

CURRICULUM VITAE

PERSONAL INFORMATION

Giulio Bartoli, PhD
 Date of birth: 17/08/1985
 Citizenship: Italian
 Address: Via Montenero 15, Montevarchi (AR), Italy
 Mobile phone: +39 349 0846357
 Research experience: from July 2010

• CURRENT POSITION

From 01/01/2022: Fixed-Term Researcher (A-Type) at the Department of Information Engineering and Mathematics, University of Siena.

• PREVIOUS POSITIONS

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|-------------------------|---|
| 15/03/2021 – 31/12/2021 | Software Analyst at <i>Geosystems s.r.l.</i> |
| 01/01/2020 – 11/03/2021 | CNIT Researcher Department of Information Engineering, University of Florence, Italy “Artificial Intelligence Techniques for New Generation Networks” With focus on: deep learning algorithms for URLLC applications. |
| 01/11/2018 – 31/12/2019 | Post-doc Research Fellow (<i>assegno di ricerca di tipo B</i>) Department of Information Engineering, University of Florence, Italy |
| 01/11/2017 – 31/10/2018 | Post-doc Research Fellow, grant from open call (<i>assegno di ricerca di tipo A</i>) Department of Information Engineering, University of Florence, Italy |
| 01/03/2017 – 31/10/2017 | Post-doc Research Fellow, grant from open call (<i>assegno di ricerca di tipo A</i>) Department of Information Engineering, University of Florence, Italy |
| 01/01/2014 – 28/02/2017 | Research Fellow (<i>assegno di ricerca di tipo B</i>) Department of Information Engineering, University of Florence, Italy |
| 01/10/2015 – 30/09/2019 | Collaborator for teaching activity Polo Universitario Aretino, Italy |

• NATIONAL SCIENTIFIC QUALIFICATION

11/06/2021 – 11/06/2030

• EDUCATION

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|-------------------------|---|
| 01/01/2011 – 31/12/2013 | PhD in <i>Computer Science, Systems and Telecommunications</i> Department of Information Engineering, University of Florence, Italy PhD thesis: “ <i>Interference in Wireless Communication Systems: Mitigation and exploiting</i> ” |
| 01/08/2012 – 01/10/2012 | Visiting Researcher , Department of Electrical and Computer Engineering, University of Alberta, Canada |
| 15/09/2007 – 26/03/2010 | Master Degree with Highest Honour in <i>Telecommunication Engineering</i> Department of Information Engineering, University of Florence, Italy |
| 15/09/2004 – 07/12/2007 | Bachelor Degree in <i>Telecommunication Engineering</i> Department of Information Engineering, University of Florence, Italy |

• FUNDING

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|-------------------------|---|
| 01/11/2017 – 31/10/2018 | Type A post-doc research fellowship , granted by University of Florence from open call, proposed project: <i>“Physical Layer Security for Short Packet Communications in IOT Applications”</i> . Department of Information Engineering, University of Florence, Italy |
| 01/03/2017 – 28/02/2018 | Type A post-doc research fellowship , granted by DINFO department from open call, proposed project: <i>“Resource Allocation Schemes for Spectral Efficiency Maximization in 5G Networks”</i> . Department of Information Engineering, University of Florence, Italy |
| 01/01/2011 – 31/12/2013 | Research scholarship , granted by MIUR for PhD pursuing at UNIFI Department of Information Engineering, University of Florence, Italy |
| 01/07/2010 – 31/12/2010 | Research scholarship <i>“Efficient Transmission Systems for Aeronautical Environment”</i> , granted by the Department of Electronics and Telecommunications Department of Electronics and Telecommunications, University of Florence, Italy |

• RESEARCH INTERESTS

During the last ten years, the candidate has dealt with several research topics, mainly in the PHY and MAC layers of wireless and mobile networks. Such topics include:

- URLLC communications
- MIMO e RIS
- Interference management
- Multicast transmissions
- Multiuser detection
- Heterogeneous and dense networks
- Resource allocation
- Physical layer network coding
- Energy efficiency in wireless networks
- IoT systems
- Professional communication systems and convergence with commercial networks

• TEACHING ACTIVITIES

The candidate has been involved in several teaching activities during his PhD and the following research fellowship. In particular, he:

1. held a **PhD course** of **“Convergence Of Communication And Localization In 5g And Beyond 5g Systems”** with Andrea Abrardo in September 2023 (6 students)
2. held a class of **“IoT lab”** (6 ECTS credits) as for the University of Siena (course in Information Engineering) since 2022/2023 (7 students)
3. held a class of **“Mobile Communications and IoT”** (10 ECTS credits) for the University of Siena (course in Information Engineering) in a.a. 2021/2022 (7 students)
4. held a class of **“Internet and Computer Networks”** (10 ECTS credits) as contract professor for the Polo Universitario Aretino (course in Information Science Engineering) since 01/10/2018 to 30/09/2019 (7 students)
5. held a **PhD course** of **“Matlab Fundamentals for Academia”** for 2 ECTS in July 2019 (9 students)
6. held a **PhD course** of **“Adaptive resource allocation in wireless communications”** with Dania Marabissi for 2 ECTS in July 2019 (14 students)
7. held a 5 hours class of **“Course on 5G and broadband evolutions”** dealing with *convergence between commercial and public safety systems* for Leonardo Co. in April 2019 (25 attendees)
8. held a class of **“Fundamentals of Telecommunications”** (10 ECTS credits) as contract professor for the Polo Universitario Aretino (course in Information Science Engineering) since 01/10/2015 to 30/09/2018 (7 students per year on average)
9. took part to IFTS project (**technical specialist training**) for 10 hours of teaching activity (20

attendees)

10. gave teachings about wired and wireless networks during the course of “Principles of Electronic Engineering” (master course in Biometric Engineering) of Prof. Marabissi in 2014-2016 (6 students per year on average)
11. was involved in teaching activities during the FIRB project InSyEme about communication systems and digital transmissions in 2013 (12 students)
12. was involved in teaching activities concerning statistic fundamentals within “Telecommunication Networks” (master course in Telecommunication Engineering) of Prof. Fantacci in 2011 (20 students)

- **EDITORIAL ACTIVITIES**

Journal Area Editor: *International Journal of Communication Systems* since Aug. 2018.

Journal reviewer: *IEEE Trans. Wireless Commun.*, *IEEE Trans. Commun.*, *IEEE Trans. Veh. Technol.*, *IEEE Wireless Commun. Mag.*, *IEEE Commun. Lett.*, *Trans. Emerging Telecommun. Technol.*, *WINE*.

Conference reviewer: *IEEE ICC*, *IEEE GLOBECOM*, *IEEE PIMRC*, *IEEE VTC*, *IEEE PIMRC*, *IEEE WCMC*, *WInnComm Europe*.

- **ORGANIZATION OF INTERNATIONAL CONFERENCES**

TPC member for Globecom 2016 - Signal Processing for Communications Symposium.

TPC member for Globecom 2017 - Signal Processing for Communications Symposium.

TPC member for Globecom 2017 – Mobile and Wireless Networks Symposium.

TPC member for Globecom 2018 - Signal Processing for Communications Symposium.

TPC member for Globecom 2018 - Wireless Communications Symposium.

TPC member for Globecom 2018 – Cognitive Radio Networks Symposium.

TPC member for Globecom 2019 - Signal Processing for Communications Symposium.

TPC member for Globecom 2019 - Green Communications Systems and Networks Symposium.

TPC member for Globecom 2019 - Wireless Communications Symposium.

TPC member for ICC 2020 - SAC Satellite and Space Communications.

- **ORGANISATION OF SCIENTIFIC MEETINGS**

01/03/2014 – 11/03/2014 **Local organizer**, Prof. Beaulieu’s *IEEE ComSoc Distinguished Lecturer Tour*, University of Florence, Italy

- **INTERNATIONAL COLLABORATIONS**

Prof. N. C. Beaulieu (Beijing University of Posts and Telecommunications), about *the optimal detector in Laplace Noise*.

Prof. K. B. Letaief (Hong Kong University of Science and Technology), about beamforming in heterogeneous networks.

Prof. H. V. Poor (Princeton University), about physical layer security for IoT applications using short packets.

- **ATTENDED CONFERENCES**

IEEE WCNC 2019, Marrakesh, Morocco (speaker)

IEEE GLOBECOM 2018, Abu Dhabi, UAE (speaker)

IEEE WCNC 2018, Barcelona, Spain (speaker)

IEEE GLOBECOM 2015, San Diego, California (speaker)

IEEE PIMRC 2014, Washington, DC (speaker)

IEEE IWCMC 2014, Nicosia, Cyprus (speaker)

IEEE ICC 2013, Budapest, Hungary (speaker)

IEEE GLOBECOM 2011, Houston, Texas (speaker)

IEEE ICC 2011, Kyoto, Japan (speaker)

- **MENTORING ACTIVITY**

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| 01/11/2016 – 31/10/2019 | Benedetta Picano, | PhD Student |
| 01/12/2017 – 30/06/2018 | Alessandro Musi, | Graduate Student |
| 01/12/2017 – 28/02/2018 | Wolmer Bibi, | Undergraduate Student |
| 01/04/2017 – 15/09/2017 | Alessandro Minervini, | Undergraduate Student |
| 01/06/2016 – 10/09/2016 | Andrea Stomaci, | Undergraduate Student |
| 01/06/2016 – 10/09/2016 | Luca Cialdi, | Undergraduate Student |
| 01/06/2014 – 20/04/2015 | Matteo Tronca, | Graduate Student |
| 01/09/2014 – 10/12/2014 | Gianluca Lisi, | Undergraduate Student |
| 01/06/2013 – 10/04/2014 | Francesco Curcio, | Graduate Student |
| 01/06/2013 – 01/12/2013 | Francesco Arenella, | Graduate Student |
| 01/04/2013 – 01/12/2013 | Leonardo Menichetti, | Graduate Student |
| 01/09/2010 – 20/04/2011 | Renato Simoni, | Graduate Student |

- **AWARDS AND GRANTS**

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| IEEE ICC 2013 | Student Travel Grant , received from <i>ComSoc</i> . |
| IEEE GLOBECOM 2011 | Student Travel Grant , received from <i>ComSoc</i> . |
| MSCA 2016 | Seal of Excellence , received from <i>European Commission</i> |
| MSCA 2017 | Seal of Excellence , received from <i>European Commission</i> |

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

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|-------------------------|-----------------------------|
| 01/01/2011 – 31/12/2014 | Student Member, IEEE ComSoc |
| 01/01/2015 – today | Member, IEEE ComSoc |

- **TRANSFER OF KNOWLEDGE AND PARTECIPATION TO INDUSTRIAL INNOVATION**

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|-------------------------|----------|---|
| 01/09/2017 – 31/12/2018 | SESAR | European project (collaboration with Leonardo Co.) <i>Area:</i> Standard for avionic communications, LDACS <i>Activity:</i> Development of channel estimation and synchronization algorithms, validation through Matlab simulations. |
| 26/01/2017 – 31/08/2017 | GAUChO | National project (PRIN) <i>Area:</i> Fog computing and communications network architecture <i>Activity:</i> resource allocation algorithm for IoT systems |
| 01/10/2014 – 30/11/2014 | ISITEP | European project (collaboration with Selex Elsag) <i>Area:</i> TETRA and TETRAPOL interoperability <i>Activity:</i> Results dissemination |
| 01/12/2012 – 30/03/2013 | CORASMA | European project (collaboration with Selex Elsag) <i>Area:</i> Cognitive communications for military applications <i>Activity:</i> Development of sensing algorithm for cognitive radio |
| 01/04/2011 – 20/11/2011 | SESAR | European project (collaboration with Selex Comm.) <i>Area:</i> Standard for aeronautical communications AEROMACS <i>Activity:</i> requirement analysis (through NS2 simulations) for the adoption of WiMAX standard in airport context |
| 01/07/2010 – 30/11/2010 | SINTESIS | Regional project (collaboration with Selex Comm.) <i>Area:</i> Distributed intelligence security system <i>Activity:</i> analysis of enabling technology |

- **PROFESSIONAL EXPERIENCES**

Member of the **testing committee** of the WiFi communications structure enhancement of the University of Florence.

- **INSTITUTIONAL RESPONSIBILITIES**

- 28/03/2017 – 31/03/2019 **Representative of Research Fellows** at *Council of Department of Information Engineering*, University of Florence
- 26/06/2014 – 31/12/2016 **Representative of Research Fellows** at *Council of Department of Information Engineering*, University of Florence
- 26/06/2014 – 31/12/2016 **Representative of Research Fellows, PhD students and undergraduate students** at *Executive Board of Department of Information Engineering*, University of Florence

- **COMPUTER SKILLS**

Matlab, Omnet, NS-2, NS-3 (basic knowledge), C++, MS Office suite, Libre/Open Office suite.

- **PUBLICATIONS** in chronological order.

Journal publications

- J1. **G. Bartoli**, A. Abrardo, N. Decarli, D. Dardari, M. Di Renzo, "Spatial multiplexing in near field MIMO channels with reconfigurable intelligent surfaces", *IET Signal Process.*, vol. 17, no. 3, pp. e12195, Mar. 2023.
- J2. **G. Bartoli** and D. Marabissi, "CQI Prediction Through Recurrent Neural Network for UAV Control Information Exchange Under URLLC Regime," *IEEE Trans. Veh. Technol.*, vol. 71, no. 5, pp. 5101-5110, May 2022.
- J3. **G. Bartoli**, R. Fantacci, and D. Marabissi, "Efficient Spectrum Spatial Reuse Approach Based on Gibbs Sampling for Ultra Dense Networks", *IEEE Trans. Veh. Technol.*, vol. 70, no. 3, pp. 5893-5903, Mar. 2021.
- J4. **G. Bartoli**, R. Fantacci, and D. Marabissi, "Resource Allocation Approaches for Two-Tiers Machine-to-Machine Communications in an Interference Limited Environment", *IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 9112-9122, Jul. 2019.
- J5. **G. Bartoli**, F. Chiti, R. Fantacci, and B. Picano, "An Efficient Resource Allocation Scheme for Applications in LR-WPANs based on Stable Matching with Externalities Approach", *IEEE Trans. Veh. Technol.*, vol. 68, no. 6, pp. 5893-5903, Jun. 2019.
- J6. D. Marabissi, **G. Bartoli**, and A. Stomaci, "Low-Complexity Distributed Cell-Specific Bias Calculation for Load Balancing in UDNs", *IEEE Trans. Veh. Technol.*, vol. 68, no. 1, pp. 1056-1060, Jan. 2019.
- J7. D. Marabissi, **G. Bartoli**, R. Fantacci, and L. Micciullo, "Energy Efficient Cooperative Multicast Beamforming in Ultra Dense Networks", *IET Commun.*, vol. 12, no. 5, pp. 573-578, Mar 2018. Special issue on *Advances in Enabling Technologies for Green Communications and Networking*.
- J8. **G. Bartoli**, N. C. Beaulieu, R. Fantacci and D. Marabissi, "An Effective Multiuser Detection Scheme for MPR Random Access Networks," *IEEE Trans. Commun.*, vol. 65, no. 3, pp. 119-1130, Mar. 2017.
- J9. **G. Bartoli**, D. Marabissi, R. Pucci, and L. S. Ronga, "AI based Network and Radio resource management in 5G HetNets," special issue on *Springer Journal of Signal Processing Systems*, vol. 89, no. 1, pp. 133-143, Oct. 2017.
- J10. **G. Bartoli**, R. Fantacci, F. Gei, D. Marabissi, and L. Micciullo, "Dynamic PSS and Commercial networks spectrum sharing in the time domain," *Trans. Emerging Tel. Tech.*, special issue on *Future evolution of public safety communications in the 5G Era*, vol. 28, no. 3, Mar. 2017.

- J11. D. Marabissi, **G. Bartoli**, M. Pucci, and R. Fantacci, "An Optimized CoMP Transmission for a Heterogeneous Network Using eCIC Approach," *IEEE Trans. Veh. Technol.*, vol. 65, no. 10, Oct. 2016.
- J12. **G. Bartoli**, R. Fantacci, F. Gei, D. Marabissi, and L. Micciullo, "A novel emergency management platform for smart public safety," *International Journal of Communication Systems*, vol. 28, no. 5, pp. 928–943, Dec. 2015.
- J13. **G. Bartoli**, R. Fantacci, D. Marabissi, D. Tarchi, and A. Tassi, "Downlink cross-layer scheduling strategies for long-term evolution and long-term evolution-advanced systems," *Wireless Communications and Mobile Computing*, vol. 15, no. 8, pp. 1234–1246, Jun. 2015.
- J14. **G. Bartoli**, R. Fantacci, D. Marabissi, L. Micciullo, and D. Tarchi, "Detection and Mitigation of impulsive interference on OFDM signals based on spectrum sensing, blanking and symbol retransmission," *Wireless Personal Communications*, vol. 77, no. 4, pp. 2631–2647, Feb. 2014.
- J15. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "Physical Resource Block clustering method for an OFDMA cognitive femtocell system," *Physical Communication*, vol. 11, pp. 67–77, Jun. 2014.
- J16. **G. Bartoli**, R. Fantacci, B. K. Letaief, D. Marabissi, N. Privitera, P. Pucci, and J. Zhang, "Beamforming for small cells deployment in LTE-advanced and beyond," *IEEE Wireless Commun.*, vol. 21, no. 2, pp. 50–56, Apr. 2014.
- J17. **G. Bartoli**, N. C. Beaulieu, R. Fantacci, and D. Marabissi, "Optimal Data Rate for Reliable Packet Communications in Laplace Noise," *IEEE Commun. Lett.*, vol. 18, no. 1, pp. 2–5, Jan. 2014.
- J18. **G. Bartoli**, R. Fantacci, and D. Marabissi, "AeroMACS: A New Perspective for Mobile Airport Communications and Services," *IEEE Wireless Commun.*, vol. 20, no. 6, pp. 44–50, Dec. 2013.
- J19. **G. Bartoli**, D. Marabissi, R. Fantacci, and S. Simoni, "Subcarriers Suppression Methods for OFDM Systems with Decode and-Forward Network Coding," *IEEE Trans. Wireless Commun.*, vol. 12, no. 12, pp. 6034–6042, Dec. 2013.
- J20. N. C. Beaulieu, **G. Bartoli**, D. Marabissi, and R. Fantacci, "The Structure and Performance of an Optimal Continuous-Time Detector for Laplace Noise," *IEEE Commun. Lett.*, vol. 17, no. 6, pp. 1065–1068, Jun. 2013.
- J21. **G. Bartoli**, R. Fantacci, D. Marabissi, L. Micciullo, C. Armani, and R. Merlo, "A Novel Mitigation Scheme for JTIDS Impulsive Interference on LDACS System Based on Sensing and Symbol Retransmission," *J. Signal Process. Syst.*, vol. 73, no. 3, pp. 255–266, Jun. 2013.
- J22. **G. Bartoli**, R. Fantacci, D. Marabissi, L. Micciullo, and M. Fossi, "An Efficient Subcarrier Allocation Method for AeroMACS-Based Communication Systems," *IEEE Trans. Aerosp. Electron. Syst.*, vol. 49, no. 2, pp. 786–797, Apr. 2013.

Conference publications

- C1. **G. Bartoli**, D. Marabissi, R. Fantacci, and B. Picano, "Efficient Matching for Blank Subframes Allocation in Ultra Dense Networks", in *IEEE Wireless Commun. Netw. Conf. (WCNC)*, Marrakesh, Morocco, Dec. 2018.
- C2. **G. Bartoli**, D. Marabissi, and R. Fantacci, "An Efficient Two-Tier MAC Scheme for Satellite Machine-to-Machine Communications", in *IEEE Global Telecommun. Conf. (GLOBECOM)*, Abu Dhabi, UAE, Dec. 2018.
- C3. D. Marabissi, **G. Bartoli**, L. Micciullo, and R. Fantacci, "Energy Efficient Multicast Beamforming in Ultra Dense Networks", in *IEEE Wireless Commun. Netw. Conf. (WCNC)*, Barcelona, Spain, Apr. 2018.
- C4. **G. Bartoli**, R. Fantacci, and D. Marabissi, "Efficient coordinated beamforming and scheduling approaches for Heterogeneous Networks," in *Proc. AIET Int. Ann. Conf. (AIET)*, Capri, Italy, Oct. 2016.
- C5. **G. Bartoli**, L. Carlà, R. Fantacci, and D. Marabissi, "Efficient Multicast Beamforming in HetNet with an Opportunistic Cells Activation," in *Proc. IEEE Globecom Workshops (GC Wkshps)*, San Diego, US-CA, Dec. 2015, pp. 1–6.
- C6. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "Resource allocation schemes for cognitive LTE-A femto-cells using zero forcing beamforming and users selection," in *Proc. IEEE Global Telecommun. Conf. (GLOBECOM)*, Austin, US-TX, Dec. 2014, pp. 3447–3452.

- C7. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "Coordinated Scheduling and Beamforming Scheme for LTE-A HetNet Exploiting Direction of Arrival," in *Proc. IEEE 25-th Ann. Int. Symp. Pers. Indoor Mobile Radio Commun. (PIMRC)*, Washington, US-DC, Sep. 2014.
- C8. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "Angular Interference Suppression in Cognitive LTE-A femtocells," in *Proc. IEEE Int. Wireless Commun. Mobile Comput. Conf. (IWCMC)*, Nicosia, Cyprus, Aug. 2014, pp. 979–984.
- C9. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "Adaptive muting ratio in enhanced Inter-Cell Interference Coordination for LTE-A systems," in *Proc. IEEE Int. Wireless Commun. Mobile Comput. Conf. (IWCMC)*, Nicosia, Cyprus, Aug. 2014, pp. 990–995.
- C10. **G. Bartoli**, R. Fantacci, D. Marabissi, and M. Pucci, "LTE-A femto-cell interference mitigation with MuSiC DOA estimation and null steering in an actual indoor environment," in *Proc. IEEE Int. Conf. Commun. (ICC)*, Budapest, Hungary, Jun. 2013, pp. 2707–2711.
- C11. **G. Bartoli**, R. Fantacci, D. Marabissi, and R. Simoni, "Physical Layer Network Coding in Multipath Channel: Effective Precoding-Based Transmission Scheme," in *Proc. IEEE Global Telecommun. Conf. (GLOBECOM)*, Houston, US-TX, Dec. 2011, pp. 1–5.
- C12. **G. Bartoli**, A. Tassi, D. Marabissi, D. Tarchi, and R. Fantacci, "An Optimized Resource Allocation Scheme Based on a Multidimensional Multiple-Choice Approach with Reduced Complexity," in *Proc. IEEE Int. Conf. Commun. (ICC)*, Kyoto, Japan, Jun. 2011, pp. 1–6.

Book chapters

- B1. **G. Bartoli**, D. Marabissi, R. Fantacci, A. Tassi, F. Chiti, and M. A. Matin, Developments in Wireless Network Prototyping, Design, and Deployment: Future Generations. Information Science Reference, Jun. 2012, ch. MAC and PHY-Layer Network Coding for Applications in Wireless Communications Networks, pp. 86–108.

Invited Presentations

- I1. N. C. Beaulieu, **G. Bartoli**, D. Marabissi, and R. Fantacci, "The Optimal Continuous-Time Detector for Laplace Noise," 20th Annual Meeting of the Chinese Information Theory Society, Shanghai, China, November 1, 2013.

In compliance with the Italian legislative Decree no. 196/03, I hereby authorize you to use and process my personal details contained in this document.

Data

19/09/2023

Firma

