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Sandra Céspedes

Short Bio

Dr. Sandra Céspedes is an Assistant Professor in the Department of Computer Science & Software Engineering at Concordia University, Montréal, since 2022. She received her Ph.D. in Electrical & Computer Engineering in 2012 from the University of Waterloo, Canada, a Specialized Graduate Diploma in Organizational IT Management in 2007 from Icesi University, Colombia, and an Engineering degree in Telematics (*Magna Cum Laude*) from Icesi University. Prior to joining Concordia University, Dr. Céspedes was a tenure-track Assistant Professor in the Department of Electrical Engineering at the University of Chile, where she was promoted to Associate Professor in 2021. She has served as Associate Editor for leading venues such as the IEEE Internet of Things Journal, IEEE Vehicular Technology Magazine, and IEEE Internet of Things Magazine. She is an active contributor to Internet standards at the IETF and a co-author of several RFCs. Her main research interests are mobile networking, protocol design for constrained environments and the Internet of Things, near-Earth and deep-space IoT networks, connected vehicles, and cyber-physical systems.

Education

2008-2012 **Ph.D. in Electrical and Computer Engineering**
Thesis: IP Mobility Support in Multi-hop Vehicular Communications Networks. *Broadband Communications Research Group*,
University of Waterloo, Waterloo, ON, Canada.

2005-2006 **Specialized Graduate Diploma in Organizational IT Management**
Faculty of Engineering. Icesi University, Cali, Colombia.

1998-2003 **Engineering Degree in Telematics (*Magna Cum Laude*)**
Faculty of Engineering. Icesi University, Cali, Colombia.

Employment History

01/2022–Present **Assistant Professor**
Department of Computer Science & Software Engineering. Gina Cody School of Engineering and Computer Science,
Concordia University, Montréal, QC, Canada.

12/2025–11/2030 **International Researcher**
Edge Computing and IoT Group. Advanced Center for Electrical and Electronic Engineering (AC3E), Valparaíso, Chile.

05/2020–11/2025 **Associate Researcher**
Data Analytics and Artificial Intelligence Group. Advanced Center for Electrical and Electronic Engineering (AC3E), Valparaíso, Chile.

08/2021–12/2021 **Associate Professor**
Department of Electrical Engineering. University of Chile, Santiago, Chile.

10/2014–07/2021 **Assistant Professor**
Department of Electrical Engineering. University of Chile, Santiago, Chile.

01/2018–12/2021 **Head of Research**
NIC Chile Research Labs. University of Chile, Santiago, Chile.

07/2017–Present **Honorary Affiliate Professor**
Faculty of Engineering. Icesi University, Cali, Colombia.

05/2016–09/2019 **Researcher**
Institute of Complex Engineering Systems (ISCI). University of Chile, Santiago, Chile.

10/2012–06/2014 **Assistant Professor and Undergraduate Program Coordinator**
Telematics Engineering. Department of Information and Communication Technologies,
Icesi University, Cali, Colombia.

01/2011-05/2011 **Research Intern**
Trusted Systems Innovation Group (TSIG). Fujitsu Laboratories of America, Sunnyvale, CA, USA.

01/2009–09/2011 **Teaching Assistant**
Department of Electrical and Computer Engineering. University of Waterloo, Waterloo, ON, Canada.

11/2005–08/2008 **Lecturer (Full-time)**
Department of Information and Communication Technologies. Icesi University, Cali, Colombia.

01/2003–10/2005 **Network Infrastructure Coordinator**
Techcnical Department. People On Line S.A., Cali, Colombia.

Publications

Refereed Journal Publications

J.1 *J. Sandoval, *A. Yanez, **S. Céspedes**, "RLQO: Reinforcement Learning-Based AQM for Fluctuating mmWave RAN Links in 5G-A/6G," *IEEE Access*, vol. 14, pp. 13768–13782, Jan 2026.

J.2 *R. Ortigueira-Ruiz, **S. Céspedes**, M. E. Diago-Mosquera, and S. Montejo-Sánchez, "WASY: A Distributed Time Slot Synchronization Mechanism for Direct-to-Satellite IoT Systems," in *IEEE Wireless Communications Letters*, vol. 15, pp. 1340–1344, 2026.

J.3 J. S. Sidhu, *J. Sandoval, A. Bentaleb, and **S. Céspedes**, "From 5G RAN Queue Dynamics to Playback: A Performance Analysis for QUIC Video Streaming," *IEEE Transactions on Networking*, vol. 34, pp. 2384–2399, 2026.

J.4 *F. Medina, H. Ruiz, E. Avendaño, and **S. Céspedes**, "Toward Safer Mines: A Robust Wireless Sensor Network Placement for Real-World Underground Conditions," *IEEE Access*, vol. 13, pp. 213323–213335, 2025.

J.5 F. A. Tondo, J. M. d. S. Sant'Ana, S. Montejo-Sánchez, O. L. A. López, **S. Céspedes**, and R. D. Souza, "Non-Orthogonal Multiple-Access Strategies for Direct-to-Satellite IoT Networks," in *IEEE Transactions on Aerospace and Electronic Systems*, vol. 61, no. 6, pp. 16267–16279, Dec 2025.

J.6 *A. Yanez, F. Salas, C. Azurdia-Meza, *J. Sandoval, **S. Céspedes**, "Enhancing Urban Road Safety: A 5G NR Model for Vulnerable Road Users Awareness." in *IEEE Access*, vol. 13, pp. 99170-99182, Jun 2025.

J.7 *T. Núñez-González, C. Azurdia-Meza, *R. Ortigueira, S. Montejo-Sánchez, *J. Ordenes-Pinto, M. Diago-Mosquera, **S. Céspedes**, "Enhancing LEO direct-to-satellite channel modeling with the shadowing effect via K-distribution." *ICT Express*, Vol. 11, Issue 3, pp. 559–564, Jun 2025.

J.8 *R. Ortigueira, S. Montejo-Sánchez, S. Henn, J. A. Fraire and **S. Céspedes**, "Satellite Visibility Prediction for Constrained Devices in Direct-to-Satellite IoT Systems," *IEEE Sensors Journal*, vol. 24, no. 16, pp. 26630–26644, Aug 2024.

J.9 *S. Bolufé, J. F. Silva, C. A. Azurdia-Meza, I. Soto and **S. Céspedes**, "Road Incident Detection Under Rate Adaptation-Based Congestion Control in Cooperative

Vehicular Systems," *IEEE Access*, vol. 12, pp. 111899–111914, 2024.

J.10 S. Espinosa, J. Silva, **S. Céspedes**, "A Survey on Error Exponents in Distributed Hypothesis Testing: Connections with Information Theory, Interpretations and Applications," *Entropy*, 2024, 26, 596.

J.11 *P. I. Parra, S. Montejo-Sánchez, J. A. Fraire, R. D. Souza and **S. Céspedes**, "Network Size Estimation for Direct-to-Satellite IoT," in *IEEE Internet of Things Journal*, vol. 10, no. 7, pp. 6111–6125, April 2023.

J.12 F. A. Tondo, V. D. P. Souto, O. L. Alcaraz López, S. Montejo-Sánchez, **S. Céspedes**, and R. D. Souza, "Optimal Traffic Load Allocation for Aloha-Based IoT LEO Constellations," in *IEEE Sensors Journal*, vol. 23, no. 3, pp. 3270–3282, Feb. 2023.

J.13 *A. Arteaga, **S. Céspedes**, and C. A. Azurdia-Meza, "Toward the Coexistence of Cognitive Networks for Vehicular Communications on TVWS for IEEE Std. 802.22," in *IEEE Transactions on Cognitive Communications and Networking*, vol. 8, no. 3, pp. 1316–1331, Sept. 2022.

J.14 G. Álvarez, J. A. Fraire, K. A. Hassan, **S. Céspedes**, and D. Pesch, "Uplink Transmission Policies for LoRa-Based Direct-to-Satellite IoT," in *IEEE Access*, vol. 10, pp. 72687–72701, Jul. 2022.

J.15 J.F. González-Saavedra, M. Figueroa, **S. Céspedes**, S. Montejo-Sánchez, "Survey of Cooperative Advanced Driver Assistance Systems: From a Holistic and Systemic Vision," *Sensors*. 2022; 22(8):3040. April 2022.

J.16 *R. Muñoz, J. Saez Hidalgo, F. Canales, D. Dujovne, **S. Céspedes**, "SCHC over LoRaWAN Efficiency: Evaluation and Experimental Performance of Packet Fragmentation," *Sensors*. 2022; 22(4):1531. Feb 2022.

J.17 M. Román Cañizares, P. Palacios Játiva, C.A. Azurdia-Meza, S. Montejo-Sánchez, **S. Céspedes**, "Impact of diversity combining schemes in a multi-cell VLC system with angle diversity receivers," *Photonic Network Communications*, 43(1), pp.13–22., 2022.

J.18 *R. Ortigueira, J.A. Fraire, A. Becerra, *T. Ferrer, **S. Céspedes**, "RESS-IoT: A scalable energy-efficient MAC protocol for direct-to-satellite IoT." *IEEE Access*, vol. 9, pp. 164440–164453. Dec 2021.

J.19 S. Aguilar, *D.S. Wistuba La-Torre, A. Platis, R. Vidal, C. Gomez, **S. Céspedes**, J.C. Zúñiga. "Packet fragmentation over Sigfox: implementation and performance evaluation of SCHC ACK-on-error." *IEEE Internet of Things Journal*, vol. 9, no. 13 pp. 11057–11070. Nov 2021.

J.20 Q. Yu, M. Wang, H. Zhou, J. Ni, J. Chen, and **S. Céspedes**, "Guest Editorial Special Issue on Cybertwin-Driven 6G: Architectures, Methods, and Applications," in *IEEE Internet of Things Journal*, vol. 8, no. 22, pp. 16191–16194, 15 Nov 2021.

J.21 F.A. Tondo, S. Montejo-Sánchez, M.E. Pellenz, **S. Céspedes**, R.D. Souza, "Direct-to-satellite IoT slotted aloha systems with multiple satellites and unequal erasure probabilities." *Sensors*, 21, no. 21, pp. 7099. Oct 2021.

J.22 J. Jeong, Y. Shen, T. Oh, **S. Céspedes**, N. Benamar, M. Wetterald, J. Haerri, "A Comprehensive Survey on Vehicular Networks for Smart Roads: A Focus on IP-Based Approaches", *Vehicular Communications*, vol. 29, no. 100334, Jun 2021.

J.23 *T. Lara, *A. Yáñez, **S. Céspedes**, and A. S. Hafid, "Impact of Safety Message Generation Rules on the Awareness of Vulnerable Road Users," *Sensors* (14248220) 21, no. 10, May 2021.

J.24 *F. Valle, **S. Céspedes**, and A. Hafid, "Automated Decision System to Exploit Network Diversity for Connected Vehicles", *IEEE Transactions on Vehicular Technology*, vol. 70, no. 1, pp. 858-871, Jan. 2021.

J.25 *S. Bolufé, C. A. Azurdia-Meza, **S. Céspedes**, S. Montejo-Sánchez, "Impact of Awareness Control on V2V-based Overtaking Application in Autonomous Driving", *IEEE Communications Letters*, vol. 25, no. 4, pp. 1373-1377, April 2021.

J.26 I. Serban, **S. Céspedes**, C. Marinescu, C. A. Azurdia-Meza, J. S. Gómez and D. Sáez, "Communication Requirements in Microgrids: A Practical Survey," *IEEE Access*, vol. 8, pp. 47694-47712, 2020.

J.27 *S. Bolufé, C. A. Azurdia-Meza, **S. Céspedes**, S. Montejo-Sánchez, R. D. Souza and E. M. G. Fernandez, "POSACC: Position-Accuracy Based Adaptive Beaconing Algorithm for Cooperative Vehicular Safety Systems," *IEEE Access*, vol. 8, pp. 15484-15501, 2020.

J.28 E. Inga, R. Hincapié, and **S. Céspedes**, "Capacitated Multicommodity Flow Problem for Heterogeneous Smart Electricity Metering Communications Using Column Generation," *Energies*, vol. 13, no. 1, p. 97, 2020.

J.29 *A. Yáñez, **S. Céspedes**, J. Rubio-Loyola, "A Baseline for Context-aware Safety Messages Dissemination in VANETs," in *Revista Facultad de Ingeniería Universidad de Antioquia*, n. 93, pp. 9–18, Dec 2019.

J.30 *A. Arteaga, **S. Céspedes**, C. Azurdia-Meza, "Vehicular communications over TV White Spaces in the Presence of Secondary Users," *IEEE Access*, vol. 7, pp. 53496–53508, Apr 2019.

J.31 *T. Ferrer, **S. Céspedes**, A. Becerra, "Review and Evaluation of MAC Protocols for Satellite IoT Systems Using Nanosatellites," *Sensors*, vol. 19, no. 8, p. 1947, Apr 2019.

J.32 **S. Céspedes**, J. Salamanca, *A. Yáñez, D. Vinasco, **S. Céspedes**, "Group Cycling meets Technology: A Cooperative Cycling Cyber-Physical System," *IEEE Transactions on Intelligent Transportation Systems*, vol. 20, no. 8, pp. 3178–3188, Dec 2018.

J.33 E. Inga. **S. Céspedes**, R. Hincapié, *C. A. Cárdenas, "Scalable Route Map for Advanced Metering Infrastructure Based on Optimal Routing of Wireless Heterogeneous Networks," *IEEE Wireless Communications*, vol.24, no.2, pp.26–33, April 2017.

J.34 Estévez, C. Azurdia, **S. Céspedes**, "Overcoming Intrinsic Losses with a Physical-Transport Cross-Layer Control System for Low-SNR Links," *IEEE Communications Letters*, vol.19, no.12, pp.2094–2097, Dec 2015.

J.35 **S. Céspedes**, X. (Sherman) Shen. **S. Céspedes**, "On Achieving Seamless IP Communications in Heterogeneous Vehicular Networks," *IEEE Transactions on Intelligent Transportation Systems*, vol. 16, no. 6, pp. 3223–3237, Dec 2015.

J.36 *A. Orozco, **S. Céspedes**, R. Michoud, and G. Llano. "Design and Simulation of a Collision Notification Application with Geocast Routing for Car-to-Car Communications," *European Transport Research Review*, vol. 7 (4), p. 36, Oct 2015.

J.37 *D. F. Ramírez, **S. Céspedes**, "Routing in Neighborhood Area Networks: A Survey in the Context of AMI Communications," *Journal of Network and Computer Applications*, vol. 55, pp. 68–80, Sep 2015.

J.38 **S. Céspedes**, S. Taha, X. (Sherman) Shen. **S. Céspedes**, "A Multi-hop Authenticated Proxy Mobile IP Scheme for Asymmetric VANET," *IEEE Transactions on Vehicular Technology*, vol. 62, no. 7, pp. 3271–3286, Sept 2013.

J.39 **S. Céspedes**, N. Lu, X. (Sherman) Shen. **S. Céspedes**, "VIP-WAVE: On the Feasibility of IP Communications in 802.11p Vehicular Networks," *IEEE Transactions on Intelligent Transport Systems*, vol. 14, no. 1, pp. 82–97, Mar 2013.

J.40 **S. Céspedes**, X. (Sherman) Shen, C. Lazo. **S. Céspedes**, "IP Mobility Management for Vehicular Communication Networks: Challenges and Solutions," *IEEE Communications Magazine – [Topics in automotive networking]*, vol. 49, no. 5, pp. 187–194, May 2011.

Book Chapters and Encyclopedia Entries

B.1 **S. Céspedes**, "Network-Layer Mobility Management," Eds: Xuemin $Sherman$ Shen, Xiaodong Lin, Kuan Zhangin. *Encyclopedia of Wireless Networks*. Springer International Publishing, Cham. 2018. Pages 1-14.

B.2 C. Estévez, C. Azurdia, **S. Céspedes**, "The Internet of Interlaced Cyber-physical Things," Eds: Danda B. Rawat, Joel J.P.C. Rodrigues, Ivan Stojmenovic. *Cyber Physical Systems: From Theory to Practice*. Auerbach Publications, CRC Press, Taylor & Francis Group, USA. 2015. Pages 343-372.

B.3 S. Taha, **S. Céspedes**, X. (Sherman) Shen. "Mutual Authentication in IP Mobility-enabled Multihop Wireless Networks," Eds: Shafiullah Khan, Jaime Lloret Mauri. *Security for Multihop Wireless Networks*. Auerbach Publications, CRC Press, Taylor & Francis Group, USA. 2014. Pages 101-124.

B.4 **S. Céspedes**, and Z. Solarte. "Design and development of the monitoring component," Eds: Andrés Navarro Cadavid. *Universal system for mobile device portability in heterogeneous wireless networks*. Editorial Universidad Autónoma de Colombia. 2008. Pages 95-123.

B.5 C. Lazo, R. Glocker, **S. Céspedes**, and M. Veiga. "Traffic Flow Analysis over an IPv6 Hybrid MANET," Eds: Tarek Sobh, Khaled Elleithy, Ausif Mahmood, Mohamed

Karim. *Innovative Algorithms and Techniques in Automation, Industrial, Electronics, and Telecommunications v2*. Springer Netherlands. 2007. Pages 95-100.

Refereed Conference Publications

C.1 *J. Gerard, J.A. Fraire, **S. Céspedes**, “Modeling Pointing, Acquisition, and Tracking Delays in Free-Space Optical Satellite Networks,” *2025 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE)*, Halifax, Canada, 2025, pp. 1–6. **Best Paper Award**.

C.2 *D.C. Bonilla, C. Lozano-Garzon, **S. Céspedes**, H. Castro, “GEMINIS Observability Module: Monitoring the Environmental Sustainability of IoT Infrastructures,” *World Conference on Information Communication Systems, Software, Security and Sustainability (WorldS4 2025), Lecture Notes in Networks and Systems (in press)*, London, UK, 2025.

C.3 *M. Hatami, **S. Céspedes**, J.W. Atwood, “A Framework for Secure Autonomic IoT Device Management in Constrained Networks,” *Proceedings of the 2025 Applied Networking Research Workshop (ANRW ’25)*, ACM, New York, NY, USA, pp. 150–156.

C.4 *J. I. Sandoval, J. S. Sidhu, **S. Céspedes**, A. Bentaleb, “QUIC Adaptive Video Streaming Performance with 5G RAN Queue Management,” *2025 IEEE International Mediterranean Conference on Communications and Networking (MeditCom)*, Nice, France, 2025, pp. 1–6.

C.5 *P. Ilabaca, *D. Maldonado, J. A. Fraire, S. Montejo, **S. Céspedes**, “Network Size Estimation in DtS-IoT: A LoRaWAN Approach for Satellite Constellations,” *2025 IEEE International Conference on Communications (ICC)*, Montréal, QC, Canada, 2025, pp. 5506–5511.

C.6 *J. Gerard, *A. Ibrahim, J. A. Fraire, **S. Céspedes**, “Autonomous Max-Flow Interplanetary Laser Link Scheduling for Martian Exploration,” *2024 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE)*, Daytona Beach, USA, 2024, pp. 70–75.

C.7 *D. C. Bonilla Verdugo, C. A. Lozano-Garzón, **S. Céspedes**, H. Castro, “GEMINIS – Green Evaluation Methodology for IoT and Network Infrastructure Sustainability,” *2024 IEEE International Conference on Internet of Things and Intelligence Systems (IoTaIS)*, Bali, Indonesia, 2024, pp. 14–18.

C.8 *J. Gerard, J. A. Fraire, *R. Ortigueira, **S. Céspedes**, “DtS-IoT Resource Allocation Analysis Framework: Assessing DQ and RESS-IoT,” *2024 IEEE 10th World Forum on Internet of Things (WF-IoT)*, Ottawa, ON, Canada, 2024, pp. 672–677.

C.9 *J. Gerard, J. A. Fraire, **S. Céspedes**, “Unlocking DtS-IoT Medium Access Through the Massively Scalable Distributed Queuing Protocol,” *2024 IEEE 10th World Forum on Internet of Things (WF-IoT)*, Ottawa, ON, Canada, 2024, pp. 840–845.

C.10 *R. Muñoz-Lara, **S. Céspedes**, M. Díaz, “SCHC Over DtS-IoT: Performance of SCHC

Confirmation Modes in Satellite IoT," *2024 IEEE 10th World Forum on Internet of Things (WF-IoT)*, Ottawa, ON, Canada, 2024, pp. 678–683.

C.11 *J. Sandoval, **S. Céspedes**, "Work in Progress: Congestion Control in mmWave Fluctuating Scenarios in 5G-A/6G," *2024 IEEE 10th World Forum on Internet of Things (WF-IoT)*, Ottawa, ON, Canada, 2024, pp. 571–573.

C.12 *J. Sandoval, **S. Céspedes**, A. Gonzalez, D. Torreblanca, I. Bugueño-Córdova, "A Deep Dive into Congestion Control and Buffer Management for Fluctuation-Prone 5G-A/6G Links," *2024 7th Conference on Cloud and Internet of Things (CIoT)*, Montréal, QC, Canada, 2024, pp. 1–8.

C.13 *J. Gerard and **S. Céspedes**, "Sailing the Cosmic Seas: Improving Dependability in IoT-Based Deep Space Exploration," *2024 6th International Conference on Communications, Signal Processing, and their Applications (ICCSPA)*, Istanbul, Turkiye, 2024, pp. 1–3. **Winners List – IEEE ComSoc Challenge**

C.14 *F. Medina, O. Montañez, *C. Suancha, E. Avendaño, **S. Céspedes**, "Evaluating Propagation Models for IIoT in Underground Mining: An Experimental Comparative Study in Underground Coal Mines," *2024 IEEE ANDESCON*, Cusco, Peru, 2024, pp. 1–6.

C.15 S. I. Montoya, D. Maldonado, J. A. Fraire, **S. Céspedes**, "On the Role of Delay Tolerant Networks and Contact Graph Routing in Direct-to-Satellite IoT," *2024 IEEE 10th International Conference on Space Mission Challenges for Information Technology (SMC-IT) & Space Computing Conference (SCC)*, Mountain View, CA, USA, 2024, pp. 151–160.

C.16 *J. Gerard, *D. C. Bonilla, A. Bentaleb, **S. Céspedes**, "Optimizing Quality and Energy Efficiency in WebRTC with ML-Powered Adaptive FEC," *2024 IEEE International Conference on Multimedia and Expo Workshops (ICMEW)*, Niagara Falls, ON, Canada, 2024, pp. 1–6.

C.17 *J. Sandoval, **S. Céspedes**, "Performance Evaluation of Congestion Control Over B5G/6G Fluctuating Scenarios," *Proceedings of the Int'l ACM Symposium on Design and Analysis of Intelligent Vehicular Networks and Applications (DIVANet '23)*, New York, NY, USA, 2023, pp. 85–92.

C.18 *A. Yáñez, **S. Céspedes**, C. Azurdia-Meza, "Know Your Vulnerable Neighbors: Awareness Model for 5G C-V2X Communications Mode 2," *Proceedings of the Int'l ACM Symposium on Design and Analysis of Intelligent Vehicular Networks and Applications (DIVANet '23)*, New York, NY, USA, 2023, pp. 85–92.

C.19 *D. Maldonado, J. A. Fraire, *P. Ilabaca, H. Rivano, **S. Céspedes**, "Network Size Estimation for LoRa-Based Direct-to-Satellite IoT," *2023 IEEE Cognitive Communications for Aerospace Applications Workshop (CCAAW)*, Cleveland, OH, USA, 2023, pp. 1–6.

C.20 *D. S. Wistuba La-Torre, **S. Céspedes**, J. Bustos-Jiménez, "Modeling SCHC ACK-on-Error Fragment Delivery over Sigfox," *Proceedings of the 18th ACM International*

Symposium on QoS and Security for Wireless and Mobile Networks (Q2SWinet '22), New York, NY, USA, 2022, pp. 115–119.

C.21 *D. Moreira, *K. Wagemann, **S. Céspedes**, "IPv6 Neighbor Discovery for Vehicular Networks," *50 Jornadas Argentinas de Informática (JAIIO) – IETF Day 2021*, Argentina, 2021, pp. 1–15.

C.22 *J. Sandoval, **S. Céspedes**, "Performance Evaluation of IEEE 802.11ax for Residential Networks," *2021 IEEE Latin-American Conference on Communications (LATINCOM)*, Santo Domingo, Dominican Republic, 2021, pp. 1–7.

C.23 *P. Ilabaca, **S. Céspedes**, S. Montejo-Sánchez, "Network Size Estimation in Direct-to-Satellite IoT," *2021 IEEE 8th International Conference on Space Mission Challenges for Information Technology (SMC-IT)*, Virtual Conference, 2021, pp. 107–111.

C.24 *T. Nuñez, J. Lopez, S. Montejo, C. Azurdia, **S. Céspedes**, "Analysis of Channel Models for LoRa-based Direct-to-Satellite IoT Networks Served by LEO Nanosatellites," *IEEE International Conference on Communications (ICC) – 2nd Workshop on Internet of Mobile Things*, Virtual Conference, Montreal, Canada, 2021, pp. 1–6.

C.25 *A. Yáñez, **S. Céspedes**, "Pedestrians Also Have Something to Say: Integration of Connected VRU in Bidirectional Simulation," *IEEE Vehicular Networking Conference (VNC)*, Online, 2020, pp. 1–4.

C.26 *A. Arteaga, P. Palacios Játiva, **S. Céspedes**, C. Azurdia-Meza, "Evaluation of Opportunistic Access Strategies for Vehicular Networking Over TVWS," *2020 IEEE 92nd Vehicular Technology Conference (VTC-Fall 2020)*, Victoria, BC, Canada, 2020, pp. 1–5.

C.27 *P. Ortega, **S. Céspedes**, S. Montejo-Sánchez, "Increasing Safety at Vehicular Intersections with a Controlled Retransmission of Beacons," *2020 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Cali, Colombia, 2020, pp. 6–11.

C.28 *D. Londoño, **S. Céspedes**, J. Bustos, "Analysis and Evaluation of HTTP/2 Flow Control Algorithm for IoT," *2020 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Cali, Colombia, 2020, pp. 12–15.

C.29 Ortiz-Guerra, M. O. Rojas, S. Montejo-Sánchez, R. D. Souza, C. A. Azurdia-Meza and **S. Céspedes**, "On MAC Protocols Performance for M2M Communications," *2020 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Cali, Colombia, 2020, pp. 1–5.

C.30 *T. Lara, O. Cartagena, **S. Céspedes**, D. Sáez, "Robust Model Based Predictive Control for a Cooperative Cycling Cyber-Physical System," *2019 IEEE CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies (CHILECON)*, Valparaíso, Chile, 2019, pp. 1–6.

C.31 *R. Muñoz Lara, **S. Céspedes**, A. Hafid, "Understanding and Characterizing Transmission Times for Compressed IP packets over LoRaWAN," *2019 IEEE Latin-American Conference on Communications (LATINCOM)*, Salvador, Brazil, 2019, pp. 1–6.

C.32 P. P. Játiva, C. A. Azurdia-Meza, M. R. Cañizares, **S. Céspedes**, S. Montejo-Sánchez, "Performance Enhancement of VLC-Based Systems Using Diversity Combining Schemes in the Receiver," *2019 IEEE Latin-American Conference on Communications (LATINCOM)*, Salvador, Brazil, 2019, pp. 1–6.

C.33 J.A. Fraire, **S. Céspedes**, N. Accettura, "Direct-To-Satellite IoT – A Survey of the State of the Art and Future Research Perspectives," *Ad-Hoc, Mobile, and Wireless Networks (ADHOC-NOW 2019), Lecture Notes in Computer Science*, vol. 11803, Springer, Luxembourg, 2019, pp. 241–258.

C.34 H. Kang, S. Montejo-Sánchez, C. A. Azurdia-Meza, **S. Céspedes**, "Beamforming for Beaconing in V2V Communications," *2019 IEEE XXVI International Conference on Electronics, Electrical Engineering and Computing (INTERCON)*, Lima, Peru, 2019, pp. 1–4.

C.35 *S. Torres, **S. Céspedes**, J. Bustos-Jiménez, M. Serrano, "IoT Solutions for Sustainable Cities: An Online Adaptation for the Driver Intent Inference Algorithm," *2019 IEEE 5th World Forum on Internet of Things (WF-IoT)*, Limerick, Ireland, 2019, pp. 967–972.

C.36 V. Matus, C. A. Azurdia-Meza, **S. Céspedes**, *P. Ortega, S. Montejo-Sánchez, J. Rojas, I. Soto, "Implementation of a Low-Cost Vehicular VLC System and CAN Bus Interface," *2018 11th IEEE/IET International Symposium on Communication Systems, Networks & Digital Signal Processing (CSNDSP) – 6th Colloquium on Optical Wireless Communications*, Budapest, Hungary, 2018, pp. 57–60.

C.37 Inga, M. Campaña, R. Hincapié, **S. Céspedes**, "Optimal Placement of Data Aggregation Points for Smart Metering Using Wireless Heterogeneous Networks," *2018 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Medellín, Colombia, 2018, pp. 1–6.

C.38 *J. S. Sánchez-Mahecha, **S. Céspedes**, J. Bustos-Jiménez, "QoS Evaluation of the Future High Efficiency IEEE 802.11ax WLAN Standard," *2018 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Medellín, Colombia, 2018, pp. 31–33.

C.39 *A. Yáñez, **S. Céspedes**, J. Rubio, "CASSaM: Context-aware System for Safety Messages Dissemination in VANETs," *2018 IEEE Colombian Conference on Communications and Computing (COLCOM)*, Medellín, Colombia, 2018, pp. 1–6.

C.40 *S. Bolufé, S. Montejo-Sánchez, C. A. Azurdia-Meza, **S. Céspedes**, R. Demo Souza, E. M. García, "Dynamic Control of Beacon Transmission Rate and Power with Position Error Constraint in Cooperative Vehicular Networks," *33rd ACM/SIGAPP Symposium on Applied Computing (SAC)*, Pau, France, 2018, pp. 2084–2091.

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C.43 S. Montejo-Sánchez, C. Azurdia-Meza, *S. Bolufé, **S. Céspedes**, I. Soto, R. Demo Souza, "Novel Channel Hopping Sequence Approaches to Rendezvous for VANETs," *2017 IEEE CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies (CHILECON)*, Pucón, Chile, 2017, pp. 1–6.

C.44 *F. Valle, **S. Céspedes**, "Improving Vehicular Applications Through Network Diversity," *2016 IEEE Latin-American Conference on Communications (LATINCOM)*, Medellín, Colombia, 2016, pp. 1–6.

C.45 **S. Céspedes**, J. Salamanca, *A. Yañez, C. Rivera, *J. C. Sacanamboy, "Platoon-Based Cyclists Cooperative System," *2015 IEEE Vehicular Networking Conference (VNC)*, Kyoto, Japan, 2015, pp. 112–118.

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C.52 N. Alsharif, **S. Céspedes**, X. (Sherman) Shen, "iCAR: Intersection-Based Connectivity Aware Routing in Vehicular Ad Hoc Networks," *IEEE International Conference on Communications (ICC)*, Budapest, Hungary, 2013, pp. 1–5.

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C.57 **S. Céspedes**, X. (Sherman) Shen, "A Framework for Ubiquitous IP Communications in Vehicle to Grid Networks," *IEEE Global Telecommunications Conference Workshops (GLOBECOM Wkshps) – UbiCoNet*, Houston, USA, 2011, pp. 1–6.

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Posters and Demos

D.1 *C. Suancha, O. Montañez, *F. Medina, E. Avendaño, **S. Céspedes**, "True Rays Model Integration in OMNeT++ for IIoT Network Planning in Underground Mines," *2024 1st IEEE Latin American Conference on Antennas & Propagation*, Cartagena, Colombia, 2024, pp. 1–2.

D.2 *J. Gerard, J. A. Fraire, **S. Céspedes**, "Unlocking DtS-IoT Medium Access Through the Massively Scalable Distributed Queuing Protocol," Poster session at the *2024 IEEE 10th World Forum on Internet of Things (WF-IoT)*, Ottawa, ON, Canada, 2024, pp. 840–845.

D.3 M. Schrapel, J. Salamanca, **S. Céspedes**, A. Vinel, and *A. Yáñez. 2024. "First Workshop on Connected Micromobility for Safe and Sustainable Communities," In Adjunct Proceedings of the *16th International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutomotiveUI '24 Adjunct)*. ACM, New York, NY, USA, 2024, 235–237.

D.4 *E. Carrasco, *R. Muñoz, **S. Céspedes**, "Guidance on LPWAN Technology Selection Based on IoT Applications Requirements," *V School on Systems and Networks (SSN 2020)*, CEUR Workshop Proceedings, Vitoria, Brazil, 2020, pp. 28–31.

D.5 *D. Wistuba, **S. Céspedes**, J. C. Zúñiga, R. Muñoz, S. Aguilar, C. Gomez, R. Vidal, "An Implementation of IoT LPWAN SCHC Message Fragmentation and Reassembly," *V School on Systems and Networks (SSN 2020)*, CEUR Workshop Proceedings, Vitoria, Brazil, 2020, pp. 6–9.

D.6 A. Becerra, *T. Ferrer, **S. Céspedes**, "A Novel MAC Protocol for Communication Between LEO Satellites and Large Groups of Sensors Intended for IoT," Poster Session, *Small Satellite Conference*, Utah, USA, 2018.

D.7 *P. Ortega, *S. Bolufé, **S. Céspedes**, C.A. Azurdia-Meza, S. Montejo, F. Maciel-Barboza, "Connectivity Improvement in Urban Intersections Obstructed by Buildings Using RSUs," *IV School on Systems and Networks (SSN 2018)*, CEUR Workshop Proceedings, vol. 2178, Valdivia, Chile, 2018, pp. 42–45.

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D.10 *J. Sánchez, **S. Céspedes**, "Proposal for an Intelligent Distribution Model of DNS Queries According to Time Zones," *IV School on Systems and Networks (SSN 2018)*, CEUR Workshop Proceedings, vol. 2178, Valdivia, Chile, 2018, pp. 37–41.

D.11 *S. Torres, **S. Céspedes**, "Proposal for Architecture and Simulated Implementation of an Early Warning System for Cyclists Based on an Algorithm of Right Turn Predictions of Vehicles," *IV School on Systems and Networks (SSN 2018)*, CEUR Workshop Proceedings, vol. 2178, Valdivia, Chile, 2018, pp. 46–49.

D.12 *A. Arteaga, **S. Céspedes**, C. Azurdia-Meza, "Next Generation Vehicular Communications via Interworking of DSRC and TV White Space," *2018 18th International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM)*, Waterloo, ON, Canada, 2018, pp. 1–2.

D.13 *D. Londoño, M. González, **S. Céspedes**, J. Bustos, G. Montenegro, "Performance Evaluation of HTTP/2 Window Size in the Internet of Things," *III Spring School on Networks*, Pucón, Chile, 2017, pp. 31–33.

D.14 M. Gonzalez Mendoza, *B. Holloway, A. Hevia, **S. Céspedes**, J. Bustos, "Coordination of Autonomous Vehicles at Intersections with V2V (Decentralized) Communication," *III Spring School on Networks*, Pucón, Chile, 2017, pp. 38–41.

D.15 *S. Bolufé, S. Montejo-Sánchez, C. Azurdia-Meza, **S. Céspedes**, R. Demo Souza, Martin Garcia Fernandez, "Dynamic Control of Beacon Transmission Rate with Position Accuracy in Vehicular Networks," *III Spring School on Networks*, Pucón, Chile, 2017, pp. 31–33.

D.16 *A. Yáñez, **S. Céspedes**, J. Rubio, "Towards a Context-aware Dissemination Mechanism for Vehicular Networks," *III Spring School on Networks*, Pucón, Chile, 2017, pp. 34–37.

D.17 J. Salamanca, **S. Céspedes**, D. Vinasco, *A. Yañez, "Demo: A Prototype for a Platoon-

Based Cyclist Cooperative System," *2016 IEEE Vehicular Networking Conference (VNC)*, Columbus, OH, USA, 2016, pp. 1–2.

D.18 *F. Valle, **S. Céspedes**, "Enhancing Vehicular Applications by Exploiting Network Diversity," *II Spring School on Networks*, Santiago, Chile, 2016, pp. 32–34.

D.19 *D. Londoño, **S. Céspedes**, "Performance Evaluation of CoAP and HTTP/2 in Web Applications," *II Spring School on Networks*, Santiago, Chile, 2016, pp. 25–27.

D.20 *A. Arteaga, **S. Céspedes**, C. Azurdia, "Spectrum Sensing for Vehicular Dynamic Spectrum Access," *II Spring School on Networks*, Santiago, Chile, 2016, pp. 8–13.

D.21 **S. Céspedes**, J. Salamanca, *J. C. Sacanamboy, C. Rivera, "Poster: Smart Networked Bicycles with Platoon Cooperation," *2014 IEEE Vehicular Networking Conference (VNC)*, Paderborn, Germany, 2014, pp. 199–200. **Best Poster Award**

Patents, technology, industrial impact-related Work

Patents

P.1 P. Stere, D. Migault, A. Boukhtouta, *M. Hatami, **S. Céspedes**, and J. W. Atwood, "Diet-ESP: Compressed Profile for IPv6/IPsec over the 5G Fronthaul," *U.S. Provisional Patent Application No. 63/909425 filed Oct. 31, 2025, Ericsson Canada*.

P.2 P. Stere, D. Migault, A. Boukhtouta, *M. Hatami, **S. Céspedes**, and J. W. Atwood, "Management of encrypted eCPRI messages as well as optimized processing of eCPRI messages," *U.S. Provisional Patent Application No. 63/844330 filed Jul. 15, 2025, Ericsson Canada*.

P.3 P. Stere, D. Migault, *M. Hatami, **S. Céspedes**, and J. W. Atwood, "eCPRI Compression and integration of eCPRI Compression in IPsec," *U.S. Provisional Patent Application No. 63/840287 filed Jul. 8, 2025, Ericsson Canada*.

Internet Standards (RFCs) and Internet-drafts

S.1 RFC 9441: J-C Zúñiga, C. Gomez, S. Aguilar, L. Toutain, **S. Céspedes**, *D. S. Wistuba La Torre, J. Boite, *"Static Context Header Compression (SCHC) Compound Acknowledgement (ACK)"*, July 2023, https://www.rfc-editor.org/info/rfc9441.

S.2 RFC 9442: J-C Zúñiga, C. Gomez, S. Aguilar, L. Toutain, **S. Céspedes**, *D. S. Wistuba La Torre, J. Boite, *"Static Context Header Compression (SCHC) over Sigfox Low-Power Wide Area Network (LPWAN)"*, July 2023, https://www.rfc-editor.org/info/rfc9442.

S.3 RFC 9635: J. Jeong (Ed.), N. Benamar, **S. Céspedes**, J. Harri, D. Liu, T. Oh, C. Perkins, A. Petrescu, Y. Shen, M. Wetterwald, *"IPv6 Wireless Access in Vehicular Environments*

(IPWAVE): Problem Statement and Use Cases", March 2023, https://www.rfc-editor.org/info/rfc9365.

S.4 RFC 6971: U. Herberg, A. Cardenas, T. Iwao, M. Dow, **S. Céspedes**, *"Depth-First Forwarding (DFF) in Unreliable Networks"*, June 2013, https://www.rfc-editor.org/info/rfc6971.

S.5 *R. Munoz-Lara and **S. Céspedes**, *"Static Context Header Compression and Fragmentation over Direct-to-Satellite IoT"*, Internet Engineering Task Force (IETF) Internet-Draft, Work in Progress, 21 pp., Sep. 9, 2025. [Online]. Available: https://datatracker.ietf.org/doc/draft-munoz-schc-over-dts-iot.

S.6 D. Migault, *M. Hatami, D. Liu, P. Stere, J. W. Atwood, **S. Céspedes**, T. Guggemos, and D. Schinazi, *"Internet Key Exchange version 2 (IKEv2) extension for Header Compression Profile (HCP)"*, Internet Engineering Task Force (IETF) Internet-Draft, Work in Progress (WG Last Call), 15 pp., Aug. 21, 2025. [Online]. Available: https://datatracker.ietf.org/doc/draft-ietf-ipsecme-ikev2-diet-esp-extension.

S.7 D. Migault, *M. Hatami, **S. Céspedes**, J. W. Atwood, D. Liu, T. Guggemos, C. Bormann, and D. Schinazi, *"ESP Header Compression with Diet-ESP"*, Internet Engineering Task Force (IETF) Internet-Draft, Work in Progress (WG Last Call), 44 pp., Aug. 17, 2025. [Online]. Available: https://datatracker.ietf.org/doc/draft-ietf-ipsecme-diet-esp.

S.8 E. Ramos, L. Corneo, A. Minaburo, *R. Munoz-Lara, and **S. Céspedes**, *"Static Context Header Compression and Fragmentation over networks prone to disruptions"*, Internet Engineering Task Force (IETF) Internet-Draft, Work in Progress, 25 pp., Jun. 4, 2025. [Online]. Available: https://datatracker.ietf.org/doc/draft-ietf-schc-over-networks-prone-to-disruptions.

White Papers and Technical Reports

R.1 R. McMahon, **S. Céspedes**, A. Bentaleb, A. Velasco, N. Jacanamijoy, C.E. Juagibioy, S.M. Chindoy, L. Trujillo, C. Lezama. *"The Eagle and the Condor Project: A Multi-dimensional Approach Toward Digital Transformation and Cultural Preservation of Underserved Indigenous Nations"*, White Papers and Lighting Talks in Indigenous Computational Futures, Tempe, Arizona, USA, pp. 1–13, 2025.

R.2 **S. Céspedes**, L. Daniele, D. Sáez, J. Bustos. *"Open Water: Low-cost Real-time Monitoring System of Hydric Resources"*, White Paper in *Revista Bits de Ciencia*, (23), pp. 34–41, 2023.

R.3 S. Ríos, C. Estévez, C. Azurdia, J. Sandoval, E. Peña-Ancavil, J. Silva, **S. Céspedes**. *"Development of Enabling Technologies"*, Offprint *Digital Transformation and Big Data: Pillars of a Cultural Shift*, part of New Maps for Diplomacy. Chilean Diplomatic

Academy, Santiago, Chile, 2023.

R.4 *N. Lopez, *A. Arteaga, C. Azurdia, **S. Céspedes**. *"Technical Viability Study for the Use of TV White Spaces in Chile"*, Technical Report. University of Chile, pp. 1–58, 2021.

R.5 **S. Céspedes**, *"Sensor Networks and Cyber-Physical Systems serving Intelligent Transportation Systems"*, White Paper in *Revista Bits de Ciencia*, (14), pp. 42–47, 2016.

Honors and Awards

10/2025 **Best Paper Award — 2025 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE)**
Awarded by the Technical Program Committee for high review scores to the paper *Modeling Pointing, Acquisition, and Tracking Delays in Free-Space Optical Satellite Networks*. Co-authored with Ph.D. student Jason Gerard.

07/2024 **Winners' List — Future 6G Non-Terrestrial-Networks Systems Challenge**
Awarded by the IEEE ComSoc Satellite and Space Communications Technical Committee. Innovation idea co-authored with Ph.D. student Jason Gerard. Presented at ICCSPA'24, Istanbul, Turkey.

10/2022 **Abertis International Award — Road Safety Category**
Awarded for the Ph.D. thesis *Design and Evaluation of Adaptive Beaconing Algorithms for Cooperative Vehicular Safety Systems* by Sandy Bolufé. Role: Co-supervisor. The Abertis chairs across all countries form the International Network of Abertis Chairs, which annually grants awards in transport infrastructure management and road safety, distinguishing the best works among national winners.

09/2022 **Abertis Chile Award — Road Safety Category**
Awarded for the Ph.D. thesis *Design and Evaluation of Adaptive Beaconing Algorithms for Cooperative Vehicular Safety Systems* by Sandy Bolufé. Role: Co-supervisor. Recognizes theses from graduate and doctoral students nationwide that contribute to transport services, infrastructure management, road safety, or sustainable mobility.

10/2021 **Distinguished Teaching Award — Department of Electrical Engineering, University of Chile**
Awarded for excellence in teaching and academic contributions based on student voting within the Department of Electrical Engineering.

11/2020 **2019 Teaching Excellence Award — University of Chile**

Awarded by the University for excellence in teaching; nominated by the academic unit and selected by the faculty committee.

03/2018	**Outstanding Contributions to Research — University of Chile** Awarded for publications in the top 10% of most impactful journals according to the 2017 ISI–WOS impact factor.
11/2017	**Elevation to IEEE Senior Member — IEEE** Recognition for technical and professional excellence. Nominated by the IEEE Colombia Section.
12/2014	**Best Poster Award — IEEE Vehicular Networking Conference (VNC)** Poster title: *Smart Networked Bicycles with Platoon Cooperation*. Co-authors: Sandra Céspedes, Juan Salamanca, J. Camilo Sacanamboy, Carlos Rivera. Event held in Kyoto, Japan.
2007–2015	**IETF Fellow — Internet Society** Selected multiple times. Fellowship supported contributors from emerging or developing economies to participate in IETF standardization. Fellow at Chicago (2007), Hiroshima (2009), Beijing (2010), Paris (2012), Berlin (2013), and Prague (2015).
2011–2012	**Ontario Research and Development Challenge Fund — Bell Scholarship Canada** Provincial scholarship awarded for academic excellence, based on supervisor recommendation at the University of Waterloo, ON, Canada.
01/2010	**University of Waterloo Graduate Award — University of Waterloo, Canada** Awarded by the Department of Electrical and Computer Engineering for high academic performance.
2008–2010	**Postgraduate Studies Scholarship — Colfuturo, Colombia** Scholarship for Ph.D. studies with support from the Government of Colombia.
07/2005	**Fellowship to the LACNIC VIII Meeting — Latin American and Caribbean Internet Addresses Registry** Selected to participate in the annual regional Internet registry meeting held in Lima, Peru.

Professional Service

Keynotes, Panels, and Invited Presentations (Last five years)

10/2025 **Panelist**, *Engineering the Urban Future: Smart and Inclusive Cities*. XXV Engineering Week, Universidad del Valle, Cali, Colombia.

06/2025 **Panelist**, *From Glass Ceilings to Glass Bridges – Improving Leadership in Tech*. IEEE International Conference on Communications (ICC), Montréal, Canada.

01/2025 **Panelist**, *Immersive Technology and Advanced Telecommunications*. Indigenous Computational Futures, University of Arizona, Tempe, AZ, USA.

11/2024 **Keynote Speaker**, *From Earth's Orbit to the Cosmos: A Vision for a Multi-Planetary Space IoT System*. IEEE Latin American Conference on Communications (LATINCOM), Medellín, Colombia.

11/2023 **Invited Speaker**, *On the Scalability and Interoperability of Direct-to-Satellite IoT*. Laboratory for Analysis and Architecture of Systems (CNRS-LAAS), French National Centre for Scientific Research, Toulouse, France.

03/2023 **Invited Speaker**, *Network Size Estimation for Direct-to-Satellite IoT*. STARS Seminar, Chile.

10/2022 **Keynote Speaker**, *Advancing toward the Space Internet*. XXVI Research and Outreach Series, UPTC Seminar, Universidad Pedagógica y Tecnológica de Colombia, Sogamoso, Colombia (online).

10/2022 **Invited Speaker**, *Network Size Estimation in Direct-to-Satellite IoT: A Follow-up*. Space-Terrestrial Internetworking Workshop (STINT), co-located with IEEE WiSEE, Winnipeg, Manitoba, Canada (virtual).

11/2021 **Keynote Speaker**, *Advancing toward the Space Internet*. Top Tamaulipas 2021 (online), CINVESTAV, Tamaulipas, Mexico.

06/2021 **Invited Speaker**, *Revolution of Autonomous and Safe Transportation Using 5G*. Panel: *5G in Latin America – Present, Future, or Science Fiction?* (online), IEEE ComSoc, Panama.

06/2021 **Panelist**, *5G in Latin America – From the Laboratory to Reality*. América Economía (online).

06/2021 **Invited Speaker**, *Scalability and Performance of Low-Cost Satellite Networks for the Internet of Things*. International Seminar of Engineering (online), Ciudad Juárez, Mexico.

10/2020 **Panelist**, *The Role of Research Centers in Addressing Future Challenges*. Advanced Center for Electrical and Electronic Engineering (AC3E), Facebook Live.

08/2020 **Keynote Speaker**, *IoT Goes to Space: A Revision of the Challenges to En-*

able IoT Connectivity from Nano-Satellite Constellations. IEEE Colombian Conference on Communications and Computing (COLCOM), Colombia.

Editorial Boards and Reviewer

2024–Present	**Member (Associate Editor)** — IEEE Internet of Things Magazine.
2020–Present	**Member (Associate Editor)** — IEEE Vehicular Technology Magazine.
2024–2025	**Member (Associate Editor)** — IEEE Access – Vehicular Technology Section.
2019–2022	**Member (Associate Editor)** — IEEE Internet of Things Journal.
2015–2019	**Member (Associate Editor)** — IET Communications.
2015–2025	**TPC Member** — IEEE Vehicular Networking Conference (VNC).
2024–2025	**TPC Member** — PMRIC.
2016–2023	**TPC Member** — IEEE ICC.
2016–2023	**TPC Member** — IEEE Globecom.
Ongoing	**Reviewer** — IEEE Internet of Things Journal; IEEE Communications Magazine; IEEE Communications Letters; IEEE Access; IEEE Journal on Selected Areas of Communications; IEEE Transactions on Mobile Computing; IEEE Transactions on Vehicular Technology; IEEE Transactions on Intelligent Transportation Systems; IEEE Transactions on Smart Grid; IEEE Transactions on Wireless Communications; Ad Hoc Networks; Wireless Networks; Computer Communications; Vehicular Communications.

Events Organization (Last five years)

06/2026	**General Chair** — IEEE Vehicular Networking Conference (VNC), Montréal, QC, Canada.
04/2025	**Jury Member** — Student Poster Contest, STARACOM 2025, ÉTS, Montréal, Canada.
11/2024	**Session Chair** — Technical Session 2: Vehicular and In-Vehicle Networks, IEEE LATINCOM 2024, Medellín, Colombia.
2024	**General Co-Chair** — First Workshop on Connected Micromobility for Safe and Sustainable Communities. ACM AutomotiveUI ’24 Conference. Harvard, CA, USA.
05/2024	**Session Chair** — AI and Web Technologies, IEEE DNRC, Montréal, QC, Canada.
05/2024	**Publicity Chair** — IEEE DNRC, Montréal, QC, Canada.

2023	**Publicity Chair** — IEEE Vehicular Networking Conference (VNC), Tokyo, Japan.
06/2023	**Track Co-chair** — IoV, IoT, M2M, Sensor Networks, and Ad-Hoc Networking, IEEE VTC 2023-Spring, Florence, Italy.
2022	**Chair** — Student Travel Grants, IEEE LATINCOM, Rio de Janeiro, Brazil.