative by BIC Portugal, 2018
- *Exposition at Movimento d'Artes*, promoted by the Cooperativa Cultural Vinha das Artes, 2010

Languages

Portuguese	Native
English	B Level (Self-Evaluation)