

André Pragosa Clérigo

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André Clérigo is a Ph.D. student in Computer Science (MAP-i) at the University of Aveiro and a researcher at Instituto de Telecomunicações. His research develops human- and network-centred architectures for safer interaction between vulnerable road users and connected and automated vehicles in smart cities. Current work investigates XR-enabled road users as mobile sensors and interaction endpoints, combining augmented reality, multimodal voice and gesture interaction, cooperative perception, congestion mitigation, V2X communications, and edge-orchestrated 5G services. This research builds on an award-winning M.Sc. thesis and collaborations with the Karlsruhe Institute of Technology, Carnegie Mellon University, and industry partners, including Brilliant Wear.

Research Experience and Projects

- 2024/09 – Present 📌 **Research Fellow / Researcher, 6G-PATH: 6G Pilots and Trials Through Europe**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: European Union Horizon Europe programme / Smart Networks and Services Joint Undertaking; Grant Agreement No. 101139172.
- 2025/05 – 2026/01 📌 **Research Fellow, SafeXCity: Augmented Safety for Urban Mobility**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: European Union Horizon Europe programme through FIDAL Open Call 2; parent Grant Agreement No. 101096146.
- 2024/01 – 2024/09 📌 **Research Fellow, Route 25: Agenda for Autonomous, Intelligent, Interoperable and Inclusive Mobility**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: Recovery and Resilience Plan (PRR)/NextGenerationEU, managed by IAPMEI; operation code 01/CO5-i11/2024.PC645463824-00000063.
- 2023/01 – 2023/06 📌 **Undergraduate Research Fellow, POWER – Empowering a Digital Future**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: European Regional Development Fund (FEDER) through COMPETE 2020/Portugal 2020; reference POCI-01-0247-FEDER-182851.
- 2022/01 – 2023/01 📌 **Undergraduate Research Fellow, RES-JNMatos**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: Instituto de Telecomunicações project reference O-0030-AV-17.
- 2021/10 – 2021/11 📌 **Undergraduate Research Fellow, Verão com Ciência 2021**, Instituto de Telecomunicações, Aveiro, Portugal. Funding/reference: Fundação para a Ciência e a Tecnologia (FCT); scholarship reference BII N° 2021/00169.

Education

- 2024 – present 📌 **Ph.D. in Informatics (MAP-i)**, Universities of Aveiro, Porto, and Minho, Portugal. Dissertation: *Network Architectures and Communication Frameworks for VRU Safety in Smart Environments*. Ph.D. pre-thesis presentation: **20/20**.
- 2025/11 – 2026/01 📌 **CMU Portugal Visiting Students Program 2025**, Carnegie Mellon University, United States.
- 2022 – 2024 📌 **M.Sc. in Computer Engineering and Telematics**, Universidade de Aveiro, Portugal. Final grade: **19/20**. Dissertation: *On the integration of communication, sensing and AR towards road safety*.
- 2019 – 2022 📌 **B.Sc. in Computer and Informatics Engineering**, Universidade de Aveiro, Portugal. Final grade: **15/20**.

Additional Training

- 2025/12/02 – 2026/02/03  **Systematic Review of Scientific Literature**, Faculdade de Engenharia da Universidade do Porto – 1.5 ECTS.
- 2025/09/17 – 2025/09/19  **COST INTERACT Action Training School**, Instituto de Telecomunicações, Leiria, Portugal.
- 2025/03/24 – 2025/04/28  **ECIU Micro-credential in Enabling Industry 4.0**, Technische Universität Hamburg, Germany.
- 2025/01/27 – 2025/01/30  **Writing for Scientific Publications: A Seminar for Writing Readable and Publishable Manuscripts**, Universidade de Aveiro – 2 ECTS.

Publications

- A. Clérigo, M. Schrapel, P. Rito, S. Sargento, and A. Vinel. “Evaluating Strategies for Multimodal Bidirectional Interactions between Pedestrians and AVs.” *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 2026. Submitted.
- A. Clérigo, P. Rito, S. Sargento, and P. Steenkiste. “New Congestion Mitigation Strategies for a V2X Mobile Collective Perception Service.” *IEEE Transactions on Vehicular Technology*, 2026. Submitted.
- G. Silva, A. Clérigo, P. Rito, and S. Sargento. “Multimodal AR-based Sensing and V2X Framework for Vulnerable Road Users Safety.” *IEEE Transactions on Vehicular Technology*, Special Issue on Advanced Driving Intelligence for Autonomous Vehicles, 2026. Submitted.
- B. Marques, S. Silva, S. Oliveira, A. Clérigo, J. Ramos, D. Mendes, and R. Rodrigues. “Expanding eXtended Reality Education: A Multimodal Human-Machine Interaction Course for Doctoral Students in Computer Science.” *Computers & Graphics*, 2026. Submitted.
- A. Clérigo, P. Rito, and S. Sargento. “Collision Prediction and Detection for Automotive Applications using V2X and Data Fusion.” *IEEE Transactions on Intelligent Transportation Systems*, Special Issue on Automated Driving in Mixed Traffic: From Sensing to Planning and Control, 2026. Submitted.
- A. Clérigo, G. Silva, T. Marques, J. Gameiro, P. Valente, J. Gonçalves, R. Gonçalves, D. Abreu, M. Luís, P. Rito, S. Sargento, S. Figueiredo, and D. Raposo. “SafeXCity: Deployable Edge Orchestration for VRU–AV Interactions over 5G.” *Proc. EAI Wireless Internet Conference (WiCON)*, 2026. Submitted.
- A. Clérigo, G. Silva, M. Schrapel, P. Rito, S. Sargento, and A. Vinel. “Cooperative Augmented Reality: Displaying Occluded Vehicles using V2X Communications.” *Proc. IEEE VNC*, 2025. DOI: 10.1109/VNC64509.2025.11054191.
- G. Silva, A. Clérigo, P. Rito, and S. Sargento. “Demo: Integrating AR Headsets with Mobile Object Detection to Extend Road Sensing and VRU Safety.” *Proc. IEEE VNC*, 2025. DOI: 10.1109/VNC64509.2025.11054108.
- A. Clérigo, M. Schrapel, P. Rito, S. Sargento, and A. Vinel. “Microservice-Based Architecture for Enhancing Road Safety with Support for Low-Latency Services.” *Proc. IEEE/IFIP NOMS*, 2025. DOI: 10.1109/NOMS57970.2025.11073709.
- R. Rodriguez, A. Clérigo, P. Rito, S. Sargento, B. Parreira, and R. Dinis. “MEC Federation: A Framework for Resource Sharing in Multi-Operator Beyond-5G Networks.” *Proc. IEEE/IFIP NOMS*, 2025. DOI: 10.1109/NOMS57970.2025.11073615.
- A. Clérigo. “Doctoral Symposium: Exploring Emerging Intelligent Transport System Applications Focused on Vulnerable Road Users.” *Proc. IEEE/IFIP NOMS*, 2025. DOI: 10.1109/NOMS57970.2025.11073651.
- A. Clérigo, M. Schrapel, P. Rito, S. Sargento, and A. Vinel. “SafeARCross: Augmented Reality Collision Warnings and Virtual Traffic Lights for Pedestrian Safety.” *Proc. ACM AutomotiveUI*, 2024. DOI: 10.1145/3640792.3675734.

Science communication (forthcoming): A. Figueiredo, J. Amaral, **A. Clérigo**, J. Ramos, M. Filho, T. Pereira, G. Silva, P. Fernandes, P. Rito, D. Raposo, S. Sargento, and M. Luís. “Communication Networks for Improved Road Safety with Autonomous Vehicles.” *research@ua*, vol. 16, forthcoming. Online URL and page range pending.

Skills

- Research  V2X communications; intelligent transportation systems; vulnerable road user safety; extended reality; communication–sensing integration; smart cities.
- Languages  Portuguese (native); English (proficient); German (A2).

Awards, Teaching, and Activities

- Awards  **2024 and 2025:** Caixa Geral de Depósitos Scholarship.
2025: IEEE/IFIP NOMS 2025 Student Travel Grant.
2024: IEEE Portugal Outstanding MSc Thesis Award.
2023/07: 4th place in EBEC Challenge Iberia 2023.
2023/02: 1st place in EBEC Challenge Aveiro 2023.
- Teaching  **2026/01 – 2026/07:** *Projecto em Engenharia de Computadores e Informática*, B.Sc. class, Universidade de Aveiro. Student project supervision.
2026/03: *Redes e Sistemas Autónomos*, M.Sc. class, Universidade de Aveiro. Teaching/support activity.
- Leadership  **2026/03 – Present:** Interim Chair, IEEE Student Branch Joint Chapter Communications Society and Vehicular Technology Society – University of Aveiro.
2024/07 – Present: Advisor, University of Aveiro Rocketry Team.
2023/01/01 – Present: Treasurer, Núcleo Audiovisual Associativo.
2021/06/01 – Present: Treasurer, Clube Social e Cultural das Brancas.
2024/01/01 – 2024/07/01: Payload Coordinator, University of Aveiro Rocketry Team.
- Reviewing  **2026:** *IEEE Internet of Things Journal*.
2026: *IEEE Journal of Selected Areas in Sensors*.
2025 and 2026: *IEEE Vehicular Networking Conference*.
2025: *IEEE Vehicular Technology Conference*.

Awards, Teaching, and Activities (continued)

- Activities
- **2026/07/17:** Presentation of Ph.D. research at Research Summit 2026, University of Aveiro.
 - 2026/04/10:** Presentation of Ph.D. research at Jornadas IT 2026, Leiria.
 - 2026/02/18:** Invited lecture on *Human Factors in Autonomous Driving*, Karlsruher Institut für Technologie, Germany.
 - 2024/07/19:** Presentation of M.Sc. thesis work at the 36th Seminar RTCM.
 - 2026/07/01:** Presentation of technical demonstrations at the Route 25 Aveiro Demonstration, Instituto de Telecomunicações, Aveiro.
 - 2026/06/25:** Presentation of research demonstrations at the 3rd Encontro das Agendas Mobilizadoras do PRR, Europarque, Santa Maria da Feira.
 - 2026/06/17–18:** Presentation of connected-mobility and cyclist-safety results at the final AM2R event, Centro de Artes de Águeda.
 - 2026/06/02–05:** Demonstration of the SafeXCity XR-, V2X-, and 5G-enabled VRU–AV interaction framework at the EuCNC & 6G Summit 2026, Málaga, Spain.
 - 2026/05/12–14:** Presentation of live demonstrations on smart mobility, autonomous mobility, V2X, and XR at the Portugal Smart Cities Summit 2026, Lisbon.
 - 2025/10/29:** Presentation of autonomous-mobility and V2X research results at Automotive Summit 2025, Aveiro.
 - 2025/09/17:** Presentation of large-scale autonomous, connected, and cooperative mobility demonstrations at the Route 25 Aveiro Demo Day.
 - 2025/06/02–04:** Co-presentation of XR-, V2X-, and VRU-safety research demonstrations and service as a Student Volunteer at the 16th IEEE Vehicular Networking Conference, Porto.