

Curriculum Vitae

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MAURIZIO MAGARINI, Ph.D

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PERSONAL DETAILS

Date and place of birth: 3 April 1969, Milan, Italy

Nationality: Italian

Civil status: Married

Sex: Male

EDUCATION AND BIOGRAPHY

- **June 2018 – Now:** Associate Professor at Department of Electronics, Information and Bioengineering, Politecnico di Milano, Milan, Italy.
- **March 2001 – May 2018:** Assistant Professor at Department of Electronics, Information and Bioengineering, Politecnico di Milano, Milan, Italy.
- **March 1999 – February 2001:** Research Associate at Department of Electronics, Information and Bioengineering, Politecnico di Milano, Milan, Italy.
- **February 1999:** Ph.D. in Electronic and Telecommunication Engineering from the Politecnico di Milano, Milan, Italy.

- **December 1994:** Master degree from Politecnico di Milano, Milan, Italy, in Electronic Engineering.

SCHOLARSHIPS

- **December 1994:** TELECOM Italia award for the Master Thesis.

RESEARCH ACTIVITY

Research interests of Maurizio Magarini are in the broad area of communication theory. Major components of his research activity are physical layer of wireless and optical communication systems. Topics include channel coding, equalization, coded modulation schemes, multi-input/multiple output systems, design of sub-optimal receivers, reduced complexity soft-input/soft-output detectors, synchronization in presence of phase noise, iterative detection techniques, and interference management, alignment, and cancellation. Most recent research activities have focused on molecular communications, massive MIMO, study of waveforms for 5G cellular systems, wireless sensor networks for mission critical applications, and wireless networks using unmanned aerial vehicles and high-altitude platforms.

PUBLICATIONS

A. PhD Thesis

“Complexity reduction of the maximum likelihood detector with respect to an error probability criterion (in Italian)”, Politecnico di Milano, Milan, Italy, Dec. 1998. The thesis concerned reduced complexity equalization for frequency selective channels and was done under the supervision of Prof. Guido Tartara.

B. Journals

- [JP.1] D. Singh, A. Kumar, H. D. Joshi, *M. Magarini*, R. Saxena, “Symbol error rate analysis of OFDM system with CFO over TWDP fading channel,” *Wireless Personal Communications*, vol. 109, pp. 2187-2198, Apr. 2019.
- [JP.2] A. Kumar and *M. Magarini*, “On the modeling of inter-sub-symbol interference in GFDM transmission,” *IEEE Communications Letters*, vol. 23, pp. 1730-1734, Oct. 2019.
- [JP.3] P. G. Sudheesh, *M. Magarini*, and P. Muthuchidambaranathan, “Multiple-high altitude platforms aided system architecture for achieving maximum last mile capacity in satellite communication,” *Telecommunication Systems*, vol. 70, pp. 27-35, Jan. 2019.
- [JP.4] A. Kumar and *M. Magarini*, “Symbol error probability analysis of DFrFT-based OFDM systems with CFO and STO in frequency selective Rayleigh fading channels,” *IEEE Transactions on Vehicular Technology*, vol. 68, pp. 64-81, Jan. 2019.

- [JP.5] P. G. Sudheesh, N. Sharma, *M. Magarini*, and P. Muthuchidambaranathan, "Effect of imperfect CSI on interference alignment in multiple-High Altitude Platforms based communication," *Physical Communication*, vol. 29, pp. 336-342, 2018.
- [JP.6] A. Marcone, M. Pierobon, and *M. Magarini*, "Parity-check coding based on genetic circuits for engineered molecular communication between biological cells," *IEEE Transactions on Communications*, vol. 66, pp. 6221-6236, Dec. 2018.
- [JP.7] P. G. Sudheesh, *M. Magarini*, and P. Muthuchidambaranathan, "Interference alignment with iterative channel estimation for the reciprocal $M \times 2$ MIMO X Network," *Physical Communication*, vol. 27, pp. 188-196, 2018.
- [JP.8] N. Sharma, *M. Magarini*, D. Nalin K. Jayakody, V. Sharma and J. Li, "On-demand ultra-dense cloud drone networks: opportunities, challenges and benefits," *IEEE Communications Magazine*, vol. 56, pp. 85-91, Aug. 2018.
- [JP.9] P. G. Sudheesh, M. Mozaffari, *M. Magarini*, W. Saad, P. Muthuchidambaranathan, "Sum-rate analysis for high altitude platform (HAP) drones with tethered balloon relay," *IEEE Communications Letters*, vol. 22, pp. 1240-1243, June 2018.
- [JP.10] P. G. Sudheesh, *M. Magarini*, P. Muthuchidambaranathan, "QoS-data rate optimization for fast fading interference alignment x network." *AEU-International Journal of Electronics and Communications*, vol. 85, pp. 32-38, Feb. 2018.
- [JP.11] P. G. Sudheesh N. Sharma, *M. Magarini*, P. Muthuchidambaranathan, "Effect of imperfect CSI on interference alignment in multiple-high altitude platforms based communication," *Physical Communication*, Available online 21 November 2017, ISSN 1874-4907,
- [JP.12] A. Kumar, *M. Magarini*, S. Bregni, "Improving GFDM symbol error rate performance using "Better than Nyquist" pulse shaping filters," *IEEE Latin America Transactions*, vol. 15, no. 7, pp. 1244-1249, July 2017.
- [JP.13] D. Scazzoli, A. Kumar, N. Sharma, *M. Magarini*, G. Verticale, "Fault recovery in time-synchronized mission critical ZigBee-based wireless sensor networks," accepted for publication in *Intern. Journal of Wireless Information Networks*, pp. 1-10, May 2017.
- [JP.14] A. Kumar, *M. Magarini*, H. D. Joshi, R. Saxena, "Exact SER analysis of DFrFT-based QPSK OFDM system over frequency selective Rayleigh fading channel with CFO," *Journal of Computer Networks and Communications*, 7 pages, 2016.
- [JP.15] F. Scardoni, *M. Magarini*, A. Spalvieri, "Impact of self-noise on tracking performance of non data-aided digital timing recovery," *IEEE Journal of Lightwave Technology*, vol. 33, pp. 3755-3762, Sept.15, 2015.
- [JP.16] S. Pecorino, S. Mandelli, L. Barletta, *M. Magarini*, A. Spalvieri, "Bootstrapping iterative demodulation and decoding without pilot symbols," *IEEE Journal of Lightwave Technology*, vol. 33, pp. 3613-3622, Sept. 1, 2015.
- [JP.17] S. Mandelli, *M. Magarini*, A. Spalvieri, S. Pecorino, "On discrete-time modeling of the filtered and symbol-rate sampled continuous-time signal affected by Wiener phase noise," *Optical Switching and Networking*, vol. 18, pp. 96-103, Nov. 30, 2015.
- [JP.18] L. Barletta, *M. Magarini*, S. Pecorino, A. Spalvieri, "Upper and lower bounds to the information rate transferred through first-order Markov channels with free-running continuous state," *IEEE Transactions on Information Theory*, vol. 60, pp. 3834-3844, July 2014.
- [JP.19] *M. Magarini*, L. Barletta, A. Spalvieri, "Effect of imperfect phase reference on soft demodulation and decoding of DE-QPSK in optical transmission systems," *International Journal of Microwave and Optical Technology*, vol. 9, pp. 325-332, July 2014.

- [JP.20] G. Rizzelli, D. Siracusa, G. Maier, *M. Magarini*, M. Alam, A. Melloni, "Optical backplane based on ring-resonators: scalability and performance Analysis for 10 Gb/s OOK-NRZ," *Photonics*, vol. 1, pp. 131-145, May 2014.
- [JP.21] A. Spalvieri, P. Boffi, S. Pecorino, L. Barletta, *M. Magarini*, A. Gatto, P. Martelli, M. Martinelli, "Analog nonlinear MIMO receiver for optical mode division multiplexing transmission," *Optics Express*, vol. 21, pp. 25174-25183, Oct. 2013.
- [JP.22] L. Barletta, *M. Magarini*, A. Spalvieri, "Bridging the gap between Kalman filter and Wiener filter in carrier phase tracking," *IEEE Photonics Technology Letters*, vol. 25, pp. 1035-1038, June 2013.
- [JP.23] L. Barletta, *M. Magarini*, F. Scardoni, A. Spalvieri, "Impact of loop delay on the performance of Gardner timing recovery," *IEEE Photonics Technology Letters*, vol. 25, pp. 1797-1800, Sept. 2013.
- [JP.24] L. Barletta, F. Bergamelli, *M. Magarini*, N. Carapellese, A. Spalvieri, "Pilot-aided trellis-based demodulation," *IEEE Photonics Technology Letters*, vol. 25, pp. 1234-1237, July 2013.
- [JP.25] L. Barletta, R. Disarò, M. Magarini, A. Spalvieri, "Post-filter optimization in timing recovery based on square-law detection," *IEEE Photonics Technology Letters*, vol. 25, pp. 821-824, May 2013.
- [JP.26] L. Barletta, M. Magarini, A. Spalvieri, "A new lower bound below the information rate of Wiener phase noise channel based on Kalman carrier recovery," *Optics Express*, vol. 20, pp. 25471-25477, Oct. 2012.
- [JP.27] *M. Magarini*, L. Barletta, A. Spalvieri, "Efficient computation of the feedback filter for the hybrid decision feedback equalizer in highly dispersive channels," *IEEE Transactions on Wireless Communications*, vol. 11, pp. 2245-2253, June 2012.
- [JP.28] *M. Magarini*, L. Barletta, A. Spalvieri, A. Leven, M. Pepe, G. Gavioli, "Impact of non-ideal phase reference on soft decoding of differentially encoded modulation," *IEEE Photonics Technology Letters*, vol. 24, pp. 2179-2182, Dec. 2012.
- [JP.29] L. Barletta, *M. Magarini*, A. Spalvieri, "New lower bound below the information rate of phase noise channel based on Kalman carrier recovery," *International Journal on Electrical Engineering and Informatics*, vol. 4, pp. 597-607, Dec. 2012.
- [JP.30] *M. Magarini*, L. Barletta, A. Spalvieri, F. Vacondio, T. Pfau, M. Pepe, M. Bertolini, G. Gavioli, "Pilot-symbols-aided carrier-phase recovery for 100-G PM-QPSK digital coherent receivers," *IEEE Photonics Technology Letters*, vol. 24, pp. 739-741, May 2012.
- [JP.31] L. Barletta, *M. Magarini*, A. Spalvieri, "Staged demodulation and decoding," *Optics Express*, vol. 20, pp. 23728-23734, Oct. 2012.
- [JP.32] L. Barletta, *M. Magarini*, A. Spalvieri, "The information rate transferred through the discrete-time Wiener's phase noise channel," *IEEE Journal of Lightwave Technology*, vol. 30, pp. 1480-1486, May 2012.
- [JP.33] *M. Magarini*, A. Spalvieri, F. Vacondio, M. Bertolini, M. Pepe, G. Gavioli, "Empirical modeling and simulation of phase noise in long-haul coherent optical transmission systems," *Optics Express*, vol. 19, pp. 22455-22461, Oct. 2011.
- [JP.34] L. Barletta, *M. Magarini*, A. Spalvieri, "Estimate of information rates of discrete-time first-order Markov phase noise channels," *IEEE Photonics Technology Letters*, vol. 23, pp. 1582-1584, Nov. 2011.
- [JP.35] P. Boffi, P. Martelli, M. Cirigliano, *M. Magarini*, M. Martinelli, M. Bertolini, M. Pepe, D. Di Mola, G. Gavioli, "PDM-16QAM transmission performance over uncompensated fiber

- links,” *Optics Express*, vol. 19, pp. 21898-21903, Oct. 2011.
- [JP.36] *M. Magarini*, R.-J. Essiambre, B. E. Basch, A. Ashikhmin, G. Kramer, A. J. D. L. van Wijngaarden, “Concatenated coded modulation for optical communications systems,” *IEEE Photonics Technology Letters*, vol. 22, pp. 1244-1246, Aug 2010.
- [JP.37] L. Galati Giordano, *M. Magarini*, A. Spalvieri, “Infinite-length pilot aided equalization,” *IEEE Communications Letters*, vol. 14, pp. 465-467, May 2010
- [JP.38] P. J. Winzer, A. H. Gnauck, C. R. Doerr, *M. Magarini*, L. L. Buhl, “Spectrally efficient long-haul optical networking using 112-Gb/s polarization-multiplexed 16-QAM,” *IEEE Journal of Lightwave Technology*, vol. 28, pp. 547-556, Feb. 2010.
- [JP.39] A. Spalvieri, *M. Magarini*, “Wiener's loop filter for PLL-based carrier recovery of OQPSK and MSK-type modulations,” *Journal of Electrical and Computer Engineering*, vol. 2008, pp. 1-5, 2008.
- [JP.40] A. Spalvieri, *M. Magarini*, “Wiener's analysis of the discrete-time phase-lock loop with loop delay,” *IEEE Transactions on Circuits and Systems II, Express Briefs*, vol. 55, pp. 596-600, June 2008.
- [JP.41] *M. Magarini*, A. Spalvieri, “Coset detection in MIMO systems based on spatial multiplexing,” *IEEE Communications Letters*, vol. 10, pp. 390-392, May 2006.
- [JP.42] *M. Magarini*, A. Spalvieri, G. Tartara, “The mean-square generalized delayed decision feedback sequence detector,” *European Transactions on Telecommunications*, vol. 14, pp. 265-268, May/June 2003.
- [JP.43] *M. Magarini*, A. Spalvieri, G. Tartara, “The mean-square delayed decision feedback sequence detector,” *IEEE Transactions on Communications*, vol. 50, pp. 1462-1470, Sept. 2002.
- [JP.44] *M. Magarini*, A. Spalvieri, “Optimization of distributed detection systems under the minimum average misclassification risk criterion,” *IEEE Transactions on Information Theory*, vol. 46, pp. 1649-1653, July 2000.
- [JP.45] *M. Magarini*, A. Spalvieri, G. Tartara, “Improving error probability of the prefiltered Viterbi equalizer,” *IEEE Communications Letters*, vol. 4, pp. 137-139, April 2000.
- [JP.46] *M. Magarini*, A. Spalvieri, G. Tartara, “Asymptotic analysis of stabilisation technique for the blind fractionally spaced equaliser”, *IEE Electronics Letters*, vol. 32, pp. 1947-1948, 10th October 1996.

C. Conferences

- [CP.1] J. Anandpushparaj, G. L. Nadiminti, P. Muthuchidambaranathan, *M. Magarini*, and D. N. K. Jayakody, “Downlink outage probability analysis of UAV base stations,” in Proc. of 14th International Forum on Strategic Technology (IFOST), Tomsk, Russia, Oct. 14-17, 2019.
- [CP.2] D. Scazzoli, G. Bartezzaghi, A. Silvestro, *M. Magarini*, M. Melacini, and G. Verticale, “SIVEQ: an integrated system for the valorization of surplus food,” in Proc. of Smart City Innovations (SCI), Leicester, United Kingdom, Aug. 19-23, 2019.
- [CP.3] H. I. Minhas, R. Ahmad, W. Ahmed, M. M. Alam, and *M. Magarini*, “On the impact of clustering for energy critical public safety networks,” in Proc. of International Symposium on Recent Advances in Electrical Engineering (RAEE), Islamabad, Pakistan, Aug. 28-29, 2019.
- [CP.4] S. Bolis, D. Scazzoli, L. Reggiani, M. Magarini, and M. M. Alam, “A study on beamforming for coverage of emergency areas from UAVs,” in Proc. of UK/China

Emerging Technologies (UCET), Glasgow, United Kingdom, Aug. 21-22, 2019.

- [CP.5] A. Masood, N. Sharma, M. M. Alam, Y. Le Moullec, D. Scazzoli, L. Reggiani, *M. Magarini*, R. Ahmad, “Device-to-device discovery and localization assisted by UAVs in pervasive public safety networks,” in Proc. of ACM MobiHoc workshop on innovative aerial communication solutions for First Responders network in emergency scenarios, Catania, Italy, Jul. 2-5, 2019.
- [CP.6] F. Linsalata, *M. Magarini*, and R. Ferrari, “On the extension of LTE and LTE-A PRACH receiver design to 5G new radio,” in Proc. of International Balkan Conference on Communications and Networking, Skopje, North Macedonia, June 10-12, 2019. **Best Paper Award.**
- [CP.7] F. Linsalata, *M. Magarini*, and A. Kumar, “Design of DGT-based Linear Receivers for GFDM Transmission in Broadband Channels,” in Proc. of International Balkan Conference on Communications and Networking, Skopje, North Macedonia, June 10-12, 2019. **Best Student Paper Award.**
- [CP.8] J. Anandpushparaj, V. Palliyembil, L. G. Nadiminti, *M. Magarini*, and P. Muthuchidambaranathan, “Performance analysis of UAV cellular communications,” in Proc. of International Conference on Microwave Integrated Circuits, Photonics and Wireless Networks (IMICPW), Tiruchirappalli, India, May 22-24, 2019.
- [CP.9] N. Sharma, A. Kumar, *M. Magarini*, S. Bregni, and D. N. K. Jayakody, “Impact of CFO on low latency-enabled UAV using “Better Than Nyquist” pulse shaping in GFDM,” in Proc. of Vehicular Technology Conference (VTC2019-Spring), Kuala Lumpur, Malaysia, Apr. 28-May 1, 2019.
- [CP.10] D. Scazzoli, G. Bartezzaghi, D. Uysal, *M. Magarini*, M. Melacini, and M. Marcon, “Usage of Hough transform for expiry date extraction via optical character recognition,” in Proc. of Advances in Science and Engineering Technology International Conferences (ASET), Dubai, United Arab Emirates, Mar. 26-28, 2019.
- [CP.11] N. Sharma, V. Sharma, *M. Magarini*, H. Pervaiz, M. M. Alam, and Y. Le Moullec, “Cell coverage analysis of a low altitude aerial base station in wind perturbations,” in Proc. of Globecom Workshop on Research Advancements in Future Networking Technologies (RAFNET), Waikiloa, HI, USA, Dec. 9-13, 2019.
- [CP.12] S. Kalsotra, A. Kumar, H. D. Joshi, A. K. Singh, K. Dev, and *M. Magarini*, “Impact of pulse shaping design on OOB emission and error probability of GFDM,” in Proc. of 5G World Forum (5GWF), Dresden, Germany, Sept. 30-Oct. 2, 2019.
- [CP.13] N. Sharma, *M. Magarini*, L. Reggiani, M. M. Alam, “Channel characterization at 2.4 GHz for aerial base station,” in Proc. of Workshop on Recent Advances in Cellular Technologies and 5G for IoT Environments (RACT-5F-IoT), Leuven, Belgium, Apr. 29-30, 2019.
- [CP.14] N. Modina, R. Ferrari, and *M. Magarini*, “A machine learning-based design of PRACH receiver in 5G,” in Proc. of Workshop on Recent Advances in Cellular Technologies and 5G for IoT Environments (RACT-5F-IoT), Leuven, Belgium, Apr. 29-30, 2019.
- [CP.15] F. Ratti, C. Harper, *M. Magarini*, and M. Pierobon, “An iterative approach for estimating information exchange in cell-to-cell molecular communication,” presented at 4th Workshop on Molecular Communications, Linz, Austria, Apr. 16-18, 2019 (extended abstract).
- [CP.16] S. Moaveninejad, A. Kumar, M. Elgenedy, *M. Magarini*, N. Al-Dhahir, and A. M. Tonello, “Gaussian-Middleton classification of cyclostationary correlated noise in hybrid MIMO-OFDM WinPLC,” in Proc. of International Conference on Communications (ICC), Shanghai, China, May 20-24, 2019.

- [CP.17] C. Harper, M. Pierobon, *M. Magarini*, “Estimating information exchange performance of engineered cell-to-cell molecular communications: a computational approach,” in Proc. of International Conference on Computer Communications (INFOCOM), Honolulu, HI, USA, Apr. 16-19, 2018.
- [CP.18] C. Harper, M. Pierobon, *M. Magarini*, “A design process for molecular communication systems based on biological circuits in cells,” presented at 3rd Workshop on Molecular Communications, Ghent, Belgium, Apr. 4-6, 2018 (extended abstract).
- [CP.19] L. G. Giordano, L. Campanalunga, D. Lopez-Perez, A. Garcia-Rodriguez, G. Geraci, P. Baracca, *M. Magarini*, “Uplink sounding reference signal coordination to combat pilot contamination in 5G massive MIMO,” in Proc. of IEEE Wireless Communications and Networking Conference (WCNC), Barcelona, Spain, Apr. 15-18, 2018.
- [CP.20] L. Buccheri, S. Mandelli, S. Saur, L. Reggiani, *M. Magarini*, “Hybrid retransmission scheme for QoS-defined 5G ultra-reliable low-latency communications,” in Proc. of IEEE Wireless Communications and Networking Conference (WCNC), Barcelona, Spain, Apr. 15-18, 2018.
- [CP.21] N. Sharma, *M. Magarini*, L. Dossi, L. Reggiani, R. Nebuloni, “A study of channel model parameters for aerial base stations at 2.4 GHz in different environments,” in Proc. of IEEE Consumer Communications & Networking Conference (CCNC), Las Vegas, NV, USA, pp. 1-6, Jan. 12-15, 2018.
- [CP.22] A. Kumar, *M. Magarini*, S. Bregni, “Impact of better than Nyquist pulse shaping in GFDM PHY with LTE-compatible frame structure,” in Proc. of IEEE Latin-American Conference on Communications (LATINCOM), Guatemala City, Guatemala, pp. 1-6, Nov. 8-10, 2017.
- [CP.23] S. Moaveninejad, A. Kumar, D. Scazzoli, Alessandro Pitì, *M. Magarini*, S. Bregni, G. Verticale, “BER Evaluation of Post-Meter PLC Services in CENELEC-C Band,” in Proc. of IEEE Latin-American Conference on Communications (LATINCOM), Guatemala City, Guatemala, pp. 1-6, Nov. 8-10, 2017.
- [CP.24] D. Scazzoli, A. Mola, B. Silverajan, *M. Magarini*, G. Verticale, “Redundant gateway prototype for wireless avionic sensor networks,” in Proc. of International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC) - Special Session SP-06 on "Mission-Critical Communications: Advancements, Challenges, and Opportunities", Montreal, QC, Canada, pp. 1-7, Oct. 8-23, 2017.
- [CP.25] A. Kumar, *M. Magarini*, S. Olivieri, “Rapid prototyping and FPGA-in-the-loop verification of a DFrFT-based OFDM System,” in Proc. of European Signal Processing Conference (EUSIPCO), Kos Island, Greece, Aug. 28 – Sept. 2, pp. 1-5, 2017.
- [CP.26] D. G. Cileo, N. Sharma, *M. Magarini*, “Coverage, capacity and interference analysis for an aerial base station in different environments,” in Proc. of International Symposium on Wireless Communication Systems (ISWCS), Bologna, Italy, Aug. 28-31, pp. 281-286, 2017.
- [CP.27] S. S. Ranhotra, A. Kumar, *M. Magarini*, A. Mishra, “Performance comparison of blind and non-blind channel equalizers using artificial neural networks,” in Proc. of International Conference in Ubiquitous and Future Networks (ICUFN), Milan, Italy, pp. 243-248, July 3-7, 2017.
- [CP.28] A. Marcone, M. Pierobon, *M. Magarini*, “The Gaussian approximation in soft detection for molecular communication via biological circuits,” in Proc. of International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Sapporo, Japan, pp. 1-6, July 3-6, 2017.

- [CP.29] S. Moaveninejad, A. Saad, *M. Magarini*, “Enhancing the performance of WiNPLC smart grid communication with MIMO NB-PLC,” in Proc. International Conference on Environment and Electrical Engineering and Industrial and Commercial Power Systems Europe (EEEIC/I&CPS Europe), Milan, Italy, pp. 1-6, June 2017.
- [CP.30] A. Marcone, M. Pierobon, *M. Magarini*, “A biological circuit design for modulated parity-check encoding in molecular communication,” in Proc. of International Conference on Communications (ICC), Paris, France, pp. 5494-5500, May 21-25, 2017.
- [CP.31] A. Marcone, M. Pierobon, *M. Magarini*, “A parity check analog decoder for molecular communication based on biological circuits,” in Proc. of International Conference on Computer Communications (INFOCOM), Atlanta, GA, pp. 1-9, May 1-4, 2017. **Best Paper Award Runners-up.**
- [CP.32] P. G. Sudheesh, N. Sharma, *M. Magarini*, P. Muthuchidambaranathan, “Interference alignment in multiple-high altitude platforms based communication with a generalized long distance line of sight channel model,” in Proc. of International Conference on Communication, Management and Information Technology (ICCMIT), Warsaw, Poland, pp. 1-5, Apr. 3-5, 2017.
- [CP.33] A. Gatto, S. Mandelli, J. Morosi, *M. Magarini*, P. Martelli, P. Boffi, “Experimented phase noise limitations in directly-detected single side-band optical OFDM systems,” in Proc. of Optical Fiber Communication Conference (OFC), San Diego, CA, pp. Th2A-29, Mar. 2017.
- [CP.34] P. G. Sudheesh, *M. Magarini*, P. Muthuchidambaranathan, “Achieving maximum system capacity in multiple-high altitude platforms through interference alignment,” in Proc. of International Conference on International Conference on Industrial and Information Systems (ICIIS), Uttarakhand, India, pp. 1-5, Dec. 3-4, 2016.
- [CP.35] A. Kumar, *M. Magarini*, “Improved Nyquist pulse shaping filters for generalized frequency division multiplexing,” in Proc. of IEEE Latin-American Conference on Communications (LATINCOM), Medellin, Colombia, pp. 1-7, Nov. 15-17, 2016.
- [CP.36] M. Speziali, S. Bregni, *M. Magarini*, A. Spalvieri, “A new approach to post-FFT synchronization for DVB-T receivers,” in Proc. of IEEE Latin-American Conference on Communications (LATINCOM), Medellin, Colombia, pp. 1-6, Nov. 15-17, 2016.
- [CP.37] A. Kumar, S. Bregni, *M. Magarini*, “An exact SER expression for QPSK OFDM system in presence of residual CFO and STO,” in Proc. of IEEE Latin-American Conference on Communications (LATINCOM), Medellin, Colombia, pp. 1-6, Nov. 15-17, 2016.
- [CP.38] D. Scazzoli, A. Kumar, N. Sharma, *M. Magarini*, G. Verticale, “A novel technique for ZigBee coordinator failure recovery and its impact on timing synchronization,” in Proc. of International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC), Valencia, Spain, pp. 1-5, Sept. 4-8, 2016.
- [CP.39] P. G. Sudheesh, *M. Magarini*, P. Muthuchidambaranathan, “Interference alignment for the K-user MIMO X network using time division multiple access,” in Proc. of International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics (DISCOVER), Mangalore, India, pp. 123-127, Aug. 13-14, 2016.
- [CP.40] P. G. Sudheesh, *M. Magarini*, P. Muthuchidambaranathan, “Optimal overhead selection for interference alignment in time-varying two-user MIMO X channel,” in Proc. of International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics (DISCOVER), Mangalore, India, pp. 128-132, Aug. 13-14, 2016.
- [CP.41] S. Mandelli, A. Gatto, *M. Magarini*, P. Boffi, P. Martelli, S. Pecorino, A. Spalvieri, “Phase

- noise impact on directly detected optical OFDM transmission in uncompensated links,” in Proc. of International Conference on Transparent Optical Networks (ICTON), Trento, Italy, pp. 1-4, July 10-14, 2016.
- [CP.42] S. Kalwar, F. A. Umrani and *M. Magarini*, “Feedback method for estimation and compensation of carrier frequency offset in LTE uplink,” in Proc. International Conference on Computer, Information and Telecommunication Systems (CITS), Kunming, China, pp. 1-4, July 6-8, 2016.
- [CP.43] S. Kalwar, F. A. Umrani, *M. Magarini*, “Analysis of effect of carrier frequency offset on performance of LTE uplink,” in Proc. International Conference on Digital Information, Networking, and Wireless Communications (DINWC), Moscow, Russia, pp. 35-38, Feb. 3-5, 2015.
- [CP.44] A. Spalvieri, S. Mandelli, *M. Magarini*, G. Bianchi, “Weighting peer reviewers,” in Proc. International Conference on Privacy, Security and Trust (PST), Toronto, ON, pp. 414-419, July 23-24, 2014.
- [CP.45] *M. Magarini*, G. Maier, M. Alam, “Performance analysis of ring-resonator based optical backplane for DPSK transmission at 10 Gb/s,” in Proc. International Conference on Transparent Optical Networks (ICTON), Graz, Austria, pp. 1-4, July 6-10, 2014.
- [CP.46] S. Mandelli, *M. Magarini*, A. Spalvieri, “Modeling the filtered and sampled continuous-time signal affected by wiener phase noise,” in Proc. of European Conference on Networks and Optical Communications (NOC), Milano, Italy, pp. 173-178, June 4-6, 2014.
- [CP.47] S. Mandelli, *M. Magarini*, “Blind iterative singular vectors estimation and adaptive spatial loading in a reciprocal MIMO channel,” In Proc. of Wireless Communications and Networking Conference (WCNC), pp. 1036-1041, Istanbul, Turkey, April 6-9, 2014.
- [CP.48] G. Rizzelli, D. Siracusa, G. Maier, *M. Magarini*, A. Melloni, “Performance of ring-resonator based optical backplane in high capacity routers,” in Proc. of 15th International Conference on Transparent Optical Networks (ICTON), Cartagena, Spain, pp. 1-4, June 23-27, 2013.
- [CP.49] A. Spalvieri, P. Boffi, S. Pecorino, *M. Magarini*, A. Gatto, P. Martelli, M. Martinelli, L. Barletta, “Direct detection analog nonlinear MIMO for mode-division multiplexing in fiber,” in Atti 15° Convegno Nazionale delle Tecnologie Fotoniche (FOTONICA), Milan, Italy, pp. 1-4, May 21-23, 2013.
- [CP.50] L. Barletta, *M. Magarini*, A. Spalvieri, “Tight upper and lower bounds to the information rate of the phase noise channel,” in Proc. of IEEE International Symposium on Information Theory (ISIT), pp. 2284-2288, Istanbul, Turkey, pp. 1-5, July 7-12, 2013.
- [CP.51] *M. Magarini*, A. Spalvieri, L. Barletta, “Pilot-aided equalization with a constrained noise-estimation filter,” in Proc. of IEEE Vehicular Technology Conference (VTC2012-Fall), Québec City, Canada, pp. 1-5, Sept. 3-6, 2012.
- [CP.52] L. Barletta, *M. Magarini*, A. Spalvieri, “Lower bound based on Kalman carrier recovery below the information rate of Wiener phase noise channel,” in Proc. of International Conference on Telecommunication Systems, Services, and Applications (TSSA), Denpasar/Bali, Indonesia, pp. 32-36, Oct. 28-31, 2012.
- [CP.53] L. Barletta, *M. Magarini*, A. Spalvieri, “Two-stage demodulation and decoding for the phase noise channel,” in Proc. of International Conference on Telecommunication Systems, Services, and Applications (TSSA), Denpasar/Bali, Indonesia, pp. 32-36, Oct. 30-31, 2012.
- [CP.54] *M. Magarini*, L. Barletta, A. Spalvieri, “Performance comparison between two soft demodulation methods for differentially encoded QPSK modulation in the presence of

- phase noise,” in Proc. of International Conference on Telecommunication Systems, Services, and Applications (TSSA), Denpasar/Bali, Indonesia, pp. 51-54, Oct. 30-31, 2012.
- [CP.55] *M. Magarini*, L. Barletta, A. Spalvieri, T. Pfau, F. Vacondio, M. Pepe, M. Bertolini, G. Gavioli, “Pilot-symbols aided carrier phase recovery for 100G PM-QPSK digital coherent receivers,” in Proc. of FOTONICA, 14° Convegno Nazionale delle Tecnologie Fotoniche, Florence, Italy, pp. 1-4, May 15-17, 2012.
- [CP.56] S. Randel, *M. Magarini*, R. Ryf, R.-J. Essiambre, A. H. Gnauck, P. J. Winzer, T. Hayashi, T. Taru, T. Sasaki, “MIMO-based signal processing of spatially multiplexed 112-Gb/s PDM-QPSK signals using strongly-coupled 3-core fiber,” in Proc. of European Conference and Exhibition on Optical Communication, (ECOC), Geneva, Switzerland, pp. 1-3, Sept. 18-22, 2011.
- [CP.57] *M. Magarini*, L. Reggiani, A. Spalvieri, “Techniques for efficient spectrum sensing in heterogeneous wireless networks,” in Proc. of Attività di Ricerca sulla Gestione delle Emergenze, Roma, Italy, pp. 13-24, June 13-14, 2011.
- [CP.58] P. Boffi, P. Martelli, M. Cirigliano, *M. Magarini*, M. Martinelli, G. Gavioli, M. Pepe, M. Bertolini, D. Di Mola, “Analisi delle prestazioni di sistemi PDM-16QAM nel caso di propagazione su tratte non compensate,” in Proc. of FOTONICA - 13° Convegno Nazionale delle Tecnologie Fotoniche, Genova, Italy, pp. 1-4, May 9-11, 2011.
- [CP.59] *M. Magarini*, A. Spalvieri, “Frequency domain computation of the feedback filter of the hybrid decision feedback equalizer,” in Proc. of Fifth International Conference on Wireless and Mobile Communications (ICWMC), Cannes/La Bocca, France, pp. 185-189, Aug. 23-29, 2009.
- [CP.60] A. Spalvieri, *M. Magarini*, “Minimum timing jitter in timing recovery based on pre-filtered square-law timing detection,” in Proc. of Second International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ), Colmar, France, pp. 46-51, July 20-25, 2009. **Best Paper Award.**
- [CP.61] A. Spalvieri, *M. Magarini*, “Wiener’s loop filter for PLL-based carrier recovery with OQPSK and MSK,” in Proc. of Communication Systems, Networks and Digital Signal Processing (CNSDSP), Graz, Austria, pp. 525-529, July 23-25, 2008.
- [CP.62] *M. Magarini*, A. Spalvieri, “Spatial Detection and Multistage Decoding for LST-MLC MIMO Systems,” in Proc. of the 18-th Tyrrhenian International Workshop on Digital Communications (TIWDC), Ischia island, Naples, Italy, pp. 3-17, Sept. 9-12, 2007.
- [CP.63] *M. Magarini*, “Spatial loading in V-BLAST systems with limited feedback and ZF-OSIC detection,” in Proc. of International Symposium on Wireless Communication Systems (ISWCS), Trondheim, Norway, 16-19 October 2007
- [CP.64] *M. Magarini*, “Transmit Power Allocation for V-BLAST Systems with ZF-OSIC Detection,” in Proc. of International Symposium on Wireless Communication Systems (ISWCS), Valencia, Spain, 5-8 Sept. 2006, pp. 11-15.
- [CP.65] *M. Magarini*, A. Spalvieri, “Performance evaluation of the V-BLAST coset detector,” in Proc. of IEEE International Symposium on Wireless Communication Systems (ISWCS), Siena, Italy, 5-9 Sept. 2005, pp. 18-21.
- [CP.66] A. Spalvieri, *M. Magarini*, “Computing the feedback filter of the decision feedback equalizer at the FFT speed,” in Proc. of the Thirty-Eighth Asilomar Conference on Signals, Systems and Computers (ASILOMAR), Pacific Grove, CA, pp. 804-808, Oct.-Nov. 2004.
- [CP.67] *M. Magarini*, L. Reggiani, A. Spalvieri, “A reduced-state SISO algorithm for multilevel modulation in turbo equalization,” in Proc. of Personal Indoor and Mobile Radio

Communications (PIMRC), Barcelona, Spain, pp. 791-795, Sept. 2004.

- [CP.68] *M. Magarini*, A. Spalvieri, "A suboptimal detection scheme for MIMO systems with non-binary constellations," in Proc. of Personal Indoor and Mobile Radio Communications (PIMRC), Barcelona, Spain, pp. 1579-1582, Sept. 2004.
- [CP.69] *M. Magarini*, A. Spalvieri, "The role of virtual noise in unconstrained frequency domain equalization," in Proc. of Personal Indoor and Mobile Radio Communications (PIMRC), Barcelona, Spain, pp. 469-473, Sept. 2004.
- [CP.70] *M. Magarini*, L. Reggiani, A. Spalvieri, G. Tartara, "The benefits of the MMSE-DFE feedforward filter in reduced-complexity turbo equalization," in Proc. of International Conference on Communications (ICT), Papeete, French Polynesia, pp. 1189-1193, Feb. 2003.
- [CP.71] *M. Magarini*, A. Spalvieri, "MMSE decision feedback equalizer from channel estimate," in Proc. of Personal Indoor and Mobile Radio Communications (PIMRC), Lisbon, Portugal, pp. 1722-1726, Sept. 2002.
- [CP.72] *M. Magarini*, A. Spalvieri, G. Tartara, "Performance evaluation of the MMSE delayed decision feedback sequence detector," in Proc. of GLOBECOM, San Antonio, TX, vol. 2, pp. 1356-1360, Nov. 2001.
- [CP.73] *M. Magarini*, A. Spalvieri, G. Tartara, "Sensitivity of the mean-square DDFSD to a noisy estimate of the noise variance," in Proc. of Vehicular Technology Conference (VTC-Fall), Atlantic City, NJ, vol. 2, pp. 892 -896, Oct. 2001.
- [CP.74] *M. Magarini*, A. Spalvieri, G. Tartara, "Performance evaluation of the mean-square prefiltered delayed decision feedback sequence detector," in Proc. of Personal, Indoor and Mobile Radio Communications (PIMRC), San Diego, CA, vol. 1, pp. 97-101, Oct. 2001.
- [CP.75] A. Spalvieri, *M. Magarini*, G. Tartara, "Mean-square prefiltered generalized delayed decision feedback sequence detection," in Proc. of International Conference on Telecommunications (ICT), Bucharest, Romania, vol. 3, pp. 447-449, 4-7 June 2001.
- [CP.76] *M. Magarini*, A. Spalvieri, G. Tartara, "Comparison between two methods for delayed decision feedback sequence estimation," in Proc. of Personal, Indoor and Mobile Radio Communications (PIMRC), London, UK, vol. 2, pp. 1300-1304, 18-21 September 2000.
- [CP.77] *M. Magarini*, A. Spalvieri, "Optimization of decentralized quantizers in rate constrained data fusion systems," in Proc. of International Geoscience and Remote Sensing Symposium (IGARSS), Honolulu, HI, vol. 3, pp. 966-968, 24-28 July 2000.
- [CP.78] *M. Magarini*, A. Spalvieri, G. Tartara, "Improving error performance of equalized receivers for broadband radio," in Proc. of Vehicular Technology Conference (VTC-Fall), Amsterdam, The Netherlands, vol. 4, pp. 2377-2382, 19-22 September 1999.

D. Other Publications

- [OP.1] *M. Magarini*, "Quantization in distributed detection system (in Italian)," Internal Report n. 97.52, Politecnico di Milano, Oct. 1997.
- [OP.2] *M. Magarini* and A. Spalvieri, "Reduced complexity sequence detection," TD(02)032, Guildford, U.K, Jan. 2002.
- [OP.3] *M. Magarini*, L. Reggiani, A. Spalvieri and G. Tartara, "The benefits of the MMSE-DFE feedforward filter in reduced-complexity turbo equalization," TD(02)161, Lisbon, Portugal, Sept. 2002.
- [OP.4] *M. Magarini* and A. Spalvieri, "A suboptimal detection scheme for MIMO systems with non-binary constellations," TD(04)126, COST 273 10th MCM, Gothenburg, Sweden, 9-10 June 2004.

EDITORIAL ACTIVITY AND ROLES IN TECHNICAL COMMITTEES

- Associate Editor of IEEE Access from July 2017.
- Associate Editor of Elsevier Nano Communication Networks from October 2017.
- Guest Editor of IEEE Access Special Section “Networks of Unmanned Aerial Vehicles: Wireless Communications, Applications, Control and Modelling, 2017.
- Guest Editor of MDPI Sensors Special Issue “UAV-Based Wireless Sensor Networks Systems: Research, Technologies, and Applications”, 2020.
- Chairman of 3 Sessions at ICC 2017 (Unmanned Aerial Vehicles, Synchronization and Mutual Information in Molecular & Neurological Channels, Intercell Interference Coordination (ICIC) and Coordinated Multipoint (CoMP)).
- General Co-Chair of the “International Space Conference”, 10-12 September 2020, Amity University, Noida, India.
- TPC Chair at the “ACM MobiHoc workshop on innovative aerial communication solutions for First Responders network in emergency scenarios (iFIRE)”, 2-5 July 2019, Catania, Italy.
- Reviewer for the following journals: IEEE Access; IEEE Transactions on Mobile Computing, IEEE Transactions on Molecular, Biological, and Multi-Scale Communications; IEEE Transactions on Signal Processing; IEEE/OSA Journal of Lightwave Technology; IEEE Transactions on Information Theory; IEEE Transactions on Communications; IEEE Transactions on Wireless Communications; IEEE Communications Letters; IEEE Signal Processing Letters; IEEE Transactions on Circuits and Systems II; European Transactions on Telecommunications; Wireless Communications and Mobile Computing; Optics Express; Optics Letters; IEEE Journal on Selected Area in Communications; IEEE Photonics Technology Letters; Springer Wireless Personal Communications.
- Technical Programme Committee Member of ICC 2006, 1st COST2100 Workshop 2008, GLOBECOM 2009, GLOBECOM 2010, WiMob 2011, ICC 2011, GLOBECOM 2011, WiMob 2012, WCSP 2012, PIMRC 2012, ICCVE 2012, ICC 2012, GLOBECOM 2012, WiMob 2013, WCSP 2013, WCNC 2013, VTC Fall 2013, ICC 2013, GLOBECOM 2013, WCNC 2014, ICC 2014, Globecom 2014, VTC Fall 2015, WiMob 2015, WCNC 2015, ICCVE 2015, ICC 2015, GLOBECOM 2015, CoCoNet 2015, WiMob 2016, WCNC 2016, PIMRC 2016 Workshop “From M2M Communications to Internet of Things”, ICC 2016, GLOBECOM 2016, CCECE 2016, ACM NanoCom 2016.

PARTICIPATION IN INTERNATIONAL AND NATIONAL RESEARCH PROJECTS

- EIT Digital Project “Drones112” dal 01/01/2018 al 31/01/2018. European Commission Funded Project. Role: Researcher.
- EIT Digital Project “Clouds4Drones” dal 01/01/2017 al 31/01/2017. European Commission Funded Project. Role: Researcher.
- EU COST-273 (European Co-operation in the field of Scientific and Technical Research) “Towards Mobile Broadband Multimedia Networks,” 2001-2005. Role: Researcher.
- EU FP6 IST NEWCOM (Network of Excellence in Wireless COMMunications), within the European Union (EU) 6th Framework Programme, 2004-2007. Role: Researcher.

- IT MIUR FIRB VICOM (Virtual Immersive COMMunication), 2002-2005 (national project).
Role: Researcher.
- IT MIUR FIRB MAIS (Multichannel Adaptive Information Systems), 2002-2006 (national project). Role: Researcher.
- IT MIUR FIRB INSYEME (INtegrated SYstem for EMERgency), 2007-2010 (national project).
Role: Researcher.
- IT MIUR FAR, ARISTA (Architetture Riconfigurabili e Interoperabili per Sistemi di Telecomunicazione Avanzati), 2003-2005, (national project). Role: Researcher.

PARTICIPATION IN INTERNATIONAL AND NATIONAL RESEARCH PROJECTS

- Principal investigator and scientific responsible for Politecnico di Milano in the European Funded Project “ACTIVE (Advanced ConnecTIvity platform for Vertical segments)”. EIT Digital. Funding EURO 191.147,00. From 9/1/2015 to 12/31/2016.
- Italian coordinator of the project “Networked Airborne Base Stations for Disaster Management”, within the framework of the Executive Programme of Scientific and Technological Cooperation between the Republic of India and the Italian Republic. Exchange of Researchers programme. From 2017 to 2019.
- Scientific responsible for the project “Sistema Integrato per la Valorizzazione delle Eccedenze Alimentari nel Quartiere” (“Integrated system for the valorization of food surplus in the district”). Politecnico di Milano Funded Project (Polisocial Award 2017). Funding EURO 80.000,00. From 1/4/2018 to 30/09/2018.
- Co-director of the international project COUNTER-TERROR (public safety COmmunication in ConTEXT Related to TERROR attacks) within the NATO programme “Science for Peace and Security (SPS)”. The project was admitted to funding on the basis of a competitive tender. Total financing of the project: € 298,000.00. Milan Polytechnic University funding: € 90,000.00. Project duration: from 1 June 2018 to 31 May 2021.
- Scientific responsible for the national project “Circular Food Chains” funded by the Ministry of Agriculture, Food and Forestry. The project aims at developing and testing an integrated digital platform for the circular management of food surpluses. The project has been admitted to funding on the basis of a competitive tender. Total financing of the project: € 50,000.00. Project duration: from 12 December 2018 to 11 December 2019.

PARTICIPATION IN HIGH QUALITY ORGANIZATION/RESEARCH INSTITUTES

Visiting Researcher at Bell Labs, Alcatel-Lucent, Holmdel, New Jersey, from July 2008 to Jan.

2009.

ACHIEVEMENT OF AWARDS FOR SCIENTIFIC ACTIVITIES

- Best Paper Award of the International Conference on Communication Theory, Reliability, and Quality of Service, July 20-25, 2009, Colmar, France (“Minimum Timing Jitter in Timing Recovery Based on Pre-filtered Square-Law Timing Detection”).
- Best Paper Award Runners-up of the IEEE International Conference on Computer Communications (INFOCOM), May 1-4, 2017, Atlanta, GA, USA (“A parity check analog decoder for molecular communication based on biological circuits”).
- Polisocial AWARD 2017 for the project “Sistema Integrato per la Valorizzazione delle Eccedenze Alimentari nel Quartiere” (“Integrated system for the valorization of food surplus in the district”).
- Best Paper Award of the International Balkan Conference on Communications and Networking, Skopje, North Macedonia, June 10-12, 2019 (“On the extension of LTE and LTE-A PRACH receiver design to 5G new radio”).
- Best Student Paper Award of the International Balkan Conference on Communications and Networking, Skopje, North Macedonia, June 10-12, 2019 (“Design of DGT-based Linear Receivers for GFDM Transmission in Broadband Channels”).

INDUSTRIAL COOPERATIONS

- “Gestione dell’interferenza nei sistemi cellulari LTE in presenza di ricevitori e trasmettitori dotati di antenne multiple (Interference management in LTE cellular systems in presence of transmitters and receivers equipped with multiple antennas),” research contract between Politecnico di Milano and Azcom Technology, from 12/19/2011 to 12/18/2012. Role: Responsible and Principal Investigator.
- “100Gb/s,” research contract between Fondazione Politecnico di Milano and Alcatel-Lucent, from 6/1/2009 to 12/31/2010. Role: Researcher.
- “Ricezione di segnali trasmessi attraverso canali distorcenti (Reception of signals transmitted over channels introducing distortions),” research contract between Politecnico di Milano and ST-Microelectronics, from 10/30/2000 to 10/29/2001. Role: Researcher.
- “Tecniche adattative per sistemi MIMO-OFDM in ambito WLAN di prossima generazione (Adaptive techniques for Next Generation MIMO-OFDM Wireless LANs),” research contract between Politecnico di Milano and ST-Microelectronics, from 7/20/2005 to 7/19/2006. Role: Researcher.
- “Modellazione e implementazione algoritmi di ricezione per sistemi cellulari LTE (Modelling and implementation of receiver algorithms for LTE cellular systems),” research contract between Politecnico di Milano and Azcom Technology, from 1/15/2013 to 3/14/2013. Role: Researcher.
- “Implementazione di algoritmi di ricezione per il livello fisico 4G LTE (Implementation of receiver algorithms for LTE physical layer),” research contract between Politecnico di Milano and Azcom Technology, from 9/16/2015 to 3/15/2016. Role: Researcher.

TEACHING ACTIVITY

Teaching assignments of Maurizio Magarini are in the area of Signal and Systems, Communication Theory and Communication Systems. His teaching activity during his academic life has covered

both theoretical lectures, practice sessions, and laboratories as illustrated in the following:

- As Course Holder:
 - “Information Theory,” taught in English, 1st and 2nd year graduate course, Politecnico di Milano, Milan, Italy, from academic year 2018/2019 to Present.
 - “Digital Communication I,” taught in English, 1st and 2nd year graduate course, Politecnico di Milano, Milan, Italy, from academic year 2015/2016 through 2017/2018.
 - “Digital Communication II,” taught in English, 1st and 2nd year graduate course, Politecnico di Milano, Milan, Italy, academic year 2014/2015.
 - “Communication Systems,” taught in Italian, 3rd year undergraduate course, Politecnico di Milano, Milan, Italy, from academic year 2012/2013 through 2013/2014 and from academic year 2018/2019 to present.
 - “Methods and Circuits for Digital Transmission,” taught in Italian, 1st and 2nd year graduate course, Politecnico di Milano, Milan, Italy, from academic year 2009/2010 through 2011/2012.
 - “Advanced Transmission Techniques for Wireless Systems,” taught in English, Ph.D. course, Politecnico di Milano, Milan, Italy, academic year 2013/2014.
 - “Advanced Methods for Digital Communication II,” taught in Italian, Ph.D. course, academic year 2006/2007.
 - “Fundamentals of Signals and Transmission,” taught in Italian, 2nd year undergraduate course, Politecnico di Milano, Milan, Italy, from academic year 2002/2003 through 2007/2008.
 - “Fundamentals of Telecommunications,” taught in Italian, 2nd year undergraduate course, Politecnico di Milano, Como, Italy, academic year 2001/2002.
- As Teaching Assistant:
 - “Methods and Circuits for Digital Transmission II,” taught in Italian, 2nd year graduate course, Politecnico di Milano, Milan, Italy, from academic year 2005/2006 through 2007/2008.
 - “Communication Systems,” taught in Italian, 3rd year undergraduate course, Politecnico di Milano, Milan, Italy, academic year 2007/2008 and from academic year 2014/2015 through 2017/2018.
 - “Methods and Circuits for Digital Transmission I,” taught in Italian, 3rd year undergraduate course, Politecnico di Milano, Milan, Italy, from academic year 2003/2004, through 2005/2006.
 - “Electrical Communications,” taught in Italian, 1st year graduate course, Politecnico di Milano, Milan, Italy, academic years 1999/2000 and 2000/2001.
- As Laboratory Assistant:
 - “Digital Communication I & II,” taught in English, 1st and 2nd year graduate course, Politecnico di Milano, Milan, Italy, from academic year 2013/2014 to 2017/2018.

Maurizio Magarini has been supervisor of the following Ph.D. Theses:

- Silvio Mandelli, “Analysis of Wiener phase noise issues in optical transmission systems,” Politecnico di Milano, Milan, Italy, from November 2012 to January 2016.
- Atul Kumar, “Synchronization and performance evaluation of future wireless cellular system

based on the use of new multi-carrier transmission techniques,” Politecnico di Milano, Milan, Italy, from November 2015 to November 2019.

- Navuday Sharma, “Increasing capacity of wireless networks using aerial base stations,” Politecnico di Milano, Milan, Italy, from November 2015 to November 2019.
- Sadaf Moaveninejad, “Data transmission and analysis over hybrid wireless/narrowband-powerline communication,” Politecnico di Milano, Milan, Italy, from November 2015 to present.
- Davide Scazzoli, “Energy efficient machine type communications for Wireless Sensor Networks inside 5G,” Politecnico di Milano, Milan, Italy, from November 2017 to present.
- Francesca Ratti, “Estimating the Information Capacity of an Engineered Cell-To-Cell Molecular Communication Channel,” Politecnico di Milano, Milan, Italy, from November 2018 to present.
- Francesco Linsalata, “Advanced Multi-carrier Modulation Schemes for Next Generation Wireless Cellular Networks,” Politecnico di Milano, Milan, Italy, from November 2019 to present.

Maurizio Magarini has been advisor at Master level of 35 Theses in Telecommunication Engineering.

INVITED TALKS

- “Bayesian Inference in Digital Communication” in Workshop on Theory and Applications of Signal Processing Methods (in GW Detection, Medical Science and Engineering), European Gravitational Observatory (EGO), Cascina (Pisa), Italy, 15-17 October 2012.
- “MATLAB and Simulink for Project Based Learning at Politecnico di Milano”, in MathWorks Research Summit, Newton, MA, 4-6 June 2016.
- Keynote Speaker at "4th International Workshop of CorNer: Communications for Networked Smart Cities", Bologna, Italy. Title of presentation: "UAV Assisted Smart City", 9-12/09/2018.

PROFESSIONAL COURSES

- “Digital Transmission” (30 hours) for the Italian company FITRE S.p.A., Milan, Italy, May-July 2003.

ROLES IN DEPARTMENT ACTIVITIES

- Member of the Department Board, Department of Electronics, Information, and Bioengineering, Politecnico di Milano, 2002-2006.
- Member of the Board of Ph.D. program in Information Technology, Department of Electronics, Information, and Bioengineering, Politecnico di Milano, from January 2016 to now.