

Curriculum Vitae



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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

- **March 2001 – now:** 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

My research interests are in the broad area of communication theory. Major component of research activities are physical layer of wireless and optical communications. Topics include equalization, channel coding, coded modulation schemes, design of suboptimal receivers, multi-input/multiple output systems, iterative detection techniques, reduced complexity soft-input/soft-output detectors, synchronization in presence of phase noise, 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] 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.2] 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 *International Journal of Wireless Information Networks*, pp. 1-10, May 2017.
- [JP.3] A. Kumar, *M. Magarini*, H. D. Joshi, R. Saxena, “Exact SER analysis of DF-FT-based QPSK OFDM system over frequency selective Rayleigh fading channel with CFO,” *Journal of Computer Networks and Communications*, 7 pages, 2016.
- [JP.4] F. Scardonì, *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.5] 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.6] 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.7] 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.8] *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.9] 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.10] 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.11] 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.12] 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.13] 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.14] 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.15] 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.16] *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.17] *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.18] 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.19] *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.20] L. Barletta, *M. Magarini*, A. Spalvieri, “Staged demodulation and decoding,” *Optics Express*, vol. 20, pp. 23728-23734, Oct. 2012.
- [JP.21] 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.22] 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.23] 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.24] 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.25] L. Galati Giordano, M. Magarini, A. Spalvieri, "Infinite-length pilot aided equalization," *IEEE Communications Letters*, vol. 14, pp. 465-467, May 2010.
- [JP.26] 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.27] 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.28] 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.29] M. Magarini, A. Spalvieri, "Coset detection in MIMO systems based on spatial multiplexing," *IEEE Communications Letters*, vol. 10, pp. 390-392, May 2006.
- [JP.30] 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.31] 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.32] 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.33] M. Magarini, A. Spalvieri, G. Tartara, "Improving error probability of the prefiltered Viterbi equalizer," *IEEE Communications Letters*, vol. 4, pp. 137-139, April 2000.

C. Conferences

- [CP.1] 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.2] 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.3] 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.4] 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.5] 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.6] 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.7] 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.8] 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.9] 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.10] 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.11] 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.12] 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.13] 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.14] 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.15] 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.16] 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.17] 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.18] 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.19] 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.20] 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.21] *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.22] 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.23] 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.24] 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.25] 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.26] 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.27] *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.28] 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.29] 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.30] *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.31] *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.32] 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.33] *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.34] 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.35] *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.36] 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.37] 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.38] *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.39] *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.40] *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.41] *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.42] 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.43] *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.44] *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.45] *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.46] *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.47] *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.48] *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.49] *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.50] *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.51] 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.52] *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.53] *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.54] *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.
- Guest Editor of IEEE Access Special Section "Networks of Unmanned Aerial Vehicles: Wireless Communications, Applications, Control and Modelling, 2017.
- 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)).
- 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 "Clouds4Drones" 2017-2018. 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 Dgital. 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 Replubic of India and the Italian Republic. Exchange of Researchers programme From 2017 to 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”).

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 include Communication Theory and Electrical Communication:

- As Course Holder:
 - “Digital Communication I” (1st and 2nd year graduate course), Politecnico di Milano, Milan, Italy, from academic year 2015/2016.
 - “Digital Communication II” (1st and 2nd year graduate course), Politecnico di Milano, Milan, Italy, academic year 2014/2015.
 - “Communication Systems” (3rd year undergraduate course), Politecnico di Milano, Milan, Italy, from academic year 2012/2013 through 2013/2014.
 - “Methods and Circuits for Digital Transmission” (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.” (Ph.D. course), Politecnico di Milano, Milan, Italy, academic years 2006/2007 and 2013/2014.
 - “Fundamentals of Signals and Transmission” (2nd year undergraduate course), Politecnico di Milano, Milan, Italy, from academic year 2001/2002 through 2007/2008.
- As Teaching Assistant:
 - “Methods and Circuits for Digital Transmission II” (2nd year graduate course),

Politecnico di Milano, Milan, Italy, from academic year 2005/2006 through 2007/2008.

- “Communication Systems” (3rd year undergraduate course), Politecnico di Milano, Milan, Italy, academic year 2007/2008.
- “Methods and Circuits for Digital Transmission I” (3rd year undergraduate course), Politecnico di Milano, Milan, Italy, from academic year 2003/2004, through 2005/2006.
- “Elettrical Communications” (1st year graduate course), Politecnico di Milano, Milan, Italy, academic years 1999/2000 and 2000/2001.
- As Laboratory Assistant:
 - "Digital Communication I & II" (1st and 2nd year graduate course), Politecnico di Milano, Milan, Italy, from academic year 2013/2014.

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.

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.