
CURRICULUM VITAE

Pedro Miguel Salgueiro dos Santos

January 16, 2024

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Personal Information

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Habilitations	Ph.D in Electrical and Computer Engineering, University of Porto, May 2017 B.Sc./M.Sc. in Electrical and Computer Engineering, University of Porto, July 2009
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Scopus	https://www.scopus.com/authid/detail.uri?authorId=57195194993
Google Scholar	https://scholar.google.pt/citations?user=PWGti5IAAAAJ
Web of Science ResearcherID	AAJ-7540-2020 - https://publons.com/researcher/3062034/pedro-m-santos/
Ciencia Vitae	9F14-3CD7-F5DE - https://www.cienciavitae.pt/pt/9F14-3CD7-F5DE
Research Gate	https://www.researchgate.net/profile/Pedro_Santos70

Chapter 1

Introduction

This document serves as a curriculum vitae of the competences, activities and achievements of scientific, pedagogic and of other nature of Pedro Miguel Salgueiro dos Santos, Ph.D. in Electrical and Computer Engineering by the Universidade do Porto, Portugal, assistant researcher at the Research Centre in Embedded and Real-Time Computing Systems, Instituto Superior de Engenharia do Porto, and invited assistant lecturer at the Faculdade de Engenharia da Universidade do Porto, Portugal.

All documents authored by the candidate are available online via hyperlinks. Certificates for all mentioned positions and activities can be provided.

The following table maps the evaluation criteria of the call notice into sections of this document.

Evaluation Criteria	#
Atividades Técnico-Científicas e Profissionais (ATCP))	Chap.2
Produção científica (PC)	Sec.2.1
Coordenação e participação em projetos de investigação e desenvolvimento (PID)	Sec.2.2
Autonomia e liderança (AL)	Sec.2.3
Reconhecimento interpares (RIP)	Sec.2.4
Participação em unidades de investigação, sociedades científicas e suas comissões (PUI)	Sec.2.5
Atividade Pedagógica (AP)	Chap.3
Docência (D)	Sec.3.1
Orientação e júris académicos (O)	Sec.3.2
Inovação pedagógica (IP)	Sec.3.3
Materiais pedagógicos (MP)	Sec.3.4
Outros (OU)	Sec.3.5
Outras atividades relevantes para a missão da instituição (ARMI)	Chap.4
Participação em órgãos de gestão e em órgãos, comissões e grupos de trabalho de carácter técnico -científico, pedagógico ou profissional (POG)	Sec.4.1
Participação na organização de eventos de carácter técnico — científico e pedagógico (OE)	N/A
Dinamização de atividades de extensão à comunidade tais como divulgação de atividades de ID e de cursos para o Exterior (AEC)	Sec.4.2
Internacionalização das suas atividades na área para que é aberto o concurso (IA)	N/A

Chapter 2

Scientific Activity

2.1 Scientific Production

As per criterion PC of the call notice - Produção científica, publicações, comunicações em conferências
(Back to [mapping table](#))

2.1.1 Impact in Scientific and Academic Communities

1. Citation count (as of January 2024):

Scopus	Web of Science	Google Scholar
273 citations	144 citations	353 citations*

The procedures to obtain these values are explained in Appendix A, *Citation Count Procedure*.

2. Publications in WoS/Scopus indexed-journals, respective SCIMAGO Q1/Q2, and in CORE conferences: The table discriminates the number of publications that are: indexed by by WoS or Scopus; (ii) the highest categories of the CORE ranking; (iii) the 1st and 2nd quartiles of the SCIMAGO index.

Metric	Indexed Journals		SCIMAGO Quartiles		Conferences - CORE Rank		
Categories	Scopus	WoS	Q1	Q2	A*	A	B
# publications	8	9	5	5	1	1	3

2.1.2 Theses

San2017a: P. M. Santos. [Wireless Protocols and Channel Estimation for Data Gathering with Mobile Nodes](#). Ph.D. thesis, University of Porto, May 2017.

San2009: P. M. Santos. [Stereoscopic Hand-Detection System based on FPGA](#). Master thesis, University of Porto, July 2009.

Video of system in operation: <https://www.youtube.com/watch?v=2fsh8o-3cpQ>.

*Including self-citations

2.1.3 Articles in International Journals with Peer-Review

1. [San2023a] Miguel G. Gaitán, Luís Almeida, Pedro d'Orey, Pedro M. Santos, Thomas Watteyne. [Minimal-Overlap Centrality for Multi-Gateway Designation in Real-Time TSCH Networks](#). Accepted for publication at ACM Transactions on Embedded Computing Systems, June 2023.
SCIMAGO Quartile 2022 = 2nd (Hardware and Architecture; Software)
WoS Journal Citation Report 2021 Impact Factor = 1.886
2. [San2023b] Radha Reddy, Pedro Miguel Santos, Luís Almeida, Eduardo Tovar. [Synchronous Management of Mixed Traffic at Signalized Intersections towards Sustainable Road Transportation](#). IEEE Access, May 2023.
Scopus-indexed
SCIMAGO Quartile 2022 = 1st (Computer Science)
WoS Journal Citation Report 2021 Impact Factor = 3.476
3. [San2023c] Enio Filho, Pedro Miguel Santos, Ricardo Severino, Anis Koubâa, Eduardo Tovar. [Co-operative Vehicular Platooning: A Multi-Dimensional Survey Towards Enhanced Safety, Security and Validation](#). Taylor & Francis Cyber-Physical Systems, May 2023.
SCIMAGO Quartile 2022 = 2nd (Computational Mechanics)
4. [San2022a] Enio Filho, Ricardo Severino, Pedro Miguel Santos, Anis Koubâa, Eduardo Tovar. [Improving the Performance of Cooperative Platooning With Restricted Message Trigger Thresholds](#). IEEE Access, April 2022.
Scopus-indexed
SCIMAGO Quartile 2022 = 1st (Computer Science)
WoS Journal Citation Report 2021 Impact Factor = 3.476
5. [San2022b] Miguel G. Gaitán, Pedro d'Orey, José Cecílio, Marta Rodrigues, Pedro Miguel Santos, Luis Pinto, Anabela Oliveira, António Casimiro, Luís Almeida. [Modeling LoRa Communications in Estuaries for IoT Environmental Monitoring Systems](#). IEEE Sensors Journal, 2022.
Scopus-indexed
SCIMAGO Quartile 2022 = 2nd (Electrical and Electronic Engineering)
WoS Journal Citation Report 2021 Impact Factor = 4.325
6. [San2019a] Aqsa Aslam, Pedro M. Santos, Frederico Santos, Luís Almeida. [Empirical Performance Models of MAC Protocols for Cooperative Platooning Applications](#). MDPI Electronics, Open Access, 2019, Vol. 8, n.11, pp.1334, 12 November 2019.
Scopus-indexed
SCIMAGO Quartile 2022 = 2nd (Computer Networks and Communications)
WoS Journal Citation Report 2021 Impact Factor = 2.690

7. [San2018a] Pedro M. Santos, Leonid Kholkin, André Cardote, Ana Aguiar. *Context Classifier for Position-based User Access Control to Vehicular Hotspots*. Elsevier Computer Communications, March 2018.

[Scopus-indexed](#)

SCIMAGO Quartile 2022 = 1st (Computer Networks and Communications)

WoS Journal Citation Report 2021 Impact Factor = [5.047](#)

8. [San2018b] Pedro M. Santos, João G. P. Rodrigues, Susana B. Cruz, Tiago Lourenço, Pedro M. d'Orey, Yuniur Luis, Cristina Rocha, Susana Sousa, Sérgio Crisóstomo, Cristina Queirós, Susana Sargento, Ana Aguiar, João Barros. *PortoLivingLab: an IoT-based Sensing Platform for Smart Cities*. IEEE Internet-of-Things Journal, January 2018.

[Scopus-indexed](#)

SCIMAGO Quartile 2022 = 1st (Computer Science Applications)

WoS Journal Citation Report 2021 Impact Factor = [10.238](#)

9. [San2014] Pedro M. Santos, Traian E. Abrudan, Ana Aguiar, João Barros. *Impact of Position Errors on Path Loss Model Estimation for Device-to-Device Channels*. IEEE Transactions on Wireless Communications, Vol.13, No.5, pp.2353-2361, May 2014.

[Scopus-indexed](#)

SCIMAGO Quartile 2022 = 1st (Electrical and Electronic Engineering)

WoS Journal Citation Report 2021 Impact Factor = [8.346](#)

10. [San2013a] Pedro M. Santos, João Canas Ferreira, José Silva Matos. *Scalable Hardware Architecture for Disparity Map Computation and Object Location in Real-Time*. Journal of Real-Time Image Processing, Vol. 11, n.3, pp.473-485, Springer, March 2016 (first online on June 2013).

[Scopus-indexed](#)

SCIMAGO Quartile 2022 = 2nd (Information Systems)

WoS Journal Citation Report 2021 Impact Factor = [2.293](#)

2.1.4 Articles in International Conferences with Peer-Review

1. [San2023d] Pedro Vicente, Pedro M. Santos, Barikisu Asulba, Nuno Martins, Joana Sousa, Luis Almeida. *Comparing Performance of Machine Learning Tools across Computing Platforms*. In Proceedings of 18th Conference on Computer Science and Intelligence Systems (FedCSIS 2023), 18 September 2023, Warsaw, Poland.
2. [San2023e] J.M. Pinheiro, Ê.V. Filho, P.M. Santos, L. Almeida. *An ETSI ITS-enabled Robotic Scale Testbed for Network-Aided Safety-Critical Scenarios*. In Proceedings of Safety and Security of Intelligent Vehicles (SSIV) workshop, co-located with IEEE DSN 2023, 27 June 2023, Porto, Portugal.

3. [San2023f] J. Pereira, H. Kurunathan, E.V. Filho, P.M. Santos. [Edge-Aided V2X Collision Avoidance with Platoons Towards a Hybrid Evaluation Toolset](#). In Proceedings of Safety and Security of Intelligent Vehicles (SSIV) workshop, co-located with IEEE DSN 2023, 27 June 2023, Porto, Portugal.
4. [San2023g] R. Reis, P.M. Santos, P.F. Souto, N. Martins, J. Sousa, J.M. Ferreira, L. Almeida. [LEM: a Tool for Large-Scale Workflow Control in Edge-based Industry 5.0 Applications](#). In Proceedings of the IEEE DCOS conference 2023 – IoT-I5 workshop, 19-21 June 2023, Paphos, Cyprus.
5. [San2023h] B. Asulba, Y. Zhang, N. Schumacher, P.F. Souto, P.M. Santos, M. Sousa, N. Martins, J. Sousa, L. Almeida. [Impact of Training Set Size on Resource Usage of Machine Learning Models for IoT Network Intrusion Detection](#). In Proceedings of the IoT-I5 workshop, part of IEEE DCOS conference 2023, 19-21 June 2023, Paphos, Cyprus.
6. [San2023i] N. Schumacher, P.M. Santos, P.F. Souto, N. Martins, J. Sousa, J.M. Ferreira, L. Almeida. [One-Class Models for Intrusion Detection at ISP Customer Networks](#). In Proceedings of the IFIP Artificial Intelligence Applications and Innovations (AIAI) 2023, 14-16 June 2023, León, Spain.
7. [San2023j] H.Kurunathan, J. Santos, D. Moreira, P.M. Santos. [Towards Safe Cooperative Autonomous Platoon systems using COTS Equipment](#). In Proceedings of the 1st Smart Living and Communications for the Next Generations Networks workshop (SLICO), co-located with the 24th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoW-MoM), 12-15 June 2023, Boston, Massachusetts, U.S.A.
Recipient of the **Best Paper Award**.
8. [San2023k] M. Araújo, J. Silva, P. M. Santos, H. Singh, D. Gunjal, J. Fonseca, P. Duarte, B. Mendes, Raul Barbosa, P. Steenkiste, S. Sabamoniri, L. Lam, J. Pereira, H. Kurunathan. [Demo Object detection under 5G-edge mobility](#). In Proceedings of the 24th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), 12-15 June 2023, Boston, Massachusetts, U.S.A..
9. [San2023l] Y. Zhang, B. Asulba, N. Schumacher, M. Sousa, P.F. Souto, L. Almeida, P.M. Santos, N. Martins and J. Sousa. [Implementing and Deploying an ML Pipeline for IoT Intrusion Detection with Node-RED](#). In Proceedings of the Real-time And intelligent Edge computing workshop (RAGE) 2023, co-located with CPS-IoT Week, 9 May 2023, San Antonio, Texas, USA.
10. [San2023m] M.C. Cunha, E.V. Filho, E. Tovar, P.M.Santos, S. Penna, F. Alves. [A WSSL Implementation for Critical Cyber-Physical Systems Applications](#). In Proceedings of the Real-time And intelligent Edge computing workshop (RAGE) 2023, co-located with CPS-IoT Week, 9 May 2023, San Antonio, Texas, USA.
11. [San2023n] S. Sabamoniri, P.M. Santos, L. Almeida. [An ETSI ITS-Compliant Formation Protocol to Support Long Heterogeneous Platoons](#). In Proceedings of the 14th IEEE Vehicular Networking Conference (VNC 2023), 26-28 April 2023, Istanbul, Turkey.
12. [San2023o] R. Reddy, L. Almeida, P.M. Santos, E. Tovar. [Waiting Time Analysis for a Network of Signalized Intersections](#). In Proceedings of the 14th International Conference on Ambient Systems, Networks and Technologies (ANT 23), 15-17 March 2023, Leuven, Belgium.

13. [San2022c] P. M. d'Orey, M. G. Gaitán, P. M. Santos, M. Ribeiro, J. B. Sousa, and L. Almeida. *Empirical Evaluation of Short Range WiFi Vessel to Shore Overwater Communications*. In Proceedings of the 16th ACM Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization, Sydney NSW Australia, Oct. 2022, pp. 77–84.
14. [San2022d] M. G. Gaitán, P.M. d'Orey, P. M. Santos, and L. Almeida. *Minimal Overlap Centrality Driven Gateway Designation for Real Time TSCH Networks*. In Proceedings of the 59th Design and Automation Conference (DAC 2022), Real-time And intelliGent Edge computing workshop (RAGE), 10-14 Jul. 2022, San Francisco, U.S.A.
Recipient of the **Best Paper Award**.
15. [San2022e] M. G. Gaitán, T. Watteyne, P. M. d'Orey, P. M. Santos, and D. Dujovne. *Joint Scheduling Routing and Gateway Designation in Real Time TSCH Networks*. In Proceedings of the 30th International Conference on Real-Time Networks and Systems (RTNS 2022), JRWRTC, pp 16-19, 7-8 June 2022, Paris, France.
16. [San2022f] E.V. Filho, B. Mendes, P.M.Santos, R. Severino, E. Tovar. *Development of a Hardware in the Loop Ad-Hoc Testbed for Cooperative Vehicles Platooning*. In Proceedings of EAI INTSYS 2022 - 6th EAI International Conference on Intelligent Transport Systems, December 15-16, 2022, Lisbon, Portugal.
17. [San2021a] D. Almeida, M.G. Gaitán, P.M. d'Orey, P.M. Santos, L. Pinto, L. Almeida. *Demonstrating RA-TDMAs+ for robust communication in WiFi mesh networks*. Demo in 42nd IEEE Real-Time Systems Symposium (RTSS 2021), 7 December 2021, RTSS@Work, Dortmund, Germany.
18. [San2021b] R. Reddy, L. Almeida, M. G. Gaitán, P.M. Santos, E. Tovar. *Work-In-Progress: Worst-Case Response Time of Intersection Management Protocols*. In Proceedings of 42nd IEEE Real-Time Systems Symposium (RTSS 2021), 7 December 2021, RTSS@Work, Dortmund, Germany.
19. [San2021c] M.G. Gaitán, L. Almeida, P.M. Santos, L. Pinto, P.M. d'Orey, M. Ribeiro and J. Borges de Sousa. *Wireless radio link design for reliable near-shore communication with surface nodes on tidal waters*. In Proceedings of IEEE/MTS OCEANS 2021, 20-22 September 2021, San Diego – Porto, U.S.A.
20. [San2021d] P. M. Santos, J. C. Sousa, R. Morla, N. Martins, J. Tagaio, J. Serra, C. Silva, M. Sousa, P. Souto, L. L. Ferreira, J. Ferreira, L. Almeida. *Towards a Distributed Learning Architecture for Securing ISP Home Customers*. In Proceedings of the 1st Workshop on Distributed AI on Resource-Constrained Platforms (DARE) (co-located with AIAI 2021), 28 May 2021, online.
21. [San2021e] Anna Hristoskova, Nicolás González-Deleito, Sarah Klein, Joana Sousa, Nuno Martins, João Tagaio, João Serra, Carlos Silva, João Ferreira, Pedro M. Santos, Ricardo Morla, Luís Almeida, Baris Bulut, and Sencer Sultanoglu. *An Initial Analysis of the Shortcomings of Conventional AI and the Benefits of Distributed AI Approaches in Industrial Use Cases*. In Proceedings of the 1st Workshop on Distributed AI on Resource-Constrained Platforms (DARE) (co-located with AIAI 2021), 28 May 2021, online.
22. [San2020a] M. G. Gaitán, L. Almeida, P. M. Santos, P. M. Yomsi. *EDF scheduling and minimal-overlap shortest-path routing for real-time TSCH networks*. In Proceedings of the 2nd Workshop

- on Next Generation Real-Time Embedded Systems (NG-RES) (co-located with HiPEAC 2021), 20 January 2021, online.
23. [San2020b] P. M. Santos, M. Rosa, L. M. Pinto, L. Almeida. [Cooperative Bicycle Localization System via Ad Hoc Bluetooth Networks](#). In Proceedings of the IEEE VNC 2020, 16-18 December 2020, online.
 24. [San2020c] D. Martins, B. Parreira, P. M. Santos, S. Figueiredo. [NetButler: Voice-Based Edge/Cloud Virtual Assistant for Home Network Management](#). In Proceedings of the EAI Edge-IoT 2020, 4 December 2020, online.
 25. [San2020d] M. G. Gaitán, P. M. Santos, L. M. Pinto, L. Almeida. [Optimal antenna-height design for improved capacity on over-water radio links affected by tides](#). In Proceedings of the IEEE OCEANS 2020: Singapore – U.S. Gulf Coast (OCEANS 2020), 5-14 October 2020, online.
 26. [San2020e] R. Reddy, L. Almeida, P. M. Santos, E. M. Tovar. [Comparing the Ecological Footprint of Intersection Management Protocols for Human/Autonomous Scenarios](#). In Proceedings of the 23rd IEEE International Conference on Intelligent Transportation Systems (ITSC 2020), 20-23 September 2020, online.
 27. [San2020f] R. Reddy, L. Almeida, P. M. Santos, Samia Bouzefrane, E. M. Tovar. [Synchronous Intersection Management to reduce Time Loss](#). In Proceedings of the 23rd EURO Working Group on Transportation Meeting (EWGT 2020), 16-18 September 2020, online.
 28. [San2020g] M. G. Gaitán, P. M. Santos, L. M. Pinto, L. Almeida. [Experimental Evaluation of the Two-Ray Model for Near-Shore WiFi-based Network Systems Design](#). In Proceedings of the IEEE 91st Vehicular Technology Conference (VTC2020-Spring), 25-27 May 2020, online.
 29. [San2020h] M. G. Gáitan, P. M. Yomsi, P. M. Santos, L. Almeida. [Work-in-Progress: Assessing supply/demand-bound based schedulability tests for wireless sensor-actuator networks](#). In Proceedings of the 2020 IEEE 16th International Conference on Factory Communication Systems (WFCS 2020), online (planned for Porto, Portugal), 27-29 April 2020.
 30. [San2019b] P. M. Santos, L. M. Sousa, A. Aguiar: [Experimental Evaluation of Urban Points-of-Interest as Predictors of I2V 802.11 Data Transfers](#). In Proceedings of the 2019 IEEE Smart Cities Conference, October 14-17 2019, Casablanca, Morocco.
 31. [San2019c] P. M. d'Orey, P. M. Santos, J. Pintor, A. Aguiar: [Opportunistic Use of In-Vehicle Wireless Networks for Vulnerable Road User Interaction](#). In Proceedings of the 2019 IEEE Intelligent Vehicles Symposium, June 9-12 2019, Paris, France.
 32. [San2018c] P. M. Santos, L. Pinto, L. Almeida, A. Aguiar: [Characterization and Modeling of the Bicycle-Antenna System for the 2.4GHz ISM Band](#). In Proceedings of the 2018 IEEE Vehicular Networking Conference, December 5-7 2018, Taipei, Taiwan.
 33. [San2018d] E. Soares, P. M. Santos, L. Pinto, A. Aguiar, P. Brandão, R. Prior: Poster. [Poster: VoIP System for Bicycle Platoons](#). In Proceedings of the 2018 IEEE Vehicular Networking Conference, December 5-7 2018, Taipei, Taiwan.

34. [San2018e] L. M. Sousa, P. M. Santos, A. Aguiar: *An Exploratory Study of Relations between Site Features and I2V Link Performance*. In Proceedings of the 2018 EAI Urb-IoT Conference, November 21-23 2018, Guimarães, Portugal.
35. [San2018f] A. Nguyen, P. M. Santos, M. Rosa, A. Aguiar: Poster. *Study on Solar-powered IoT Node Autonomy*. In Proceedings of the 4th IEEE International Smart Cities Conference, September 16-19 2018, Kansas City, MO, USA.
36. [San2018g] P.M. Santos, L. Pinto, A. Aguiar, L. Almeida. *A Glimpse at Bicycle-to-Bicycle Link Performance in the 2.4GHz ISM Band*. In Proceedings of 29th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2018), September 9-12 2018, Bologna, Italy.
37. [San2016a] L. Kholkin, P.M. Santos, A. Cardote, A. Aguiar. *Detecting Relative Position of User Devices and Mobile Access Points*. In Proceedings of the XXth IEEE Vehicular Networking Conference (VNC 2016), December 8-10 2016, Columbus, OH, USA, pp.1-8.
Invited for extended version submission to Elsevier Computer Communications.
38. [San2016b] Y. Luis, P.M. Santos, T. Lourenço, C. Pérez-Penichet, T. Calçada, A. Aguiar. *UrbanSense: An Urban-scale Sensing Platform for the Internet of Things*. In Proceedings of the 2nd IEEE International Smart Cities Conference (ISC2 2016), September 12-15, 2016, Trento, Italy, pp.1-6.
Recipient of the **Best Student Paper Award**.
39. [San2015a] P.M. Santos, T. Calçada, S. Sargento, A. Aguiar, João Barros. *Experimental Characterization of I2V Wi-Fi Connections in an Urban Testbed*. In Proceedings of the 10th ACM MobiCom Workshop on Challenged Networks (CHANTS '15), September 7-11, 2015, Paris, France. ACM, New York, NY, USA, pp.5-8.
40. [San2015b] P. M. Santos, T. Calçada, D. Guimarães, T. Condeixa, S. Sargento, A. Aguiar, J. Barros. *Demo: Platform for Collecting Data From Urban Sensors Using Vehicular Networking*. In Proceedings of the 21st Annual International Conference on Mobile Computing and Networking (MobiCom). 2015. September 7-11, 2015, Paris, France. ACM, New York, NY, USA, pp.167-169.
Descriptive video: youtube.com/watch?v=Hqjx28hpuT8
41. [San2015c] P. M. Santos, T. Calçada, A. Sá, D. Guimarães, T. Condeixa, C. Pérez-Penichet, S. Sargento, A. Aguiar, J. Barros. *Experiments On Using Vehicles As Data Mules For Data Collection From Urban Sensors (Demo)*. In Proceedings of the 21st European Wireless Sensor Network Conference (EWSN), 2015, Porto, Portugal. ACM, New York, NY, USA, pp.167-169.
* Not made available in high-profile repository (ACM DL).
42. [San2013b] L. Pinto, P.M. Santos, S. Crisóstomo, T. Abrudan, J. Barros. *On-the-Fly Deployment of Wireless Sensor Networks for Indoor Assisted Guidance*. In Proceedings of the 1th IEEE International Conference on Cyber-Physical Systems, Networks and Applications (CPSNA), August 19-20 2013, Taipei, Taiwan.
* Not made available in high-profile repository (IEEEExplore).
Video at national TV channel SIC: youtube.com/watch?v=QkvygFzJyLs&t=121.

43. [San2010a] P.M. Santos, J.C. Ferreira: Poster. *FPGA-based real-time disparity computation and object location*. In Proceedings of the 28th Norchip Conference. November 15-16 2010, Tampere, Finland.

2.1.5 Articles in National Conferences with Peer-Review

44. [San2021f] R. Reddy, L. Almeida, M.G. Gáitan, P.M. Santos, E. Tovar. *Sustainability Analysis of Complex Multi-Lane Intelligent Signalized Intersections*. Accepted at the Doctoral Congress in Engineering DCE 2019. Faculdade de Engenharia da Universidade do Porto, June 2020.
45. [San2019d] M.G. Gáitan, L.M. Pinto, P.M. Santos, L. Almeida. *On the Two-Ray Model Analysis for Overwater Links with Tidal Variations*. Poster presented at the Simpósio de Informática Inforum 2019, track CRC (Comunicações e Redes de Computadores). Universidade do Minho, Guimarães, September 2019.
46. [San2019e] M.G. Gáitan, L.M. Pinto, P.M. Santos, L. Almeida. *An Analysis of the Two-Ray Propagation Model to Support Near-Surface Overwater Wireless Sensor Networks Design*. Presented at the Doctoral Congress in Engineering DCE 2019. Faculdade de Engenharia da Universidade do Porto, June 2019.

2.1.6 Talks, Posters and Demonstrations

1. [San2022g] M.G. Gaitán, P.M. d'Orey, P.M. Santos, M. Ribeiro, L. Pinto, L. Almeida, J. Borges de Sousa. *Improving WiFi communication with surface nodes at near-shore on tidal waters* (abstract version of [San2021a]). Talk at the 31th RTCM Seminar. February 4, 2022. Online, Porto, Portugal.
2. [San2021f] M.G. Gáitan, P.M. Santos, L. Almeida. *Improving short to medium range communication over water tides: Why does height matters?*. Talk at the 29th RTCM Seminar. February 4, 2021. Online.
3. [San2020i] M.G. Gáitan, P.M. Santos, L. Almeida. *Real-Time Communication Support for Overwater Wireless Multi-hop Networks*. Presented at 7th Barcelona Supercomputing Center Severo Ochoa Doctoral Symposium (BSC SO Doctoral Symposium 2020), 5 May 2020, pp. 51-52. Online.
4. [San2018g] P.M. Santos, L. Pinto, M. Rosa, J. Pintor, J. Mesquita, E. Soares, L. Almeida, A. Aguiar. *Connected Bicycles for Smart Mobility*. Poster presented at the national academic event *Ciência 2018*. Centro de Congressos de Lisboa, July 2018.
5. [San2018h] L. R. Pinto, P. M. Santos, J. Pintor, M. Rosa, J. Mesquita, L. Almeida, A. Aguiar. *Extensive characterization and modeling of bicycle-to-bicycle link quality*. Poster presented at the 25th RTCM Seminar. June 22, 2018. Faculdade de Ciências, Universidade do Porto, Porto, Portugal.
6. [San2018i] M. Rosa, P. M. Santos, L. Pinto, A. Aguiar. *Stolen Bicycles Detection using Bluetooth Low-Energy Technology*. Poster presented at the 25th RTCM Seminar. June 22, 2018. Faculdade de Ciências, Universidade do Porto, Porto, Portugal.
7. [San2018j] M. Rosa, P. M. Santos, L. Pinto, A. Aguiar. *Stolen Bicycles Detection using Bluetooth Low-Energy Technology*. Demonstration setup of a stolen bicycle detection system using Bluetooth

Low Energy communication. Presented at the P2020 *Generation.Mobi* project Workshop. February 23, 2018. Faculdade de Engenharia, Universidade do Porto, Porto, Portugal.

Descriptive video: youtube.com/watch?v=zc8JpLaUkHA.

8. [San2017b] Pedro M. Santos, Tânia Calçada, Ana Aguiar, Susana Sargento, João Barros. *Communication Hub Placement Driven by I2V Service Estimation*. Poster presented at the national academic event *Ciência 2017*. July 2017. Centro de Congressos de Lisboa.
9. [San2016c] Poster: Yuniur Luis, Pedro M. Santos, Tania Calçada, Susana Sargento, Ana Aguiar, João Barros. *Collecting Data from the UrbanSense Platform Using Vehicular Networking*. Poster presented at the national academic event *Ciência 2016*. July 2016. Centro de Congressos de Lisboa.
10. [San2013c] P. M. Santos, T. E. Abrudan, A. Aguiar, J. Barros. *Impact of Position Errors on Device-to-Device Wireless Channel Estimation*. Talk at the 17th RTCM Seminar. July 19, 2013. Faculdade de Ciências, Universidade do Porto, Porto, Portugal.
11. [San2013d] L. Pinto, P. M. Santos, S. Crisóstomo, T. E. Abrudan, J. Barros. *A Cyber-Physical System for Dynamic Building Evacuation*. Talk at the 16th RTCM Seminar. February 15, 2013. Faculdade de Ciências da Saúde, Universidade da Beira Interior, Covilhã, Portugal.
12. [San2013e] L. Pinto, P.M. Santos, S. Crisóstomo, T. Abrudan, J. Barros. *On-the-Fly Deployment of Wireless Sensor Networks for Indoor Assisted Guidance*. Demonstration setup for a fast and practical deployment method of a dynamic building evacuation system. Published in [San2013b].

Descriptive video: youtube.com/watch?v=sC_kk_P_LOY

Presented at:

- Annual Conference of the FP7 *Future Cities* project. Mosteiro de São Bento da Vitória, Porto, January 2014.
 - 3rd Annual Conference of the CMU-Portugal Program. Reitoria da Universidade Nova de Lisboa, Lisboa, October 2013.
 - Celebrations of the 20th anniversary of the Instituto de Telecomunicações (IT) and 5th anniversary of the Porto branch. Departamento de Ciência dos Computadores, Faculdade de Ciências da Universidade do Porto, October 2012.
13. [San2010b] P.M. Santos, F. Vieira, J. Barros. *Building Evacuation System based on Wireless Sensor Networks*. Demonstration setup of a dynamic building evacuation system, that changes routes according to the evolution of the fire vectors.

Descriptive video: youtube.com/watch?v=PJSqnq6ZfOE.

Presented at:

- Meeting of the External Review Committee of the CMU-Portugal projects. Centro Cultural e Científico de Macau, Lisboa, January 2012.
- 2nd Annual Conference of the CMU-Portugal Program. Fundação Calouste Gulbenkian, Lisboa, June 2010.
- Opening Ceremony of the School Year 2010/2011. PT, Fórum Picoas, Lisboa, January 2010. Demonstration presented to Science Minister Prof. Dr. José Mariano Gago.

2.2 Coordination and Participation in Scientific Projects

As per criterion PID of the call notice - Coordenação e participação em projetos de investigação e desenvolvimento

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2.2.1 Coordination of Scientific Projects

P.I. in the following R&D projects:

1. MIRAI - Machine Intelligence for smart and sustainable planning and operation of IoT and Edge

Details:

Call/Program	Eureka Cluster ITEA3, Call 6, Project n. 19034; POCI-01-0247-FEDER-069552
Duration & Start	36 months, from December 2020 to November 2023
Site	https://itea3.org/project/mirai.html
Funding source	ANI
Funding granted	EUR 132k (CISTER/ISEP)
Scope	International (BE, PT, TR, SE)
Partners	NOS Inovação (PT), FEUP (PT), CISTER/ISEP (PT), SIRRIS (BE), Macq (BE), 3E (BE), BTH (SE), Eliar (TR), Enforma (TR)
Evaluation	Successful
Pedro's Role	P.I. at CISTER/ISEP

Description: MIRAI developed building blocks based on AI techniques in order to enable the smart and sustainable planning and operation of IoT and edge computing applications. At Portugal, the use-case promoted by NOS Inovação addresses secure Internet provision to end-users. Pedro was involved in contacting the international consortium and the national industrial partner, writing the project proposal, and is currently in charge of coordination at the CISTER/ISEP partner.

2. FLOYD - 5G/SDN Intelligent Systems For LOw latencY V2X communications in cross-Domain mobility applications

Details:

Call/Program	CMU PT Large-scale Collaborative Research Projects; POCI-01-0247-FEDER-045912
Duration & Start	30 months, from January 2021 to June 2023
Site	https://www.cmuportugal.org/large-scale-collaborative-research-projects/floyd/
Funding source	ANI, FCT
Funding granted	EUR 280k (CISTER/ISEP)
Scope	International (PT, US)
Partners	CapGemini Engineering, Altice Labs, Instituto de Telecomunicações, VORTEX Co-Lab, CISTER/ISEP, Carnegie Mellon University (US)
Pedro's Role	P.I. at CISTER/ISEP

Description: FLOYD aims at building such a technological stack for offering high-performance network/computation services to autonomous vehicles. Pedro was involved in the writing of the project proposal, and was the institutional coordinator on the CISTER/ISEP side.

3. RETINA - REal-Time support Infrastructure and Energy management for Intelligent carbon-Neutral smArt cities

Details:

<i>Call/Program</i>	NORTE-45-2020-75 <i>Structured R&D&I Projects – Horizon Europe</i> ; NORTE-01-0145-FEDER-000062
<i>Duration & Start</i>	24 months, starting on January 2021
<i>Funding source</i>	NORTE 2020 Regional Operational Program
<i>Funding granted</i>	EUR 243k (CISTER/ISEP)
<i>Scope</i>	National
<i>Partners</i>	CISTER, GECAD research centers (ISEP)
<i>Pedro's Role</i>	P.I. at CISTER/ISEP

Description: This line of funding for ongoing research will support the development of ICT solutions to enable neutrality on climate impact, particularly by enabling energy trading between the grid and new energy market players such as micro-producers and electrical vehicles. Pedro was involved in the writing of the project proposal, and was one of the institutional coordinators (P.I.) on the CISTER/ISEP side.

2.2.2 Participation in Scientific Projects

As per criterion A1.1.2 of the call notice - Participação em atividades e/ou projetos de desenvolvimento tecnológico e de transferência de conhecimento e de ligação da instituição ao meio
(Back to [mapping table](#))

Current projects:

1. Ph.D. Researcher in the project **Route 25** - (02/C05-i01.01/2022.PC645463824-00000063), funded by the Plano para a Recuperação e Resiliência (PRR).

Past projects:

2. Ph.D. Researcher in the project **InSecTT - Intelligent Secure Trustable Things** (reference: ECSEL/0002/2019, Grant 876038, call H2020-ECSEL-2019-1-IA), funded by the H2020 and FCT through the ECSEL Joint Undertaking.
3. Ph.D. Researcher in the project **AQUAMON** (Portuguese reference: PTDC/CCI-COM/30142/2017), funded by Fundação para a Ciência e Tecnologia, since April 2019.
4. Ph.D. Researcher in the project **S2MovingCity** (CMUP-ERI/TIC/0010/2014), funded by Programa CMU|Portugal program, from November 2018 to January 2019.

5. Ph.D. Researcher in the project **Generation.Mobi** (POCI-01-0247-FEDER-017369), funded by the *Portugal 2020*, *Compete 2020* and *EU ERDF* programs.
6. Ph.D. Student Researcher in the project **SmartCityMules** (PTDC/EEI-TEL/2008/2014), funded by Fundação para Ciência e Tecnologia, from October 2016 to December 2016.
7. Ph.D. Student Researcher in the project **VR2Market** (CMUP-ERI/FIA/0031/2013), funded by Programa CMU|Portugal program, from October 2015 to April 2016.
8. Ph.D. Student Researcher in the project **Vital Responder 2.0** (PTDC/EEI-ELC/2760/2012), funded by Fundação para Ciência e Tecnologia, from July 2015 to October 2015.
9. Ph.D. Student Researcher in the project **Future Cities** (FP7-REGPOT-2012-2013-1, 316296), funded by the 7th Framework Program (FP7), from May 2014 to May 2015.
10. Ph.D. Student Researcher in the project **Vital Responder** (reference: CMU-P/CPS/0046/2008), funded by the Carnegie Mellon University and Portugal Partnership Program, from September 2009 to September 2012.

2.3 Autonomy and Leadership

As per criterion AL of the call notice — Autonomia e liderança

(Back to [mapping table](#))

1. **Team manager**, *Portugal 2020 Generation.Mobi* (POCI-01-0247-FEDER-017369)

Managed a team of three members:

- Luís Pinto (Ph.D. student),
- Miguel Rosa (B.Sc. student, final report in scope of project),
- José Pintor (B.Sc. student, final report in scope of project).

We carried out an extensive characterization of the radiation patterns of 802.11 transceivers in bicycles, having managed a team of five members in this endeavour and produced several publications presented at high-profile venues *IEEE VNC 2018* [[Santos2018c](#)] and *IEEE PIMRC 2018* [[Santos2018g](#)]. Furthermore, we showcased a system that leverages Bluetooth beacons broadcast by bicycle modules (e.g., smart locks) to report sightings of stolen bicycles to a cloud-based backoffice, that was published in *IEEE VNC 2020* [[Santos2020b](#)].

2. **Team manager**, *CMU-PT program FLOYD* (POCI-01-0247-FEDER-045912)

Managed a team of six members:

- José Miguel Pinheiro (M.Sc. student, thesis in scope of project),
- João Pereira (M.Sc. student, thesis in scope of project),
- Frederico Pires (B.Sc. student),
- Luís Lam (Ph.D. student),
- Duarte Moreira (B.Sc. student, final report in scope of project),

- José Santos(B.Sc. student, final report in scope of project).

We produced a considerable body of work about connected autonomous driving using a set of a 1/10-scale robotic vehicles equipped with On-Board Units (OBUs) for IEEE 802.11p and 5G communications. We created an emergency braking scenario using road-side infrastructure and a scale vehicle communicating via IEEE 802.11p. Miguel characterized the network latency and its impact in the emergency braking application, a work that was presented at IEEE DSN – SSIV workshop [Santos2023e]. We later evolved this emergency braking scenario to be 5G-enabled and involving a platoon (i.e., a second car following the first).

3. **Team manager**, *Eureka ITEA4 MIRAI (POCI-01-0247-FEDER-069552)*

Managed a team of five members:

- Nuno Schumacher (M.Sc. student, thesis in scope of project),
- Barikisu Asulba (Ph.D. student),
- Yimin Zhang (Ph.D. student),
- Pedro Vicente (M.Sc. student, thesis in scope of project),
- Rui Reis (M.Sc. student, thesis in scope of project).

The target use-case, in partnership with NOS Inovação, was to create a Intrusion Detection System (IDS) based on Machine Learning (ML) methods to be deployed at the Customer Premises Equipment (CPE) in order to detect Distributed Denial-of-Service (DDoS) attacks. Outputs from the team include: anomaly detection models for network traffic classification [Santos2023i] (presented at *IFIP AIAI 2023*); an implementation of the ML pipeline in the flow-oriented industrial framework *Node-RED* [Santos2023l] (presented at *IEEE CPS-IoT Week 2023 – RAGE workshop*); an analysis on the impact of the training set on the size of ML models [Santos2023h] (presented at *IEEE DCOSS-IoT 2023 – IoT-I5 workshop*); and a tool for large-scale workflow control in edge-based I5.0 applications [Santos2023g] (presented also at the *IoT-I5 workshop*).

2.4 Community Recognition

As per criterion RIP of the evaluation criteria - Reconhecimento interpares

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2.4.1 Organization of Scientific Events

1. Publication Chair, 32nd International Conference on Real-Time Networks and Systems (RTSN), 2024.
2. Publication Chair, 20th IEEE International Conference on Factory Communication Systems (WFCS), 2024.
3. Session chair, 1st Workshop on Distributed Edge AI (DE-AI), part of the 18th FedCSIS conference, 17-20 September 2023, Warsaw, Poland.

4. Session chair, Session 41 of IFIP Artificial Intelligence Applications and Innovations (AIAI) 2023, 14-17 June 2023, León, Spain & Hybrid.
5. General Co-Chair, 2nd EAI International Conference on Intelligent Edge Processing in the IoT Era (Edge-IoT 2021).
6. Member of Program Committee, 1st Distributed AI for REsource-Constrained Platforms (DARE) Workshop, part of the 17th International Conference on Artificial Intelligence Applications and Innovations (AIAI 2021).
7. Publicity Chair, 1st EAI International Conference on Intelligent Edge Processing in the IoT Era (Edge-IoT 2020).
8. Publication Chair, 2020 16th IEEE International Conference on Factory Communication Systems (WFCS).
9. Member of the Organizing Committee, 25th Seminar of the **Rede Temática de Comunicações Móveis (RTCM)**, an important academic national forum on mobile communications, that took place in the Faculdade de Ciências da University of Porto, on June 22, 2018. Pedro was responsible for:
 - Obtaining funding from industrial partners (Rohde&Schwarz) in a value up to 800 Euros;
 - Updating the event website and registration forms, and promoting the event through mailing lists and social networks;
 - Managing submissions and providing support to speakers/participants;
 - Producing identification/courtesy material (e.g., nametags, programs).
10. Member of the Organizing Committee, 1st Conference of Ph.D. Students on Electrical and Computer Engineering, on invitation by lecturers of the Faculty. Faculty of Engineering of the University of Porto, Portugal, in June 2012.

2.4.2 Member of the Technical Program Committee

- | | |
|---|------|
| 1. IEEE Vehicular Networking Conference | 2023 |
| 2. IEEE Vehicular Networking Conference | 2021 |
| 3. IEEE Vehicular Networking Conference | 2020 |
| 4. Int'l Conference on Ambient Systems, Networks and Technologies (ANT) | 2020 |
| 5. IEEE Int'l Conference on Factory Communication Systems | 2020 |
| 6. IEEE Vehicular Networking Conference | 2018 |
| 7. EAI Future 5V conference | 2018 |

2.4.3 Reviewer of Scientific Articles

1. IEEE18th Wireless On-demand Network systems and Services Conference	2023
2. IEEE Vehicular Networking Conference	2023
3. IEEE/IFIP Int'l Conference on Dependable Systems and Networks, SSIV Workshop	2021
4. IEEE Int'l Conference on Intelligent Transportation Systems	2021
5. IEEE Int'l Conference on Communications, FINP Workshop	2021
6. IEEE/IFIP Int'l Conference on Dependable Systems and Networks, SSIV Workshop	2021
7. IEEE Transactions on Wireless Communications	2020
8. IEEE Access	2020
9. MPDI Electronics	2020
10. IEEE Vehicular Networking Conference	2020
11. IEEE Int'l Conference on Intelligent Transportation Systems	2020
12. IEEE MELECON	2020
13. IEEE Transactions on Wireless Communications	2019
14. IEEE Internet-of-Things Journal	2019
15. IEEE Access	2019
16. IEEE Vehicular Networking Conference	2019
17. ROBOT'2019	2019
18. ACM/IEEE Int'l Conference on Cyber-Physical Systems	2019
19. IEEE Vehicular Technology Conference	2018
20. IEEE Vehicular Networking Conference	2018
21. EAI Future5V conference	2018
22. Int'l Symposium on Wireless Communication Systems	2018
23. Wireless Days	2018
24. IEEE Int'l Conference on Intelligent Transportation Systems	2017
25. IEEE Vehicular Networking Conference	2017
26. IEEE Transactions on Wireless Communications	2016

2.4.4 Invited Participation in Technical-Scientific Events

1. Invited panel member, panel on cyber-physical systems, CPS Student Forum Portugal, as part of the [CPS Week](#), 13 April 2018, Porto, Portugal.

2.5 Participation in Research Units

As per criterion PUI of the call notice — Participação em unidades de investigação, sociedades científicas e suas comissões

(Back to [mapping table](#))

- Assistant Researcher, Research Centre in Real-Time and Embedded Computing Systems (CISTER), Instituto Superior de Engenharia do Porto (ISEP), since February 2019.
- Departamento de Engenharia Eletrotécnica e de Computadores (DEEC), Faculdade de Engenharia da Universidade do Porto (FEUP), since 2009.
- Instituto de Telecomunicações (IT), from October 2009 to May 2017.

Chapter 3

Pedagogical Activity

3.1 Teaching Activity

As per criterion D of the call notice — Docência

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Teaching service:

1. **Invited assistant lecturer** (Professor Auxiliar Convocado) at the Faculdade de Engenharia da Universidade do Porto for the school years of 2023/24, 2022/23, 2020/21, 2019/20, 2018/19, 2017/18.
2. **invited assistant lecturer** (Professor Auxiliar Convocado) at the Instituto Superior de Engenharia do Porto for the school years of 2023/24, 2022/23 and 2021/20.

3.1.1 Lectured Courses

1. Comunicações Industriais, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2023/24
2. Informática Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2023/24
3. Comunicações Industriais, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2022/23
4. Laboratório de Computação, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2022/23
5. Systems of Systems, MSCCE/ISEP – Lab. lectures, 3 lectures	2022/23
6. Systems of Systems, MSCCE/ISEP – Lab. lectures, 4 hrs/week	2021/22
7. Special Topics, PDEEC/FEUP – Contact hours with Ph.D. student	2020/21
8. Arquiteturas de Computação Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2020/21
9. Informática Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2020/21
10. Arquiteturas de Computação Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2019/20

11. Informática Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2019/20
12. Arquiteturas de Computação Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2018/19
13. Sistemas Operativos, L.EEC/FEUP – Lab. lectures, 4 hrs/week	2018/19
14. Processamento Digital de Sinal, L.EEC/FEUP – Lab. lectures, 4 hrs/week	2017/18
15. Arquiteturas de Computação Industrial, M.EEC/FEUP – Lab. lectures, 4 hrs/week	2017/18

Evaluation by Students

Pedro was evaluated by the students in anonymous questionnaires for his performance in teaching. The students were asked to grade Pedro in the scope of *Support to Autonomy*, *Consistency and Help*, *Structure* and *Relationship*, in a scale of 1 to 7. Table 3.1 presents the results.

Table 3.1: Evaluation of the applicant by the students (averaged).

Year	Course	# Replies	Support to autonomy	Consistency and help	Structure	Relationship
2017/18	ICA	12	5.50	6.04	5.08	6.25
	DSP	10	5.7	5.85	5.17	5.9
2018/19	ICA	12	4.96	5.50	5.06	5.50
	SO	9	5.89	5.61	5.74	5.89
2019/20	ICA	12	4.67	5.58	4.75	5.58
	II	10	6.0	6.2	5.43	6.7
2020/21	ICA	10	2.85	3.70	2.83	3.20

3.2 Supervision and Jury Service

As per criterion O of the evaluation criteria - Orientação e júris académicos
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3.2.1 Ph.D Students

On-going Ph.D. theses:

1. **Saeid Sabamoniri**, Ph.D. programme on Electrical and Computer Engineering (PDEEC), Univ. Porto.
Current thesis title: *Cooperative ITS Management System*.
Co-supervisor: Prof. Luís Miguel Pinho de Almeida (FEUP/DEEC).
TRP defended on 14 September 2022. The external jury member was Professor Doutor Miguel Luís (ISEL), the internal jury member was Professor Doutor Rui Campos (DEEC/FEUP), and the jury chair was Professor Doutor Jaime Cardoso (DEEC/FEUP).
2. **Luis Lam**, Ph.D. programme on Electrical and Computer Engineering (PDEEC), Univ. Porto.
Current thesis title: *V2X-based Vehicular Positioning in NLoS Scenarios using IRS for Safety and*

Security.

Co-supervisor: Prof. Luís Miguel Pinho de Almeida (FEUP/DEEC).

TRP defended on 30 May 2023. The external jury member was Professor Doutor Michele Segata (University of Trento, Italy), the internal jury member was Professor Doutor Luís Pessoa (DEEC/FEUP), and the jury chair was Professor Doutor João Sousa (DEEC/FEUP).

Completed Ph.D. theses:

3. **Radha Reddy**, Ph.D. programme on Electrical and Computer Engineering (PDEEC), Univ. Porto.
Current thesis title: *Synchronous Intelligent Intersections for Sustainable Urban Mobility*.
Supervisor team: Pedro M. Santos (present candidate), Prof. Dr. Luís Miguel Pinho de Almeida (FEUP/DEEC) and Prof. Dr. Eduardo Tovar (ISEP/IPP).
Thesis defended on October 24, 2023. The external jury members are Professor Doutor Thidapat Chantem (Virginia Polytechnic and State University, USA) and Professor Doutor Samia Saad-Bouzefrane (CNAM, Paris, France), the internal jury member is Professor Doutor Pedro Ferreira Souto (DEI/FEUP), and the jury chair is Professor Doutor José Nuno Fidalgo (DEEC/FEUP).
4. **Miguel Gáitan**, Ph.D. programme on Electrical and Computer Engineering (PDEEC), Univ. Porto.
Thesis title: *Supporting Real-Time Communications in Overwater Multi-hop Networks*. Supervisor team: Pedro M. Santos (present candidate), Prof. Luís Miguel Pinho de Almeida (FEUP/DEEC) and Dr. Pedro d'Orey (CISTER/ISEP).
Thesis defended February 2023. The external jury members were Professor Doutor Svetlana Girs (Mälardalen University, Sweden) and Thomas Watteyne (INRIA, France), the internal jury member was Professor Doutor Rui Campos (DEEC/FEUP), and the jury chair was Professor Doutor Jaime Cardoso (DEEC/FEUP).

3.2.2 Jury in Ph.D. Thesis & Thesis Research Plan Defenses

External jury member in the following Ph.D. thesis defenses:

1. **Yousef Emami**, a student of the Ph.D. in the Doctoral Programme in Electrical and Computer Engineering of the *Universidade do Porto*, November 2023. Thesis entitled: "Deep Reinforcement Learning for Joint Cruise Control and Intelligent Data Acquisition in UAVs-Assisted Sensor Networks". External jury members: Professor Doutor Xiaoming Fu (Univ. Goettingen) and Nuno Lau (Univ. Aveiro); internal jury member: Professor Doutor (U.Porto); jury chair: Professor Doutor José Nuno Moura Marques Fidalgo (U.Porto). I acted as the second internal jury member.

External jury member in the following Thesis Research Plan (TRP) defenses:

1. **Gowhar Javanmardi**, student of the Ph.D. in the Doctoral Programme in Electrical and Computer Engineering of the *Universidade do Porto*, May 31, 2023. Thesis research plan: *Artificial Intelligence for V2X Multiple Input Multiple Output Systems*. Advisor: Doutor Ramiro Sámano Robles (CISTER/ISEP); external jury member: Dr. Ing. Arrate Alonso Gomez (Mondragon University); session chair: Professor Doutor José Fidalgo (U.Porto); I acted as the internal jury member.

3.2.3 Supervision of M.Sc. Theses

Completed M.Sc. theses:

1. Advisor, **Pedro Vicente** - M.Sc. on Electrical and Computer Engineering, Institute of Engineering of the Polytechnic Institute of Porto. Thesis entitled *Deployment of ML mechanisms for Cybersecurity in Resource-Constrained Embedded Systems*, successfully defended on September 2023 (grade: 17/20).
2. Advisor, **João Filipe Mateus Pereira** - M.Sc. on Electrical and Computer Engineering, Institute of Engineering of the Polytechnic Institute of Porto. Thesis entitled *5G-Enabled Autonomous Platooning on Robotic Vehicle Testbed*, successfully defended on July 2023 (grade: 18/20).
3. Advisor, **Rui Pedro Oliveira Reis** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis co-advised by Professor Luís Almeida, entitled *A Tool for Large-Scale Workflow Control in Edge-based Industry 4.0 Applications*, successfully defended on February 2023 (grade: 16/20).
4. Advisor, **José Miguel Pereira Pinheiro** - M.Sc. on Electrical and Computer Engineering offered by the Faculty of Engineering of the University of Porto. Thesis co-advised by Professor Luís Almeida, entitled *Implementing an Open-source Vehicular Networking Testbed*, successfully defended on July 2022 (grade: 17/20).
5. Advisor, **Nuno de Assis Miranda Schumacher** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis co-advised with Professor Ricardo Morla (DEEC/FEUP), entitled *Cloud/Edge Machine Learning for Privacy-Preserving Network Trace Profiling*, successfully defended on July 2022 (grade: 18/20).
6. Advisor, **Ana Rita de Almeida Martinho** - M.Sc. on Electrical and Computer Engineering, the Faculty of Engineering of the University of Porto. Thesis co-advised by Professor Luís Almeida, entitled *Dynamic Quality-of-Service Management Under Software-Defined Networking Architectures*, successfully defended on July 2021 (grade: 19/20).
7. Advisor, **Rui Miguel Santos Carvalho** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis carried out in an industrial setting (Altran Portugal) and co-advised by Engineer Ricardo Faria, entitled *ROS2-based Architecture for MAV Data Sensing*, successfully defended on July 2021 (grade: 19/20).
8. Advisor, **André Cipriano Sousa** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto, carrying out the thesis entitled *Simulation-based Evaluation of Edge Computing-Assisted Applications*, successfully defended on July 2020.
9. Advisor, **Diogo Leite Martins** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis carried out in an industrial setting (Altran Portugal) and co-advised by Engineer Bruno Parreira, entitled *Rede doméstica gerida por voz*, successfully defended on July 2020.

10. Co-advisor, **Pedro de Castro Albergaria** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis co-advised by Professor Luís Almeida, entitled *Remote biometrical monitoring system via IoT*, successfully defended on July 2020.
11. Advisor, student **José Bastos Pintor** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis co-advised by Doctor Pedro Miranda d'Orey, entitled *Performance Evaluation of Bicycle-to-X Communication Networks*, successfully defended on February 2019.
12. Advisor, student **José Pedro Fonseca** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis carried out in an industrial setting (FollowInspiration) and co-advised by Eng. Joana Santos, entitled *Estimação Stereo usando técnicas de deep learning*, successfully defended on July 2019.
13. Co-advisor, **Luís Miguel Ramos Bárbara Cunha Pinto** - M.Sc. on Electrical and Computer Engineering, Faculty of Engineering of the University of Porto. Thesis advised by Professor Doctor João Barros and Doctor Fausto Vieira, entitled *A Cyber-Physical System for Dynamic Building Evacuation*, successfully defended on July 2011.

3.2.4 Jury in M.Sc. Theses Defenses

External jury member in the following M.Sc. thesis defenses:

1. **Rui Paulo Rodrigues de Almeida**, student of the M.Sc. in Network and Informatic Systems Engineering of the Department of Computer Science of the *Faculdade de Ciências da Universidade do Porto*, December 12, 2023. Advisor: Professor Doutor Sérgio Crisóstomo; session chair: Professor Doutor Luís Lopes. Dissertation title: *Data Repair Using Network Coding*.
2. **Hugo Emanuel da Silva Pinho**, student of the M.Sc. in Applied Informatics of the *Universidade de Aveiro*, December 5, 2023. Advisor: Professor Doutor Joaquim Ferreira; session chair: Professor Doutor João Gonçalves Dias. Dissertation title: *Sensor Fusion for Cooperative Perception in Intelligent Transport Systems*.
3. **Paulo Tiago Aires Araújo**, student of the M.Sc. in Network and Informatic Systems Engineering of the Department of Computer Science of the *Faculdade de Ciências da Universidade do Porto*, July 27, 2023. Advisor: Professor Doutor Sérgio Crisóstomo; session chair: Professor Doutor Rui Prior. Dissertation title: *Automated tool to detect Network Security Vulnerabilities and Misconfigurations on a Major Cloud Provider*.
4. **Daniel Sousa Mendes**, student of the M.Sc. in Network and Informatic Systems Engineering of the Department of Computer Science of the *Faculdade de Ciências da Universidade do Porto*, November 25, 2022. Advisor: Professor Doutor Rui Prior; co-advisor: Professor Doutor Sérgio Crisóstomo; session chair: Professor Doutor Luís Miguel Barros Lopes. Dissertation title: *Building Evacuation Assistance System*.
5. **Miguel José Gonçalves da Côte**, a student of the M.Sc. in Network and Informatic Systems Engineering of the Department of Computer Science of the *Faculdade de Ciências da Universidade do*

Porto, December 16, 2021. Advisor: Professor Doutor Sérgio Armindo Lopes Crisóstomo; session chair: Professor Doutor Luís Miguel Barros Lopes. Dissertation title: *Sistema de Apoio à Evacuação de Edifícios em Caso de Sinistros*.

6. **Ricardo João dos Santos Pina Cabral**, a student of the M.Sc. in Engineering and Management of Information Systems of the Department of Computer Science of the Escola de Engenharia of the Universidade do Minho, that took place in July 24, 2020. Advisor: Professor Doutor Rui João Peixoto José; session chair: Professor Doutor Miguel António Sousa Abrunhosa Brito. Dissertation title: *A Reference Design for Sensible Bicycles*.
7. **Filipe Emanuel de Sá Rocha**, a student of the M.Sc. in Computer Engineering and Telematics of the Department of Electrical, Telecommunications and Informatics of the Universidade de Aveiro, December 19, 2019. Advisor: Professor Doutor Miguel Luís; session chair: Professor Doutor Paulo Monteiro. Dissertation title: *Complementing vehicular connectivity coverage through cellular networks*.
8. **João Bernardo Castanheira Patrício**, a student of the M.Sc. in Computer Engineering and Telematics of the Department of Electrical, Telecommunications and Informatics of the Universidade de Aveiro, December 19, 2019. Advisor: Professor Doutor Miguel Luís; session chair: Professor Doutor Paulo Monteiro. Dissertation title: *Network Mechanisms for Swarms of Drones in Aquatic Sensing Environments*.
9. **Brian Cavagna Rodrigues**, a student of the M.Sc. in Computer Science of the Department of Computer Science of the Faculdade de Ciências da Universidade do Porto, December 15, 2018. Advisor: Professor Doutor Sérgio Crisóstomo; session chair: Professora Doutora Inês Dutra. Dissertation title: *GNSS and Barometric Sensor Fusion for Altimetry Applications*.

Supervision of B.Sc. Projects

Completed supervised B.Sc. theses:

1. Advisor, **José Pedro Poças Santos** - B.Sc. in Electrical and Computer Engineering, Institute of Engineering of the Polytechnic Institute of Porto. Final project entitled *Improvement of an Autonomous Vehicular Testbed: Vehicle Following via Image Processing*, successfully defended on September 2022.
2. Advisor, **Duarte Moreira** - B.Sc. in Electrical and Computer Engineering of the Institute of Engineering of the Polytechnic Institute of Porto. Final project co-advised by Professor Doctor David Pereira, entitled *LIDAR Measurement and Following System*, successfully defended on September 2022.
3. Co-advisor, **João Filipe Mateus Pereira** - B.Sc. in Electrical and Computer Engineering, Institute of Engineering of the Polytechnic Institute of Porto. Final project entitled *Evaluating 802.11p Communications Performance for a Safety-Critical Vehicular Application*, successfully defended on September 2021.
4. Co-advisor, **Diogo José Guedes Marta** - B.Sc. in Electrical and Computer Engineering of the Institute of Engineering of the Polytechnic Institute of Porto. Final project co-advised by Professor

Doctor Ricardo Severino and Ênio Filho, entitled *Hybrid Evaluation Framework for Vehicle Edge Computing*, successfully defended on September 2020.

3.2.5 Jury in B.Sc. Final Project Defenses

External jury member in the following B.Sc. final project defenses:

1. **Eduardo da Silva Borges**, student of the *Licenciatura em Engenharia Eletrotécnica e de Computadores* of ISEP, September 27, 2022. Advisor: Professor Doutor Ênio Filho; session chair: Professor Doutor Luís Lima. Dissertation title: *A Simulated Safety and Security Drone Testbed*.
2. **Gustavo Castro Lopes**, student of the *Licenciatura em Engenharia Eletrotécnica e de Computadores* of ISEP, September 27, 2022. Advisor: Doutor Ênio Filho; session chair: Professor Doutor Luís Lima. Dissertation title: *Drone Handover: Missions Overview*.

3.2.6 Collaborations with M.Sc./B.Sc. Students

Students carrying their M.Sc. thesis or B.Sc. final project:

1. **Tomás Sousa**, student of the Bachelor in Electrical and Computer Engineering of the Institute of Engineering of the Polytechnic Institute of Porto. Final project co-advised by Professor Doctor Filipe Pacheco and Ênio Filho, entitled *Development of a Line Follower Algorithm for an Indoor Cooperative Platooning Testbed*, successfully defended at September 2021.
2. **Carlos Gonçalves**, student of the Bachelor in Electrical and Computer Engineering of the Institute of Engineering of the Polytechnic Institute of Porto. Final project co-advised by Professor Doctor Filipe Pacheco and Ênio Filho, entitled *Development of an Indoor Cooperative Platooning Testbed: Localization and Platooning Algorithm*, successfully defended at September 2021.
3. **Fábio Cunha**, student of the Master in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, advised by Professor Doctor Ana Aguiar and Doctor André Cardote (VENIAM), with a thesis entitled *Buses as Urban Sensing Data Couriers*. Pedro also supported the work of the following student, that did not defend his thesis for reasons unrelated to Pedro.
4. **Leonid Andreevitch Kholkin**, student of the Master in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, advised by Professor Doctor Ana Aguiar and Doctor André Cardote (VENIAM), with a thesis entitled *Are you on the bus? Detecting Relative Position of Devices versus Mobile Hotspots*, successfully defended at July 2016.
5. **Diogo Manuel Castro Guimarães**, student of the Master in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto. Thesis advised by Doctor Tânia Calçada and Professor Doctor Susana Sargento (Universidade de Aveiro), entitled *Comunicações Oportunisticas para Aquisição de Dados de Sensores Ambientais Usando uma Rede Veicular*, successfully defended at July 2015.

6. **André da Silva e Sá**, student of the Master in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto. Thesis advised by Doctor Tânia Calçada and Professor Doctor Susana Sargento (Universidade de Aveiro), entitled *Fixed Sensors Integration for Future Cities Using M2M*, successfully defended at October 2014.

Outside the scope of a M.Sc. thesis or B.Sc. final project:

7. **Alex Nguyen**, student working towards the Diplôme d'ingénieur in Energies et environnement at ESIEE Paris, visiting under the Erasmus+ program, from May 2018 to July 2018. From this collaboration resulted publication [San2018f].
8. **Miguel Rosa**, student of the M.Sc. in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, since December 2017.
9. **Luís Miguel Sousa**, student of the B.Sc. in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, since October 2017.
10. **Filipa Barros**, student of the B.Sc. in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, since October 2017.
11. **Hugo Cruz**, student of the B.Sc. in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, between 2012 and 2013.
12. **João Granja**, student of the B.Sc. in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto, between 2012 and 2013.

3.3 Pedagogical Innovation

As per criterion IP of the call notice — Inovação pedagógica

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Pedagogical projects:

1. Prepared a semester-long course on the topic *Designing Vehicular Applications as Networked Multi-Agent Systems* for Ph.D. student Saeid Sabamoniri (PDEEC/FEUP), in the scope of the *Special Topics* course (described in the following slides: [SpecialTopics_SaeidSabamoniri.pdf](#)).
2. Introduced the topic of **long-range communication technologies (e.g., SigFox, LoRa, NB-IoT)** in the syllabus of the course **Industrial Computation Architectures** (ICA), of the 4th year of the Integrated M.Sc. program in Electrical and Computer Engineering of the Faculty of Engineering of the University of Porto (MIEEC/FEUP), and produced the associated pedagogical material ([ACI_wireless_long_range.pdf](#)).
3. Produced and revised the **experimental script for a practical assignment** on the temporal response of WLAN and Ethernet networks, also for the aforementioned course (*Industrial Computation Architectures*) and motivated by the reconfiguration of the practical assignments for remote execution ([Script_Assign3_Wlan_EN.pdf](#)).

3.4 Pedagogical Resources

As per criterion MP of the call notice — Materiais pedagógicos

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1. **Support slides for a semester-long course** on the topic *Designing Vehicular Applications as Networked Multi-Agent Systems*, as part of the Ph.D. course *Special Topics* (PDEEC/FEUP) taught to student Saeid Sabamoniri: [SpecialTopics_SaeidSabamoniri.pdf](#).
2. **Slides for a 2-hour lecture** on long-range communication technologies (e.g., SigFox, LoRa, NB-IoT): [ACI_wireless_long_range.pdf](#).
Used at:
 - Theoretical class of the course *Communication Systems for Critical Systems* (MScCCSE/ISEP);
 - Theoretical class of the course *Industrial Computation Architectures* (MIEEC/FEUP)
3. **Experimental guide for practical assignment** on the temporal response of WLAN and Ethernet networks, for the course *Industrial Computation Architectures*: [Script_Assign3_Wlan_EN.pdf](#).
4. **Slides on the Internet and TCP/IP stack operation** (e.g., DHCP, ARP), for a laboratory class of the course *Industrial Computation Architectures*, adapted from pre-existing slides: [ACI_trabalho3_20_21.pdf](#)
5. **Slides to introduce the practical implementation component** of the course *Industrial Informatics* (MIEEC/FEUP): [II_Aula_Implementacao.pdf](#).
6. Examination material for the course *Industrial Computation Architectures* – **around 60+ True-or-False questions per year**, created from scratch or adapted from examinations of previous years.

Pedagogical material presented informally to students:

7. **Slides for an introduction to Machine Learning**: [IntroML_PedroSantos.pdf](#).
8. **Slides for an introduction to network simulator OMNeT++**: [IntroOMNeT_PedroSantos.pdf](#).
9. **Slides for an introduction to Anomaly Detection through ML**: [AnomalyDetection_PedroSantos.pdf](#).
Presented on September 2021 to the MIRAI project consortium.
10. **Slides for an introduction to Privacy-Preserving ML**: [PrivacyPreservingML_PedroSantos.pdf](#).

3.5 Other Pedagogical Activities

As per criterion OU of the call notice — Outros

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3.5.1 Pedagogical Training

1. Attended a course of complementary skills on **Presentation and Assertive Communication Techniques**, offered by the Faculty of Engineering of the University of Porto, Portugal, and worth 1,5 ECTS, in November 2013.
2. Attended a course of complementary skills on **Pedagogical Training**, offered by the Faculty of Engineering of the University of Porto, Portugal, totaling 1,5 ECTS, in November 2016.

Chapter 4

Other Activities

4.1 Experience in Management Positions

As per criterion POG of the call notice - Participação em órgãos de gestão e em órgãos

(Back to [mapping table](#))

Starting from February 2021, Pedro has been appointed **Vice-President of the Scientific Council** of the CISTER Research Centre.

4.2 Community Outreach

As per criterion AEC of the call notice - Dinamização de atividades de extensão à comunidade

(Back to [mapping table](#))

4.2.1 Dissemination Activities to the General Public

Pedro presented and promoted the work carried out in the *Generation.Mobi* project (see Section 2.2) within the context of the *Volta ao Conhecimento* initiative, organized by the Ministry of Science, Technology and Higher Education, and that aims to disseminate the scientific research carried out in Portugal in partnership with the *Volta a Portugal* event, Portugal's most important cycling competition. Pedro did:

1. An interview about the project in the RTP show '*Há Volta!*', a general-audience show themed about the *Volta a Portugal*, on occasion of the 12th and last stage of the 2018 edition, at Fafe, Portugal, on August 12, 2018.

Video: youtube.com/watch?v=u8yp05SIB8w

2. Dissemination in a dedicated stand in the public area of the event, at the same date and stage.

Presented and promoted the work carried out at the Instituto de Telecomunicações, Porto branch, at:

3. Pedro M. Santos, Leonid Kholkin, Tania Calçada, Diogo Guimarães, Tiago Condeixa, Daniel Moura, Susana Sargento, Ana Aguiar, João Barros. [Poster: Network Solutions for Smart Cities](#). Presented at *TechDays 2016*, a dissemination event of the scientific and industrial activities of the municipality of Aveiro, Portugal. Centro de Exposições, Aveiro, Portugal, September 2016.

4. *Mostra UP 2015*, a dissemination event of the course offering and scientific work of the organic entities of the University of Porto, Portugal. Edifício da Alfândega, Porto, Portugal, 2015.
5. *Mostra UP 2014*, a dissemination event of the course offering and scientific work of the organic entities of the University of Porto, Portugal. Pavilhão Rosa Mota, Porto, Portugal, 2014.

4.2.2 Audiovisual Dissemination Material

Pedro has produced the following audiovisual material to support the dissemination of scientific and academic results in mass media platforms.

1. Pedro M. Santos, L. Pinto, M. Rosa. Video: *Demo: Stolen Bicycle Detection using Bluetooth Ad Hoc Communication*.
URL: youtube.com/watch?v=zc8JpLaUkHA.
Video to disseminate results of the P2020 project *Generation.Mobi*.
2. Pedro M. Santos, Diogo Guimarães. Video: *Platform for Collecting Data From Urban Sensor Using Vehicular Networking*.
URL: youtube.com/watch?v=Hqjx28hpuT8.
Support video to demonstration submission to the ACM MobiCom 2015 conference.
3. Pedro M. Santos. Video: *Fire sensors and escape routes*.
URL: youtube.com/watch?v=PJSqnq6ZfOE.
Dissemination video for the CMU|Portugal project *Vital Responder*.

Appendix A

Citation Count Procedure

Instructions to reproduce the publication citation count of the candidate Pedro M. Santos.

Elsevier SCOPUS

1. Login to SCOPUS. Login (e.g., institutional) is necessary.
2. Head to the candidate's SCOPUS profile webpage:

<https://www.scopus.com/authid/detail.uri?authorId=57195194993>

3. Select “Cited by X Documents” (see Figure A.1).
4. Select “Export All”; I recommend CSV as the output format.

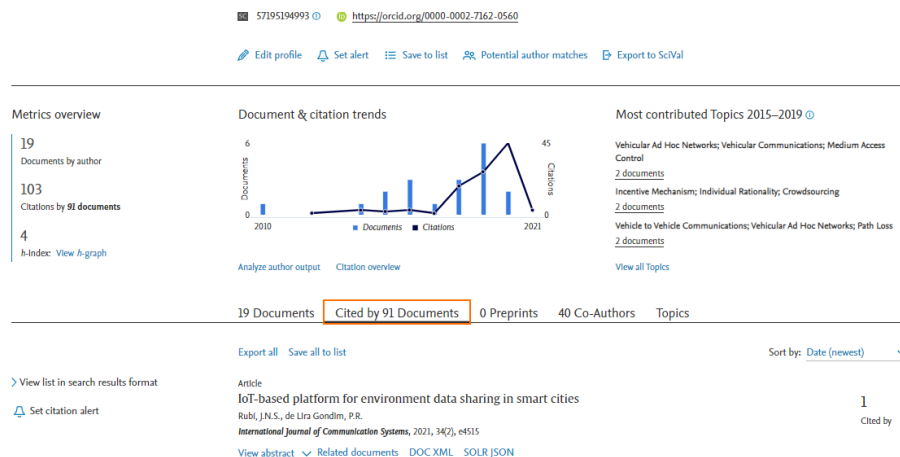


Figure A.1: Scopus profile

5. Open the file; I suggest Notepad++ or Word. Search for the candidate's SCOPUS ID (57195194993); in both programs, the number of occurrences will be provided. To the total number of entries, subtract the number of self-citation occurrences to obtain the number of citations except self-citations.

Google Scholar

1. Head to the candidate's Google Scholar profile:

<https://scholar.google.pt/citations?user=PWGti5IAAAAJ>

2. Select 'CITED BY'.

To remove self-citations, you can additionally do the following:

1. Click on the number of citations of the first search result (see Figure A.2).
2. Within the results, select the tick box "Search within citing papers".
3. In the search form, remove citations from the candidate with the following string:

-author:"Pedro M. Santos" -author:"PM Santos" -author:"PMS dos Santos"

4. Repeat for the remaining entries with citations.

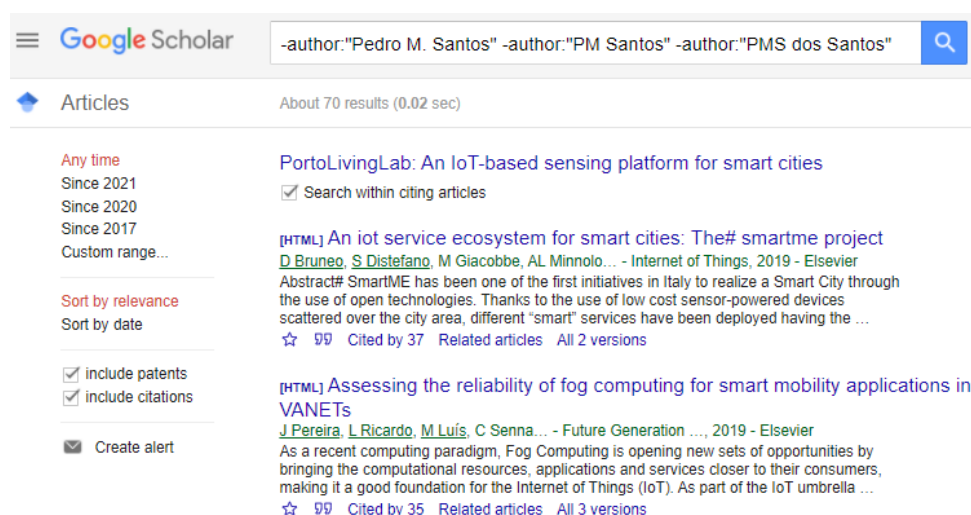


Figure A.2: Google Scholar profile

ISI Web of Knowledge

1. Head to the candidate's Web of Science profile. Institutional login is recommended.

<https://www.webofscience.com/wos/author/record/AAJ-7540-2020>

2. On the *Metrics* bar (on the right), click on *Dashboard*.
3. On the right side of the sub-pane, click on *View Citation Report*.
4. In the presented statistics, find the value for *Times Cited/Without self citations* (see Figure A.3).

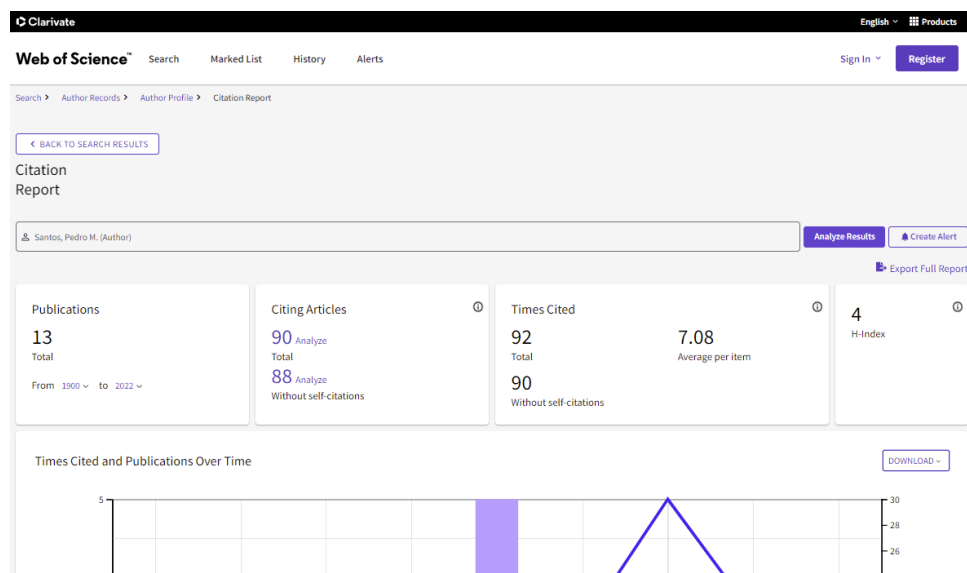


Figure A.3: ISI Web of Knowledge profile