

Pietro Savazzi

Curriculum Vitae

CONTACT DATA

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Wireless communications and sensor systems, with a focus on modulation and coding, adaptive signal processing, MIMO architectures, intra-body networks, wearable wireless sensors.

PROFESSIONAL EXPERIENCE

1/2012-... University of Pavia Pavia, Italy
Assistant Professor

- * Research and teaching on wireless sensor networks for biomedical applications, digital communications and digital signal processing (using MATLAB for system simulations and FPGA/Arduino based boards for experimental evaluations).
- Principal Investigator of research projects and contracts with several Telecom Industries.

2/2003-12/2011 University of Pavia Pavia, Italy
Contract Professor/ Research Associate

- * Research and teaching on wireless networks & digital signal processing (using MATLAB for system simulations).
- Scientific consultancy within research contracts with Telecom and Microelectronics Industries.
- Contract researcher for the Italian National Program FIRB “Enabling Technologies for Wireless Reconfigurable Terminals,” in the system design and networking aspects workgroup (2003-2006).
- Teaching of several courses, as a contract professor, on digital signal processing and communication theory, since 2004.

6/2001-1/2003 Marconi Mobile Genoa, Italy
System Designer Team Leader

- * R&D in UMTS Node B system design.
- Team leader of the system design group in the advance radio solutions unit of the UMTS product unit.
- 3GPP physical layer and networking aspects – system test and verification

4/1999 - 6/2001 Ericsson Milan, Italy
System Designer

- * R&D in the field of SDH high capacity modems for microwave radio relay links and point to multi-point microwave radio access systems (ETSI BRAN Hyperaccess)
- FDD and TDD-TDMA radio access systems.
- Contribution to ETSI BRAN Hiperaccess standardization process.

EDUCATION

11/1995 – 4/1999 University of Pavia Pavia, Italy
* Ph.D. course in Electronics Engineering & Computer Science.
* Thesis on Mobile Radio Systems Transceivers: Equalization Techniques and Channel Models.

10/1989 – 7/1995 University of Pavia Pavia, Italy
* 5-year degree in Electronics Engineering, Telecommunications curriculum.
* Final thesis on the analysis of multispectral remotely sensed images based on fuzzy clustering.

RESEARCH PROJECTS

- 2023-2024: Wide Band OFDM Waveform. Funded by Mindway, as the principal investigator.
- 2021-2023: principal investigator of the project VOCE for developing new aiding technologies for improving communication skills in subject with autism spectrum disorder, funden by Fondazione TIM (<https://www.fondazionetim.it/notizie/liberi-di-comunicare-vincitori-2020> - <https://vocepecs.unipv.it/>).
- 2014-2016. Higher Data Rate Modem Design. Funded by SIAE Microelettronica, as the principal investigator.
- 2013-2016. Italian National Project PRIN “GRETA-GREen Tags”, <http://www.greentags.eu/>.
- 2013. Packets modem design. Funded by FEROX COMMUNICATIONS S.L., as the principal investigator.
- 2012. High capacity M-QAM modem. Funded by SKYLINKS SRL, as the principal investigator.
- 2006-2008. Design of novel receivers and channel coding schemes for the next generation hard-disk drives (HDD). Funded by ST Microelectronics, Milan, Italy.
- 2006-2007 NAVISTO (NAVigation System Technology Opportunities): European Programme devoted to create opportunities in GNSS applications (technology transfer project).
- 2005. Design of a complete digital receiver for an uplink BRAN Hiperaccess terminal - Study and design of a receiver based on cross-polar interference cancellation. Funded by Ericsson Lab Italy, Milan Italy.
- 2004. Optimization of low power consumption decoder for shortened Reed-Solomon codes. Funded by Ericsson Lab Italy, Milan Italy.
- 2003-2006. Italian National Program FIRB “Enabling Technologies for Wireless Reconfigurable Terminals”.
- 2003. Validation of mobile radio system models. Funded by Siemens ICN, Milan, Italy.
- 1998. Error correcting schemes for digital radio relay links, supporting ATM traffic (funded by Marconi, Genoa, Italy)
- 1997-1998. Innovative solutions for DVB-T (Digital Video Broadcasting – Terrestrial) OFDM receiver equalization. Funded by ST Microelectronics, Milan, Italy.

PUBLICATIONS

- **34 papers on international peer-reviewed journals**, of which many on IEEE journals.
- **54 publications at international conferences**.
- **One patent**.
- Frequent **reviewing activity** for several international conferences and journals like for instance: IEEE Transactions on Communications, IEEE Communications Letters, IEEE Sensors Journal, IEEE Transactions on Broadcasting, IEEE Transactions on Green Communications and Networking, IEEE ICC and Globecom conferences.
- Technical Program Committee (TPC) Member of several international conferences like, for instance, IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE), IEEE Vehicular Technology Conference, IEEE Sensors, ACM NANOCOM.
- Associate editor of the IEEE Access journal
- Coauthor of the paper entitled "Electromyography Data Transmission via Galvanic Coupling Intra-body Communication Link", presented at 8th ACM International Conference on Nanoscale Computing and Communication (NanoCom 2021), that received the best paper award recognition

Recent publications

Journal papers

- [J.1] F. Kulsoom, H. N. Chaudhry, P. Savazzi, F. Dell'Acqua and A. Vizziello, "An Energy Efficient Carrier Synchronization Method for Galvanic Coupling Intra-Body Communication," in IEEE Journal on Selected Areas in Communications, doi: 10.1109/JSAC.2024.3399256.
- [J.2] A. Vizziello, P. Savazzi, R. R. Guerra and F. Dell'Acqua, "Experimental Channel Characterization of Human Body Communication Based on Measured Impulse Response," in IEEE Transactions on Communications, doi: 10.1109/TCOMM.2024.3370468.
- [J.3] Renata Rojas Guerra, Anna Vizziello, Pietro Savazzi, Emanuele Goldoni, Paolo Gamba, "Forecasting LoRaWAN RSSI using weather parameters: A comparative study of ARIMA, artificial intelligence and hybrid approaches," Computer Networks, Volume 243, 2024, ISSN 1389-1286, <https://doi.org/10.1016/j.comnet.2024.110258>.
- [J.4] Anna Vizziello, Maurizio Magarini, Pietro Savazzi, Laura Galluccio, "Intra-body communications for nervous system applications: Current technologies and future directions," Computer Networks, Volume 227, 2023, ISSN 1389-1286, <https://doi.org/10.1016/j.comnet.2023.109718>.
- [J.5] Anna Vizziello, Laura Galluccio, Maurizio Magarini, Pietro Savazzi, Federico Biglioli, Federico Bolognesi, Francesca Talpo, Gerardo Biella, Giovanni Magenes, "An Implantable

Conference papers

- [C.1] F. Silino, F. D. Acqua, P. Savazzi, A. Vizziello, D. Biz and F. Brega, "Linear Approximation of CPM Signals for a Reduced-Complexity, Multi-Mode Telemetry Transmitter," ICC 2023 - IEEE International Conference on Communications, Rome, Italy, 2023, pp. 4089-4093, doi: 10.1109/ICC45041.2023.10279488.
- [C.2] Anna Vizziello, Pietro Savazzi, and Fabio Dell'Acqua. 2022. Data driven channel characterization of human body communication. In Proceedings of the 9th ACM International Conference on Nanoscale Computing and Communication (NANOCOM '22). Association for Computing Machinery, New York, NY, USA, Article 29, 1–2. <https://doi.org/10.1145/3558583.3558869>.
- [C.3] A. Vizziello, P. Savazzi, G. Magenes, “Electromyography Data Transmission via Galvanic Coupling Intra-body Communication Link,” Proceedings of the Eight Annual ACM International Conference on Nanoscale Computing and Communication, NANOCOM '21, September 2021, Article No.: 11, pp 1–7, <https://doi.org/10.1145/3477206.3477450>.
- [C.4] A. Vizziello, P. Savazzi, F. Kulsoom, G. Magenes, P. Gamba, “A novel galvanic coupling testbed based on PC sound card for intra-body communication links,” 14th EAI International Conference on Body Area Networks, BODYNETS 2019, October 2-3, 2019, Florence, Italy.
- [C.5] P. Savazzi, F. Vasile, N. Brondino, M. Vercesi, P. Politi, "Estimation of Skin Conductance Response through Adaptive filtering," 14th EAI International Conference on Body Area Networks, BODYNETS 2019, October 2-3, 2019, Florence, Italy.