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Abstract—This is the list of my Scientific Activities: Publications, Research Projects, Patent, Editor, Committee, Teaching and Academic Advising.

I. SCIENTIFIC PUBLICATIONS

A. White Paper

[1], [2]

B. Book and Book Chapters

[3], [4], [5], [6]

C. International Journals

[7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21]

D. Italian Journals and Magazine

[22], [23], [24], [25]

E. Proceedings

[26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59]

F. Ph.D. Dissertation

[60]

II. SELECTED RESEARCH PROJECTS

QUBIP (Quantum-oriented Update to Browsers and Infrastructures for the PQ Transition), funded by the European Union under the Horizon Europe framework programme [grant agreement no. 101119746]. *Project Coordinator*. 2023. https://www.qubip.eu

SEDIMARK (Secure Decentralised Intelligent Data Marketplace), funded by the European Union under the Horizon Europe framework programme [grant agreement no. 101070074]. Work Package Coordinator. 2022. https://sedimark.eu

MASTERMINE (European Mining in the Green and Digital Era), funded by the European Union under the Horizon Europe framework programme [grant agreement no. 101091895]. *Technical Leader*. 2022. https://www.mastermine-project.eu

PODIUM (PDI Connectivity and Cooperation Enablers Building Trust and Sustainability for CCAM), funded by the European Union under the Horizon Europe framework programme [grant agreement no. 101069547]. *Technical Leader*. 2022. https://podium-project.eu

SPIRS (Secure Platform for ICT Systems Rooted at the Silicon Manufacturing Process), funded by the European

Union under the Horizon 2020 framework programme [grant agreement no. 952622]. *Work Package Coordinator*. 2021. https://www.spirs-project.eu

ROOT (Rolling Out OSNMA for the Secure Synchronisation of Telecom Networks), funded by the European Union Space Programme Agency (EUSPA) under the Horizon 2020 programme [grant agreement n. 101004261] . *Technical Leader*. 2020. https://www.gnss-root.eu

USPACE2 (U-space Services for UAM Operations Exploiting Space Assets), funded by European Space Agency (ESA). *Technical Leader*. 2022.

MONICATO (Monitoring Interfering and Cyber Attacks to Timing Operations of Satellite-Based Infrastructures), funded by European Space Agency (ESA). *Technical Leader*. 2020.

HANSEL (Navigation and GNSS in Smart Cities: testbed concept definition), funded by European Space Agency (ESA). *Technical Leader*. 2019

MUV (Mobility Urban Value), funded by the European Union under the Horizon 2020 framework programme [grant agreement no. 723521]. *Technical Coordinator*. 2015.

III. PATENT

Riccardo Scopigno, Daniele Brevi and Andrea Vesco, *Method and System for Controlling Congestion in Wireless Telecommunication Networks*, No: 1413493, Italy. Issued: September 12, 2012

IV. EDITOR

Editor-in-Chief - International Journal of Urban Planning and Smart Cities (IJUPSC). IGI Global, 2020-2022.

Guest Editor - Journal Interaction Design and Architecture (IxD&A), Special Issue on: Games for Urban Sustainability. 2019.

Guest Editor - Sustainability, Special Issue on: New Business and Operational Models for the Management of Green and Sustainable City Logistics. MDPI, 2019.

Guest Editor - International Journal of Public Administration in the Digital Age (IJPADA), Special Issue on: ICTs, Citizens and Governance of Smart Cities. IGI Global, 2007

Co-Editor - Handbook of research on Social, Economic and Environmental Sustainability in Development of Smart Cities. IGI Global 2015.

V. SCIENTIFIC COMMITTEES

Co-Chair - International Workshop on Quantum-Secure Networks and Systems (QSNS). IEEE Symposium on Computers and Communications, *from* 2024 *to* 2025.

Technical Program Committee - Workshop on Incident Management, Trusted Computing, and Advanced Security Attacks (IMTrustSec). International Conference on Availability, Reliability and Security, from 2020 to 2024.

Technical Program Committee - International Workshop on Cyber-Security Threats, Trust and Privacy Management in Software-defined and Virtualized Infrastructures (SecSoft). IEEE International Conference on Network Softwarization (NetSoft), from 2020 to 2025.

Technical Program Committee - Workshop on Beyond the promises of WEB3.0: Foundations and Challenges of Trust Decentralization (WEB3-TRUST). International Congress on Blockchain and Applications, from 2022 to 2023.

Co-Chair - IEEE International Workshop on Smart and Sustainable Mobility in Smart Cities. IEEE Computer Software and Applications Conference (COMPSAC), 2017.

Scientific Committee - International Conference on Innovation in Urban and Regional Planning (INPUT). September 2016.

Co-Chair - International Workshop on Social, Economic, and Environmental Sustainability in the Development of Smart Cities. Sustainable Built Environment (SBE), 2016.

Technical Program Committee - IEEE International Energy Conference (ENERGYCON). May 2014.

Technical Program Committee - IEEE Vehicular Technology Conference (VTC-Fall). Track: Wireless Access. September 2013.

Technical Program Committee - IEEE Vehicular Technology Conference (VTC-Spring). Track: Networks, Access Control, and Resource Management. May 2013.

Co-Chair - International Workshop on Flexibility in Broadband Wireless Access Network. IEEE International Conference on Computer Communications and Networks (ICCCN). August 2011.

VI. ACADEMIC TEACHING

Contract Professor - Master School EXITone, Smart City Challenge. 2017

Contract Professor - Master School of the Politico di Torino (PoliTo), Smart and Sustainable Urban Mobility. Academic year 2014/2015.

Assistant Professor - Computer Networks, Computer Engineering at Università Telematica Internazionale (UniNettuno). Academic years 2008/2009, 2009/2010 and 2010/2011.

Assistant Professor - Techniques and Programming Languages, Cinema and Media Engineering at Politecnico di Torino (PoliTo). Academic year 2008/2009.

Assistant Professor - Local and Metropolitan Area Network Design, Computer Engineering at Politecnico di Torino (PoliTo). Academic years 2006/2007 and 2007/2008.

Assistant Professor - Local and Metropolitan Area Network Design, Telematic Engineering at Politecnico di Torino (PoliTo). Academic years 2006/2007 and 2007/2008.

Assistant Professor - Models and Strategies for e-business, Production Engineering at Politecnico di Torino (PoliTo). Academic year 2006/2007

VII. ACADEMIC ADVISING

1 Doctor of Philosophy (Ph.D.), 18 Master of Science (M.Sc) and 3 Bachelor of Science (B.Sc) students.

REFERENCES

- [1] L. Giorgino and A. Vesco, "The Mediterraneous Protocol: building an SSI native decentralised ecosystem of digital services," arXive, 2024, https://arxiv.org/abs/2403.13510. [Online]. Available: https://arxiv.org/abs/2403.13510
- [2] S. Dutto, D. Margaria, C. Sanna, and A. Vesco, "Toward a Post-Quantum Zero-Knowledge Verifiable Credential System for Self-Sovereign Identity," Cryptology ePrint Archive, Paper 2022/1297, 2022, https://eprint.iacr.org/2022/1297. [Online]. Available: https://eprint.iacr.org/2022/1297
- [3] L. Perugini, A. Pino, A. Solavagione, D. Margaria, and A. Vesco, Integrating the Self-sovereign Identity in the TCP/IP Stack while Preserving Interoperability with Existing Identity Models. Cham: Springer Nature Switzerland, 2025, pp. 95–117. [Online]. Available: https://doi.org/10.1007/978-3-031-83149-2_5
- [4] A. Vesco, S. Di Dio, E. Lissandrello, and D. Schillaci, A Gamified Mobility Experience. Springer, 2020, ch. 45.
- [5] V. Caiati, S. Di Dio, F. Ferrero, and A. Vesco, *The Shift Toward a Sustainable Urban Mobility through Decision Support Systems*. CRC Press Taylor & Francis Group, 2017, ch. 14.
- [6] A. Vesco and R. Scopigno, A Weakly Synchronous and Distributed Coordination Function for QoS Management in CSMA/CA Wireless Access Networks. Hershey, PA: IGI Global, 2011, ch. 4.
- [7] L. Perugini and A. Vesco, "On the integration of Self-Sovereign Identity with TLS 1.3 Handshake to Build Trust in IoT Systems," *Internet of Things*, p. 101103, 2024. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S2542660524000453
- [8] D. G. Berbecaru, S. Sisinni, A. Lioy, B. Rat, D. Margaria, and A. Vesco, "Mitigating Software Integrity Attacks With Trusted Computing in a Time Distribution Network," *IEEE Access*, vol. 11, pp. 50510–50527, 2023
- [9] S. Sisinni, D. Margaria, I. Pedone, A. Lioy, and A. Vesco, "Integrity Verification of Distributed Nodes in Critical Infrastructures," *Sensors*, vol. 22, no. 18, 2022. [Online]. Available: https://www.mdpi.com/1424-8220/22/18/6950
- [10] A. Carelli, A. Palmieri, A. Vilei, F. Castanier, and A. Vesco, "Enabling Secure Data Exchange through the IOTA Tangle for IoT Constrained Devices," *Sensors*, vol. 22, no. 4, 2022. [Online]. Available: https://www.mdpi.com/1424-8220/22/4/1384
- [11] M. Davide and A. Vesco, "Trusted GNSS-Based Time Synchronization for Industry 4.0 Applications," *Applied Sciences*, vol. 11, no. 18, 2021. [Online]. Available: https://www.mdpi.com/2076-3417/11/18/8288
- [12] A. Minetto, F. Dovis, A. Vesco, M. Garcia-Fernandez, A. López-Cruces, J. Trigo, M. Molina, A. Pérez-Conesa, J. Gánez-Fernández, G. Seco-Granados, and J. López-Salcedo, "A Testbed for GNSS-Based Positioning and Navigation Technologies in Smart Cities: The HANSEL Project," Smart Cities, vol. 3, no. 4, pp. 1219–1241, 2020. [Online]. Available: https://www.mdpi.com/2624-6511/3/4/60
- [13] A. Vesco and S. Di Dio, Eds., "Special Issue on Games for Urban Sustainability," *Journal Interaction Design and Architecture(s)*, vol. 40, 2019.
- [14] B. Caroleo, N. Morelli, E. Lissandrello, A. Vesco, S. Di Dio, and S. Mauro, "Measuring the change towards more sustainable mobility: MUV impact evaluation approach," *Systems*, vol. 7, no. 2, 2019.
- [15] G. Perboli, F. Ferrero, S. Musso, and A. Vesco, "Business Models and Tariff Simulation in Car-sharing Services," *Transportation Research Part A: Policy and Practice*, vol. 115, pp. 32–48, September 2018.
- [16] F. Ferrero, G. Perboli, M. Rosano, and A. Vesco, "Car-sharing services: an annotated review," *Sustainable Cities and Society*, vol. 37, pp. 501–518, February 2018.
- [17] A. Vesco, V. Caiati, F. Ferrero, and A. Pacifici, Eds., "Special Issue on ICTs, Citizens and Governance of Smart Cities," *International Journal* of *Public Administration in the Digital Age (IJPADA)*, vol. 4, no. 4, 2017.
- [18] L. Bedogni, M. Gramaglia, A. Vesco, M. Fiore, J. Haerri, and F. Ferrero, "The Bologna Ringway dataset: improving road network conversion in SUMO and validating urban mobility via navigation services," *IEEE Transactions on Vehicular Technology*, vol. 64, no. 12, pp. 5464–5476, December 2015.

- [19] M. Baldi and A. Vesco, "Blocking Probability in Pipeline Forwarding Networks," *Journal of Communications Software and Systems*, vol. 10, no. 1, April 2014.
- [20] E. Masala, A. Vesco, M. Baldi, and J.C. De Martin, "Optimized H.264 Video Encoding and Packetization for Video Transmission over Pipeline Forwarding Networks," *IEEE Transaction on Multimedia*, vol. 11, no. 5, pp. 972–985, August 2009.
- [21] M. Baldi, J.C. De Martin, E. Masala, and A. Vesco, "Quality-Oriented Video Transmission With Pipeline Forwarding," *IEEE Transaction on Broadcasting*, vol. 54, no. 3, pp. 542–556, September 2008.
- [22] E. Calia, M. Mezzalama, and A. Vesco, "Cybersecurity per Internet of Things e Infrastrutture Critiche," *Memorie dell'Accademia delle Scienze di Torino*, vol. 2, 2023. [Online]. Available: https://www.accademiadellescienze.it/book/06ff1c47-7356-45a8-aed2-623ff75898bf
- [23] F. Ferrero, A. Pacifici, and A. Vesco, "Smart City: Tecnologie, Architetture e Servizi," *Mondo Digitale*, no. 52, pp. 1–11, July 2014.
- [24] A. Vesco, A. Attanasio, B. Caroleo, A. Pacifici, M. Simonov, and F. Ferrero, "Pianificare la Mobilità Elettrica in Ambito Urbano," *AEIT*, no. 11, pp. 12–17, November 2013.
- [25] A. Vesco, "Identità Digitale su Internet delle Cose, grazie a Blockchain: Ecco come," August 2019, Agenda Digitale EU. [Online]. Available: https://www.agendadigitale.eu/sicurezza/identita-digitale-su-internet-delle-cose-grazie-a-blockchain-ecco-come/
- [26] L. Perugini, A. Pastor, and A. Vesco, "Decentralised Identity for Secure Connectivity in Software-Defined Networking Environments," in *Proceedings of IEEE 11th International Conference on Network Softwarization (NetSoft)*, June 2025, pp. 174–178.
- [27] L. Blanco, S. Via, C. J. Vaca-Rubio, E. Zeydan, L. M. C. Murillo, G. Kedar, G. R. Antonio, A. Antonopoulos, J. Haxhibeqiri, V. Maglogiannis, D. Naudts, J. Hoebeke, T. de Cola, L. G. Giordano, G. Fontanesi, S. Spantideas, H. Koumaras, M. Neri, A. Vesco, C. Amatetti, N. C. T. Quijada, M. Dryjański, N. Kanakaris, C. Pamminger, M. Pagin, and F. Ivanovic, "UNITY-6G: Unified Architecture for Open-RAN Enabled Distributed, Scalable and Sustainability enhanced 6G Networks," in *Proceedings of Joint European Conference on Networks and Communications & 6G Summit (EuCNC/6G Summit)*, 2025, pp. 440–445.
- [28] A. Solavagione and A. Vesco, "Transition of Self-Sovereign Identity to Post-Quantum Cryptography," in *Proceedings of 2025 International Conference on Quantum Communications, Networking, and Computing* (QCNC), Nara, Japan, April 2025, pp. 174–181.
- [29] L. Perugini and A. Vesco, "An Efficient TLS 1.3 Handshake Protocol with VC Certificate Type," in *Proceedings of IEEE 22nd Consumer Communications & Networking Conference (CCNC)*, Las Vegas, NV, USA, January 2025, pp. 1–9.
- [30] D. Margaria, A. Carelli, and A. Vesco, "Building Trust in Data for IoT Systems," in *Proceedings of IEEE 24th International Symposium on Cluster, Cloud and Internet Computing Workshops*, Philadelphia, PA, USA, May 2024, pp. 1–8.
- [31] A. Colombatto, L. Giorgino, and A. Vesco, "An Identity Key Management System with Deterministic Key Hierarchy for SSI-native Internet of Things," in *Proceedings of the 19th International Conference on Availability, Reliability and Security*, Vienna, Austria, 2024, pp. 1–6.
- [32] A. Pino, D. Margaria, and A. Vesco, "Combining Decentralized IDentifiers with Proof of Membership to Enable Trust in IoT Networks," in *Proceedings of 33rd International Telecommunication Networks and Applications Conference*, 2023, pp. 310–317.
- [33] A. Claudio and A. Vesco, "A Novel DID Method Leveraging the IOTA Tangle and its Integration into OpenSSL," in *Proceedings of 5th International Congress on Blockchain and Applications*. Springer Nature Switzerland, 2023, pp. 394–404.
- [34] M. Pini, A. Minetto, A. Vesco, D. Berbecaru, L. Murillo, P. Nemry, I. D. Francesca, B. Rat, and K. Callewaert, "Satellite-derived Time for Enhanced Telecom Networks Synchronization: the ROOT Project," in *Proceedings of IEEE International Workshop on Metrology for AeroSpace (MetroAeroSpace)*, Virtual Conference, June 2021.
- [35] S. Di Dio, E. Lissandrello, D. Schillaci, B. Caroleo, A. Vesco, and I. D'Hespeel, "MUV: A Game to Encourage Sustainable Mobility Habits," in *Proceedings of Games and Learning Alliance Conference*, Palermo, Italy, December 2018.
- [36] F. Montori, M. Gramaglia, L. Bedogni, M. Fiore, F. Sheikh, L. Bononi, and A. Vesco, "Automotive Communications in LTE: a Simulation-

- based Performance Study," in *Proceedings of IEEE VTC-Fall*, Toronto, Canada, 2017.
- [37] A. Cecchini, V. Talu, and A. Vesco, "Appropriate Technologies and Deprived Neighbourhoods: Making Technologies Work for Inclusive Urban Development," in *Proceedings of 9th International Conference on Innovation in Urban and Regional Planning*, Torino, Italia, September 2016.
- [38] V. Caiati, L. Bedogni, L. Bononi, F. Ferrero, M. Fiore, and A. Vesco, "Estimating Urban Mobility with Open Data: A Case Study in Bologna," in *Proceedings of IEEE Second International Smart Cities Conference*, Trento, Italia, September 2016.
- [39] V. Caiati, S. Di Dio, F. Ferrero, and A. Vesco, "The Shift Toward a Sustainable Urban Mobility through Decision Support Systems," in Proceedings of International Conference on Smart Cities, New Delhi, India, January 2016.
- [40] A. Vesco, E. Masala, and R. Scopigno, "TDuCSMA: Efficient Support for Triple-Play Services in Wireless Home Networks," in *Proceedings* of IEEE International Conference on Communications (ICC 2015), London, UK, June 2015.
- [41] G. Colombo, F. Ferrero., G. Pirani, and A. Vesco, "Planning Local Energy Communities to Develop Low Carbon Urban and Suburban Areas," in *Proceedings of IEEE International Energy Conference (Energycon 2014)*, Dubrovnik, Croatia, May 2014, pp. 1012–1018.
- [42] A. Vesco, R. Scopigno, and E. Masala, "Supporting Triple-Play Communications with TDuCSMA and First Experiments," in *Proceedings of IEEE Wireless Communications and Networking Conferences (WCNC 2014)*, Istanbul, Turkey, April 2014, pp. 3260–3265.
- [43] A. Vesco, R. Scopigno, C. Casetti, and C. Chiasserini, "Investigating the Effectiveness of Decentralized Congestion Control in Vehicular Networks," in *Proceedings of IEEE Workshop on Vehicular Network Evolution*, Atlanta, Georgia, USA, December 2013, pp. 1314–1319.
- [44] A. Autolitano, C. Campolo, A. Molinaro, R. Scopigno, and A. Vesco, "An Insight into Decentralized Congestion Control Techniques for VANETs from ETSI TS 102 687 V1.1.1," in *Proceedings of IEEE Wireless Days (WD 2013)*, Valencia, Spain, November 2013, pp. 1–6.
- [45] A. Vesco, E. Masala, and R. Scopigno, "Efficient Support for Video Communications in Wireless Home Networks," in *Proceedings of IEEE International Conference on Computing, Networking and Communications (ICNC 2013)*, San Diego, California, USA, January 2013, pp. 599–604
- [46] A. Vesco, G. M. Toso, and R. Scopigno, "Prototyping of Time-Division Unbalanced Carrier Sense Multiple Access and First Experiments," in Proceedings of IEEE Global Communications Conference (GLOBECOM 2012), Anaheim, California, USA, December 2012, pp. 5500–5505.
- [47] F. Sottile, A. Vesco, R. Scopigno, and M. Spirito, "MAC Layer Impact on the Performance of Real-Time Cooperative Positioning," in *Pro*ceedings of IEEE Wireless Communications and Networking Conference (WCNC 2012), Paris, France, April 2012, pp. 1858–1863.
- [48] A. Vesco, F. Abrate, and R. Scopigno, "Convergence and Performance Analysis of Leaderless Synchronization in Wi-Fi Networks," in *Proceedings of ACM workshop on Performance Monitoring and Measurement of Heterogeneous Wireless and Wired Networks*, Miami Beach, Florida, USA, October 2011, pp. 49–58.
- [49] N. Concer, A. Vesco, R. Scopigno, and L. P. Carloni, "A Dynamic and Distributed TDM Slot-Scheduling Protocol for QoS-Oriented Networkson-Chip," in *Proceedings of IEEE International Conference on Computer Design (ICCD 2011)*, Amherst, Massachusetts, USA, October 2011, pp. 31–38.
- [50] F. Abrate, A. Vesco, and R. Scopigno, "An Analytical Packet Error Rate Model for WAVE Receivers," in *Proceedings of IEEE International* Symposium on Wireless Vehicular Communications (WiVEC 2011), San Francisco, California, USA, September 2011, pp. 1–5.
- [51] A. Vesco and R. Scopigno, "Advances on Time-Division Unbalanced Carrier Sense Multiple Access," in *Proceedings of IEEE International Conference on Computer Communications and Networks (ICCCN 2011)*, Maui, Hawaii, USA, August 2011, pp. 1–6.
- [52] R. Scopigno and A. Vesco, "A Distributed Bandwidth Management Scheme for Multi-Hop Wireless Access Networks," in *Proceedings of IEEE International Wireless Communications and Mobile Computing Conference (IWCMC 2011)*, Istanbul, Turkey, July 2011, pp. 534–539.
- [53] H. Cozzetti, A. Vesco, F. Abrate, and R. Scopigno, "Improving Wireless Simulation Chain: Impact of two Corrective Models for Vanets," in Proceedings of IEEE Vehicular Networking Conference (VNC 2010), Jersey City, New Jersey, USA, December 2010, pp. 323–329.

- [54] F. Abrate, A. Vesco, and R. Scopigno, "Improvement of WiFi Physical Model and Effects on Network Simulations," in *Proceedings of IEEE International Conference on Wireless Communications and Signal Processing (WCSP 2010)*, Suzhou, China, October 2010, pp. 1–6.
- [55] A. Vesco, E. Masala, and C. Novara, "Distortion Prediction for Video Quality Optimization over Packet Switched Networks," in *Proceedings* of *IEEE Global Telecommunications Conference (GLOBECOM 2009)*, Honolulu, Hawaii, USA, December 2009, pp. 1–6.
- [56] A. Vesco and R. Scopigno, "Time-Division Access Priority in CSMA/CA," in Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2009), Tokyo, Japan, September 2009, pp. 2162–2166.
- [57] M. Baldi, R. Giacomelli, G. Marchetto, and A. Vesco, "On the Deployment of Pipeline Forwarding on a Nation-Wide Internet Service Provider Network," in *Proceedings of International Conference on Broadband Network and Multimedia Technology*, Beijig, China, September 2007, pp. 41–46.
- [58] M. Baldi and A. Vesco, "Time-Driven Early Discard (TED) to Improve the Fairness of TCP Congestion Control," in *Proceedings of IEEE Global Telecommunications Conference (GLOBECOM 2006)*, San Francisco, California, USA, December 2006, pp. 1–6.
- [59] M. Baldi, J.C. De Martin, E. Masala, and A. Vesco, "Distortion-Aware Video Communication with Pipeline Forwarding," in *Proceedings of ACM International Conference on Multimedia (MULTIMEDIA 2006)*, Santa Barbara, California, USA, October 2006, pp. 117–120.
- [60] A. Vesco, "Traffic Management over Time-Aware Packet Switched Networks," Ph.D. dissertation, Politecnico di Torino, 2009.