João Pedro Pavia

Professor Auxiliar
ISTAR-Iscte - Information Sciences, Technologies and Architecture Research Centre
Department of Digital Technologies (ETDA)

Contacts

E-mail	Joao.Pedro.Pavia@iscte-iul.pt
Office	C6.05

Curriculum

João Pedro Calado Barradas Branco Pavia received his PhD in Information Sciences and Technologies in 2022 and he is currently an Assistant Professor in the Digital Technologies Department of the School of Applied Digital Technologies at ISCTE - University Institute of Lisbon, where he coordinates the Bachelor Degree in Digital Technologies and Information Security.
He is a member of the IEEE and is also a member of COST - European Cooperation in Science and Technology, where he collaborates with professionals from various countries to develop solutions focused on the field of intelligent radio communications for seamless inclusive interactions. In addition, another of his collaborations is related to the development of physical layer security solutions for reliable and resilient 6G systems.
He has been involved as a local organizer and reviewer at several conferences and symposia. He is also a reviewer for several journals in the field of information sciences and technologies. His research interests include topics related to cybersecurity, wireless communication networks, artificial intelligence, and big data.

Research Interests

- Cybersecurity
- Wireless Communications
- Artificial Intelligence

Big data

Academic Qualifications

University/Institution	Type	Degree	Period
ISCTE-IUL	PhD	Ciências e Tecnologias da Informação	2022
ISCTE - IUL	M.Sc.	Engenharia de Telecomunicações e Informática	2018
ISCTE - IUL	Licenciate	Engenharia de Telecomunicações e Informática	2016

Teaching Activities

Teaching Year	Sem.	Course Name	Degree(s)	Coord.
2025/2026	2º	Database and Information Management		Yes
2025/2026	2º	Introduction to Cybersecurity	Bachelor Degree in Digital Educational Technologies; Bachelor Degree in Digital Technologies and Automation; Bachelor Degree in Digital Technologies and Health;	Yes
2025/2026	2º	Computer Networks Security	Bachelor Degree in Digital Technologies and Information Security;	Yes
2025/2026	2º	Operating Systems and Virtualization		Yes
2025/2026	2º	Cybersecurity for Health Systems	Master Degree in Managing Digital Transformation in the Health Sector;	No
2025/2026	2º	Machine Learning for Cybersecurity		Yes
2025/2026	1º	Database and Information Management		Yes
2025/2026	1º	Databases and Security		Yes
2025/2026	1º	Introduction to Computer Networks	Bachelor Degree in Digital Technologies and Information Security; Bachelor Degree in Software and Applications Development;	Yes
2025/2026	1º	Introduction to Cybersecurity	Bachelor Degree in Digital Technologies and Information Security;	Yes
2025/2026	1º	Software and Application Security		Yes

2025/2026	1º	Security and Resilience of Infrastructures and Communication Networks	Master Degree in Cybersecurity and Resiliency;	Yes
2025/2026	1º	Cibersecurity in the School Environment	Master Degree in Digital Transformation in Teaching and Learning;	No
2025/2026	1º	Computer Architecture		Yes
2024/2025	2º	Database and Information Management		Yes
2024/2025	2º	Introduction to Computer Networks		Yes
2024/2025	2º	Introduction to Cybersecurity	Bachelor Degree in Digital Technologies and Health; Bachelor Degree in Software and Applications Development;	Yes
2024/2025	2º	Distributed Systems and Security		Yes
2024/2025	2º	Cybersecurity for Health Systems	Master Degree in Managing Digital Transformation in the Health Sector;	No
2024/2025	2º	Digital Technologies Applied to Society	Training Course in Digital Technologies Applied to Society;	No
2024/2025	1º	Databases and Security		Yes
2024/2025	1º	Introduction to Cybersecurity	Bachelor Degree in Digital Technologies and Information Security; Bachelor Degree in Digital Educational Technologies;	Yes
2024/2025	1º	Computer Networks Security	Bachelor Degree in Digital Technologies and Information Security;	Yes
2024/2025	1º	Training for Executives	Training Course in Cybersecurity for Executives;	No
2023/2024	2º	Introduction to Computer Networks	Bachelor Degree in Digital Technologies and Information Security;	Yes
2023/2024	2º	Introduction to Cybersecurity	Bachelor Degree in Digital Technologies and Health;	No
2023/2024	2º	Distributed Systems and Security		Yes
2023/2024	1º	Database and Information Management	Bachelor Degree in Software and Applications Development;	Yes
2023/2024	1º	Introduction to Cybersecurity	Bachelor Degree in Digital Technologies and Information Security; Bachelor Degree in Digital Educational Technologies;	No
2023/2024	1º	Computer Networks Security	Bachelor Degree in Digital Technologies and Information Security;	Yes

Supervisions

• Ph.D. Thesis

- Ongoing

	Student Name	Title/Topic	Language	Status	Institution
1	Diogo Roque Mendes	Design and Development of RIS-aided XL-MIMO Transmission and Reception Schemes	English	Developing	Iscte

• M.Sc. Dissertations

- Ongoing

	Student Name	Title/Topic	Language	Status	Institution
1	Marco Antônio Moreira Pinho de Camargo	Security Analysis in IoT Devices	--	Developing	Iscte
2	Stefano Dalmiani	EHR-Crawler: a Safe-Net for digital health	--	Developing	Iscte
3	Didier Jovany Soares António	Comparative analysis and performance optimisation of dynamic routing protocols (OSPF EIGRP and BGP) in simulated complex connectivity scenarios	--	Developing	Iscte
4	João Miguel Fernandes Teixeira	Optimizing data transmission between healthcare provider handovers	--	Developing	Iscte
5	Alessandro Catanese	DEVELOPMENT AND VALIDATION OF A RADIOLOGY DIGITAL COMPETENCY PROFILE ALIGNED WITH THE EUROPEAN HEALTH DATA SPACE	English	Developing	Iscte
6	Pedro José Guerra Monteiro dos Santos	Evaluating the Security State of Widely-Used Open-Source Web Applications on the WWW	--	Developing	Iscte
7	Miguel António Panzo Joel	Planeamento de Redes Privadas 5G	--	Developing	Iscte
8	João Mário Cortiços Lameiras	Intelligent attack detection system	--	Developing	Iscte
9	Luís Manuel Maceiro Cantante	Optimization of C-UAS Systems through Computer Vision and Artificial Intelligence	--	Developing	Iscte
10	João Pedro dos Santos Esteves Cajado	Compliance analysis of authentication information security policies	--	Developing	Iscte

11	Ivo Miguel de Sousa Rebelo	Detection and Mitigation of DDoS Attacks in Peer-to-Peer Networks	--	Developing	Iscte
12	João Miguel Pinto Ferreira Nunes	The Impact of the Advent of AI in Cybersecurity Professionals	--	Developing	Iscte

- Concluded

	Student Name	Title/Topic	Language	Institution	Concluding Year
1	Filipe de Oliveira Faustino Arsénio	Anticipating Financial Risk: Machine Learning for Debt Management in Telecommunications	English	Iscte	2025
2	João Miguel Isidro Antas	Cybersecurity Risk Assessment in the Financial Sector: An AI-Based Approach to Supplier Management and Access Controls	Portuguese	Iscte	2025
3	Tiago Alexandre Pinto da Agueda	Online System for Efficient Follow-Up in Healthcare	Portuguese	Iscte	2025
4	Diogo da Silva Moreira	Intelligent Platform for Automating Vulnerability Detection in Web Applications	Portuguese	Iscte	2024

- **M.Sc. Final Projects**

- Ongoing

	Student Name	Title/Topic	Language	Status	Institution
1	Mara Patrícia Falé Esteves Inácio	Information Security Plan in a School Context: Digital Risk Management in the Modern Era	--	Developing	Iscte
2	Ana Mónica Martins dos Santos	Data Privacy and Information Security in Educational Environments Using Generative Artificial Intelligence	--	Developing	Iscte

Total Citations

Web of Science®	105
Scopus	118

Publications

• Scientific Journals

- Scientific journal paper

1	Arsénio, F., Raimundo, A. & Pavia, J. P. C. B. B. (2026). Anticipating financial risk: Machine learning for debt management in telecommunications. IEEE Access. 14, 29523-29538
2	Mendes, D., Souto, N., Pavia, J. P. & Silva, J. (2026). Optimizing the achievable sum-rate in OFDM-based Multi-User MIMO systems assisted by multiple Beyond-Diagonal RISs. IEEE Open Journal of the Communications Society. 7, 1843-1860
3	Mendes, D., Pavia, J. P., Souto, N., Silva, J. & Correia, A. (2026). Beamforming optimization and system level assessment in RIS-aided MIMO systems comprising hybrid precoding architectures. IEEE Access. 14, 29333-29348
4	Moreira, D., Seara, J. P., Pavia, J. P. & Serrão, C. (2025). Intelligent platform for automating vulnerability detection in web applications. Electronics. 14 (1) - Times Cited Scopus: 1 - Times Cited Google Scholar: 5
5	Pavia, J. P., Velez, V., Souto, N., Silva, M. M. Da & Correia, A. (2024). System-level assessment of massive multiple-input–multiple-output and reconfigurable intelligent surfaces in centralized radio access network and IoT scenarios in sub-6 GHz, mm-Wave, and THz bands. Applied Sciences. 14 (3) - Times Cited Web of Science®: 9 - Times Cited Scopus: 9
6	Velez, V., Pavia, J. P., Souto, N., Sebastião, P. & Correia, A. (2023). Performance assessment of a RIS-empowered post-5G/6G network operating at the mmWave/THz bands. IEEE Access. 11, 49625-49638 - Times Cited Web of Science®: 10 - Times Cited Scopus: 11 - Times Cited Google Scholar: 12
7	Raimundo, A., Pavia, J. P., Sebastião, P. & Postolache, O. (2023). YOLOX-Ray: An efficient attention-based single-staged object detector tailored for industrial inspections. Sensors. 23 (10) - Times Cited Web of Science®: 9 - Times Cited Scopus: 12 - Times Cited Google Scholar: 18
8	Pavia, J. P., Velez, V., Souto, N., Ribeiro, M., Sebastião, P. & Correia, A. (2022). System-level assessment of low complexity hybrid precoding designs for massive MIMO downlink transmissions in beyond 5G networks. Applied Sciences. 12 (6) - Times Cited Web of Science®: 3 - Times Cited Scopus: 4 - Times Cited Google Scholar: 7
9	Praia, J., Pavia, J. P., Souto, N. & Ribeiro, M. (2022). Phase shift optimization algorithm for achievable rate maximization in reconfigurable intelligent surface-assisted THz communications. Electronics. 11 (1), 18 - Times Cited Web of Science®: 13 - Times Cited Scopus: 13 - Times Cited Google Scholar: 22
10	Velez, V., Pavia, J. P., Rita, C., Gonçalves, C., Souto, N., Sebastião, P....Correia, A. (2022). System-level assessment of a C-RAN based on generalized space–frequency index modulation for 5G new radio and beyond. Applied Sciences. 12 (3) - Times Cited Web of Science®: 5 - Times Cited Scopus: 5 - Times Cited Google Scholar: 9

11	Pavia, J. P., Velez, V., Branco Ferreira, R., Souto, N., Ribeiro, M., Silva, J....Dinis, R. (2021). Low complexity hybrid precoding designs for multiuser mmWave/THz ultra massive MIMO Systems. Sensors. 21 (18) - Times Cited Web of Science®: 16 - Times Cited Scopus: 17 - Times Cited Google Scholar: 20
12	Velez, V., Pavia, J.P., Souto, N., Sebastião, P. & Correia, A. (2021). A generalized space-frequency index modulation scheme for downlink MIMO transmissions with improved diversity. IEEE Access. 9, 118996-119009 - Times Cited Web of Science®: 7 - Times Cited Scopus: 6 - Times Cited Google Scholar: 17
13	Pavia, J. P., Velez, V., Brogueira, B., Souto, N. & Correia, A. (2020). Precoded generalized spatial modulation for downlink MIMO transmissions in beyond 5G networks. Applied Sciences. 10 (18) - Times Cited Web of Science®: 4 - Times Cited Scopus: 3 - Times Cited Google Scholar: 5
14	Pavia, J. P., Souto, N. & Ribeiro, M. (2020). Design of a reconfigurable THz filter based on metamaterial wire resonators with applications on sensor devices. Photonics. 7 (3), 1-21 - Times Cited Web of Science®: 6 - Times Cited Scopus: 5 - Times Cited Google Scholar: 7
15	Souto, N., Silva, J., Pavia, J. P. & Ribeiro, M. (2019). An alternating direction algorithm for hybrid precoding and combining in millimeter wave MIMO systems. Physical Communication. 34, 165-173 - Times Cited Web of Science®: 19 - Times Cited Scopus: 19 - Times Cited Google Scholar: 21

• Books and Book Chapters

- Book chapter

1	Akbar, D., Altan,H., Pavia, J.P., Ribeiro, M., Sahin, A.B & Sarikaya, C.K. (2021). Development of Stand-Off Imaging Systems using Low Cost Plasma Detectors that Work in the GHz to THz range. In Pereira, Mauro, Apostolakis, Apostolos (Ed.), Terahertz (THz), Mid Infrared (MIR) and Near Infrared (NIR) Technologies for Protection of Critical Infrastructures Against Explosives and CBRN. Heidelberg: Springer Netherlands. - Times Cited Google Scholar: 2

• Conferences/Workshops and Talks

- Publication in conference proceedings

1	Vicente, M., André, P. & Pavia, J. P. (2023). O alojamento local e a reabilitação de edifícios habitacionais em Lisboa: Exploração a partir de casos na Sétima Colina. In Paula André (Ed.), Antologia de snsaios: Laboratorio colaborativo: Dinâmicas urbanas, património, artes: IX seminário de investigação, ensino e difusão. (pp. 289-311). Brasilia: DINÂMIA'CET-ISCTE. - Times Cited Google Scholar: 1
2	Brogueira, B., Pavia, J. P., Souto, N. & Correia, A. (2020). Precoder and combiner design for generalized spatial modulation based multiuser MIMO systems. In 2020 23rd International Symposium on Wireless Personal Multimedia Communications (WPMC). Okayama, Japan: IEEE. - Times Cited Scopus: 1 - Times Cited Google Scholar: 3

3	Pavia, J.P., Souto, N., Ribeiro, M., Silva, J. & Dinis, R. (2020). Hybrid precoding and combining algorithm for reduced complexity and power consumption architectures in mmWave communications. In IEEE (Ed.), The 2020 IEEE 91st Vehicular Technology Conference: VTC2020-Spring. (pp. 1-5). Antwerp: IEEE. - Times Cited Scopus: 3 - Times Cited Google Scholar: 4
4	Ribeiro, M. A., Pavia, J. P. & Souto, N. (2019). Application of a mesh free Monte-Carlo method to the analysis of dielectric slabs in electromagnetics. In 2019 IEEE MTT-S International Microwave and RF Conference (IMARC). Mumbai, India: IEEE.
5	Pavia, J. P., Ribeiro, M. A., Sarikaya, C. K., Altan, H., Akbar, D. & Souto, N. (2019). Analysis of the interaction between THz waves and low cost plasma detectors for the development of stand-off imaging systems. In 2019 IEEE MTT-S International Microwave and RF Conference (IMARC). Mumbai, India: IEEE.
6	Pavia, J. P., Ribeiro, M. A., Sarikaya, C. K., Akbar, D., Altan, H. & Souto, N. (2019). Design of a novel THz sensor for structural health monitoring applications. In 2019 IEEE 20th Wireless and Microwave Technology Conference (WAMICON). Cocoa Beach, EUA: IEEE. - Times Cited Web of Science®: 1 - Times Cited Scopus: 2 - Times Cited Google Scholar: 2
7	Pavia, J. P., Ribeiro, M. A. & Souto, N. (2019). Design of frequency selective devices for the THz domain with applications on structural health monitoring. In 2019 Thirteenth International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials). (pp. 309-311). Rome: IEEE. - Times Cited Scopus: 1 - Times Cited Google Scholar: 2
8	Pavia, J., Lopes, D., Cristóvão, P., Sebastião, P. & Correia, A. (2017). The evolution and future perspective of security in mobile communications networks. In 2017 9th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT). (pp. 267-276). Munich, Germany: IEEE. - Times Cited Web of Science®: 3 - Times Cited Scopus: 6 - Times Cited Google Scholar: 14
9	Pavia, J.P., Prudêncio, R. F. & Ribeiro, M. (2016). Design of Low Cost Frequency Selective Structures with Extremely Small Bandwidth. In The International Conference on Semiconductor Mid-IR and THZ Materials and Optics – SMMO 2016. Lisboa

- Talk

1	Pavia, J.P., Souto, N. & Ribeiro, M. (2018). Design of Novel Filters in the Development of New Technologies for the THz using Frequency Selective Surfaces. XII Encuentro Iberico de Electromagnetismo Computacional - EIEC.
2	Akbar, D., Akbar, D., Akbar, D., Altan, H., Altan, H., Pavia, J.P....Behzat Sahin, A. (2018). Development of Stand-Off GHz Imaging Systems using Low Cost Plasma Detectors. Advanced Research Workshop -Terahertz (THz), Mid Infrared (MIR) and Near Infrared (NIR) Technologies for Protection of Critical Infrastructures against Explosives and CBRN.
3	Pavia, J.P., Prudêncio, R. F. & Ribeiro, M. (2016). Design of Low Cost Frequency Selective Structures with Extremely Small Bandwidth. 4th Annual Conference of COST Action MP1204 & SMMO2016 Conference.

4	Pavia, J.P., W. J . Otter, Otter, W.J., S. Lucyszyn & Ribeiro, M. (2016). Design of a THz-MEMS Frequency Selective Surface for Structural Health Monitoring. META'16, the 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics. - Times Cited Google Scholar: 1

Research Projects

Project Title	Role in Project	Partners	Period
Crossing the Atlantic for Scientific and Teaching-Learning Cooperation	Researcher	ISTAR-Iscte (DLS) - Leader, BSU - (United States of America)	2024 - 2025

Academic Management Positions

Director (2025 - 2028)
Unit/Area: Bachelor Degree in Digital Technologies and Information Security

Coordenador do 1º Ano (2025 - 2026)
Unit/Area: Bachelor Degree in Digital Technologies and Information Security

Membro (Docente) (2025 - 2027)
Unit/Area: Plenário do Conselho Pedagógico

Membro (Docente) (2024 - 2025)
Unit/Area: Comissão Pedagógica

Coordenador do 2º Ano (2024 - 2025)
Unit/Area: Bachelor Degree in Digital Technologies and Information Security

Coordenador do 2º Ano (2023 - 2024)
Unit/Area: Bachelor Degree in Digital Educational Technologies

Coordenador do 1º Ano (2023 - 2024)
Unit/Area: Bachelor Degree in Digital Technologies and Information Security

Awards

3rd Place at PhD Student Initiative promoted by IEEE MTT-S Society at IMaRC 2019 (2019)

ISTA Top Talent - Masters Degree (2018)

ISTA Top Talent - Masters Degree (2017)

3rd Place at Ideas Contest of FISTA (2017)

Certificate of Academic Excellence (2016)

Professional Associations

COST| European Cooperation in Science and Technology (Since 2022)
IEEE (Since 2014)

Organization/Coordination of Events

Type of Organization/Coordination	Event Title	Organizer	Year
Member of scientific event committee	The 2023 IEEE 97th Vehicular Technology Conference: VTC2023-Spring	IEEE Vehicular Technology Society	2023
Member of scientific event's organizing committee	The 22th International Symposium on Wireless Personal Multimedia Communications		2019
Member of scientific event's organizing committee	META 2019, the 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics		2019
Member of scientific event's organizing committee	ISWCS 2018 - 15th International Symposium on Wireless Communication Systems		2018
Member of scientific event's organizing committee	Visions for Future Communications Summit 2017		2017
Member of non-scientific event's organizing committee	FISTA		2013 - 2018