

Luca Reggiani, PhD
Communications Engineer

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Research activity

- PhD in Electronics and Communications Engineering in 2001 from Politecnico di Milano (Italy).
- His research activity has been active in the following areas: next generation cellular systems (LTE, 5G, beyond 5G), public safety networks [1][2][3][4], D2D communications, UAV communications [3][4][5], high capacity transport networks (backhauling, fronthauling), information and communications theory and technology, wireless transmission technologies (e.g. multiple antenna systems MIMO and cognitive radio), wireless sensor networks, ultrawide band systems, positioning systems.
More details at https://reggiani.faculty.polimi.it/pag_ricerca_eng.html.
- He is author of more than 100 papers in international conferences, journals and patents. The list is available at <https://scholar.google.it/citations?user=sNpIXtAAAAAJ&hl=en>.
- Research contracts in which he has been recently involved:
 - 2022 - : Research Project "5G Audiovisivo" financed by MiSE.
 - 2017 - 2021: NATO Research Project SPS G5482 - "Public Safety Communication in the Context of Terrorist Attacks". Technologies for D2D and Device-to-UAV communications and detection.
 - 2012-13, 2015-16: research contracts for the development and implementation of LTE/LTE-A stations.
- He has supervised 5 PhD students in the fields of resource allocation for mobile networks (LTE, 5G), wireless full duplex communications and positioning techniques. He is currently supervising a PhD student in the field of positioning for UAVs.

Job experience

- Researcher at Dipartimento di Elettronica ed Informazione (Politecnico di Milano, Italy) since 2002.

- At Politecnico di Milano (Italy), he has been holding the course “Wireless communications” (2010-2021) for the Master in Telecommunications Engineering, https://reggiani.faculty.polimi.it/pag_didattica_eng.html.
- Professional activity in the field of Electronic and Communications Engineering as ICT consultant (2008 - 2012).
- Co-founder of the spin-off company DRB srl (<http://www.drb.aero/>) of Politecnico di Milano operating in the field of automatic flight and services for UAVs (2016) and co-founder of Nuvideo, start-up company in the ICT field.

Recent Publications

- [1] A. Masood, D. Scazzoli, N. Sharma, Y. Le Moullec, R. Ahmad, L. Reggiani, M. Magarini, M. M. Alam, “Surveying pervasive public safety communication technologies in the context of terrorist attacks”, *Physical Communication*, Vol. 41, 2020.
- [2] M.M. Alam, Le Moullec Y., Ahmad R., Magarini M., Reggiani L. (2020) A Primer On Public Safety Communication in the Context of Terror Attacks: The NATO SPS “COUNTER-TERROR” Project. In: Palestini C. (eds) *Advanced Technologies for Security Applications*. NATO Science for Peace and Security Series B: Physics and Biophysics. Springer, June 2020.
- [3] S. Bolis, D. Scazzoli, L. Reggiani, M. Magarini and M. M. Alam, "A Study on Beamforming for Coverage of Emergency Areas from UAVs," *2019 UK/ China Emerging Technologies (UCET)*, UK, pp. 1-4, 2019.
- [4] A. Masood, N. Sharma, M. M. Alam, Y. Le Moullec, D. Scazzoli, L. Reggiani, M. Magarini, and R. Ahmad, “Device-to-Device Discovery and Localization Assisted by UAVs in Pervasive Public Safety Networks”, *Proceedings of the ACM MobiHoc workshop on innovative aerial communication solutions for First REsponders network in emergency scenarios (iFIRE '19)*, 2019.
- [5] Patent WO 2018/229681, “Radio Beacon System”, L. Reggiani, D. Piazza, G. Mena, 2017.
- [6] O. Elgarhy, L. Reggiani, H. Malik, M. M. Alam and M. A. Imran, "Rate-Latency Optimization for NB-IoT With Adaptive Resource Unit Configuration in Uplink Transmission," in *IEEE Systems Journal*, vol. 15, no. 1, pp. 265-276, March 2021.
- [7] H. R. Barzegar, L. Reggiani, L. Dossi, Capacity gain and design trade-offs for partial-duplex OFDM wireless communications, *EURASIP Journal on Wireless Communications and Networking*, 2018.
- [8] L. Reggiani, L. Dossi, L. Barletta, A. Spalvieri, “Extended Kalman Filter for MIMO Phase Noise Channels with Independent Oscillators”, *IEEE Comm. Letters*, 2018.
- [9] L. Dossi, L. Reggiani and G. Filiberti, "Performance Evaluation of LoS MIMO Microwave Radio Systems Over Frequency Selective Multipath Fading Channels", *Wireless Personal Communications*, pp. 1-16, May 2017.