

Lorenzo Bracciale

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Research Interests

My primary research interests are in distributed systems, with a focus on machine learning and data privacy. This includes programmable networks, eHealth systems, and the application of Privacy Enhancing Technologies (PETs).

Education

- 2003 BSc in Telecommunication Engineering, University of Rome "Tor Vergata", 110/110 with honors. Thesis on 3GPP profiling.
- 2006 MSc in Telecommunication Engineering, University of Rome "Tor Vergata", 110/110 with honors. Thesis on VoIP vertical handover.
- 2010 PhD in Telecommunication and Microelectronics, University of Rome "Tor Vergata". Thesis on peer-to-peer multimedia communication.

Employment History

- 2025– Associate Professor, University of Rome "Tor Vergata"
- 2022–2025 Assistant Professor (RTD-B), University of Rome "Tor Vergata"
- 2020–2022 Research Fellow, University of Rome "Tor Vergata"
- 2012–2017 Research Fellow (RTD-A), University of Rome "Tor Vergata"

Research Experience

National

- 2009–2012 Researcher in three projects for Telecom Italia Lab (S3, CAMPUS++, SPOON), focusing on embedded systems and IEEE 802.15.4.
- 2009–2012 Researcher in Italian PRIN projects (Profiles, Peoplenet), focusing on performance evaluation of distributed systems.
- 2021–2022 Technical coordinator of POR FESR BLORIN project, Blockchain for energy management.

International

- 2011 Visiting scholar at RLE, MIT (Boston, USA). Worked on partial data coding.
- 2015 Visiting scholar at Trinity College Dublin (Ireland). Worked on privacy-preserving recommender systems.
- 2015–2016 Researcher in the EU–Japan project ICN2020, focusing on performance evaluation of distributed systems.
- 2016– Collaborator with Galápagos National Park for Pink Iguana conservation. Conducted two field trips, working on embedded systems and satellite connectivity in remote areas.
- 2018–2021 Unit Technical Coordinator of H2020 project BPR4GDPR, leading the WP on Privacy Enhancing Technologies.

Grants and Responsibilities

- 2018–2019 **PI**, 20K\$, Entirid (Silicon Valley startup), Blockchain and secure indoor localization for smart space security
- 2020–2021 **PI**, 54K€, Lazioinnova Spin-off Grant, New solutions for eHealth
- 2020–2021 **PI**, 50K€, HosmartAI Open Call, De-identification and pseudonymization of FHIR data
- 2019–2021 **Unit Technical Coordinator**, 3M€, H2020 BPR4GDPR, Leader of Privacy Enhancing Technologies WP
- 2021–2022 **Technical Coordinator**, 30K€, GEANT Innovation Program, ABEBBox: privacy solutions for file storage and synchronization
- 2022 **PI**, 30K€, GEANT Innovation Program, ECLAT: eBPF programming made easy
- 2021–2022 **Technical Coordinator**, 70K€, BLORIN Project, Blockchain for energy management
- 2024–2025 **Unit Coordinator**, 1M€, PNRR SHIELD, Securing decentralized finance and remote healthcare systems
- 2024–2026 **PI**, 12K€, CYBER4SPACE, Cybersecurity for space and localization

Participated in several national and international projects, including I-NEST (European Digital Innovation Hub on cybersecurity), OpenSatRange (ASI-funded project on space cybersecurity), RESTART (EU NextGenerationEU project on future telecommunications), PRECISION (Remote management of chronic inflammatory respiratory diseases).

Startups

2010–2021 **Sharigo**, *Founder & CTO*, Smart mobility system

Sharigo was a technology provider for smart mobility, specialized in taxi fleet management. It managed more than 1000 taxis in Italy, providing 24/7 real-time service. Participated in a joint venture with Trenitalia and CNIT for the SESAMO project. During this period, approximately 2.5% of Italian taxi rides used the system.

2018– **Docunque**, *Founder, CTO, Researcher*

Docunque provides electronic health record solutions for physicians, with more than 4000 registered users (about 1 in 50 active Italian doctors).

Advisor on data science for Silicon Valley startups (Entirid, Kuantsol).

Teaching Experience

University of Rome "Tor Vergata"

2011–2012 Adjunct Professor, Local Network Configuration and Management (30 students/year).

2013– Professor, Fundamentals of Computer Science (150 students/year).

2020– Co-lecturer, Web Technologies (100 students/year).

2022– Co-lecturer, Digital Health (30 students/year).

Sheffield Information School

2018–2020 Co-lecturer, Big Data Analytics.

Skills

Programming Python, C, JavaScript, Embedded systems (CC1310, CC2510).

Data Science numpy, pandas, scikit-learn, PyTorch, XGBoost, LightGBM, seaborn.

Modeling Markov chains, performance evaluation.

Professional Service

Reviewer for IEEE/ACM Transactions on Networking, IEEE TMC, IEEE Transactions on Communications, Elsevier Computer Communications, and major conferences.

Organizer for CoNEXT 2015, WCNC 2018, IEEE SECON 2021.

TPC member for WCNC 2018, ISNCC 2018, IFIP 2020, ISAECT 2020, IEEE SECON 2021–2022, IEEE S&P 2025.

Topic Editor, MDPI Sensors (2022).

General Chair, Biases in Human Computation and Crowdsourcing (BHCC) conference (2022).

TPC Chair, IEEE NOMS (2026).

Publications

R. Amici, M. Bonola, L. Bracciale, A. Rabuffi, P. Loreti, and G. Bianchi. Performance assessment of an epidemic protocol in vanet using real traces. volume 40, page 92 – 99, 2014. All Open Access, Gold Open Access, Green Open Access.

D. Battaglino, L. Bracciale, A. Detti, G. Bianchi, A. Bragagnini, M. S. Turolla, and N. B. Melazzi. Design, implementation and performance evaluation of a publish-subscribe architecture for intermittently connected 802.15.4 networks. page 105 – 112, 2011.

D. Battaglino, L. Bracciale, A. Detti, F. L. Piccolo, A. Bragagnini, M. Turolla, and N. B. Melazzi. A topic-based, publish-subscribe architecture for intermittently connected 802.15.4 networks. 2011.

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G. Bianchi, N. Blefari Melazzi, L. Bracciale, F. Lo Piccolo, and S. Salsano. Streamline: An optimal distribution algorithm for peer-to-peer real-time streaming. *IEEE Transactions on Parallel and Distributed Systems*, 21(6):857 – 871, 2010.

G. Bianchi, L. Bracciale, K. Censor-Hillel, A. Lincoln, and M. Médard. The one-out-of-k-retrieval problem and linear network coding. *Advances in Mathematics of Communications*, 10(1):95 – 112, 2016. All Open Access, Gold Open Access.

G. Bianchi, L. Bracciale, and P. Loreti. Better than nothing privacy with bloom filters: To what extent? *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 7556 LNCS:348 – 363, 2012.

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- G. M. Bianco, E. Raso, L. Fiore, V. Mazzaracchio, L. Bracciale, F. Arduini, P. Loreti, G. Marrocco, and C. Occhiuzzi. Uhf rfid and nfc point-of-care - architecture, security, and implementation. *IEEE Journal of Radio Frequency Identification*, 7:301 – 309, 2023.
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- M. Bonola, L. Bracciale, P. Loreti, R. Amici, A. Rabuffi, and G. Bianchi. Opportunistic communication in smart city: Experimental insight with small-scale taxi fleets as data carriers. *Ad Hoc Networks*, 43:43 – 55, 2016.
- L. Bracciale, D. Battaglino, A. Detti, G. Bianchi, N. Blefari-Melazzi, A. Bragagnini, and M. S. Turolla. Delay performance of a publish subscribe system deployed over a memory-constrained, delay tolerant network. page 25 – 32, 2011.
- L. Bracciale, A. Catini, G. Gentile, and P. Loreti. Delay tolerant wireless sensor network for animal monitoring: The pink iguana case. *Lecture Notes in Electrical Engineering*, 429:18 – 26, 2017.
- L. Bracciale, M. Coni, P. Loreti, E. Raso, and G. Bianchi. Forgotten reclaimed: Detecting and preventing subdomain takeover in the italian medical landscape. volume 3962, 2025.
- L. Bracciale, F. Lo Piccolo, D. Luzzi, S. Salsano, G. Bianchi, and N. Blefari-Melazzi. A push-based scheduling algorithm for large scale p2p live streaming. page 1 – 7, 2008.
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- L. Bracciale, P. Loreti, and G. Bianchi. Human time-scale duty cycle for opportunistic wifi based mobile networks. 2013.
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- L. Bracciale, P. Loreti, and G. Bianchi. The sleepy bird catches more worms: Revisiting energy efficient neighbor discovery. *IEEE Transactions on Mobile Computing*, 15(7):1812 – 1825, 2016.
- L. Bracciale, P. Loreti, and G. Bianchi. Cybersecurity vulnerability analysis of medical devices purchased by national health services. *Scientific Reports*, 13(1), 2023. All Open Access, Gold Open Access, Green Open Access.
- L. Bracciale, P. Loreti, A. Detti, and N. B. Melazzi. Analysis of data persistence in collaborative content creation systems: The wikipedia case. *Information (Switzerland)*, 10(11), 2019. All Open Access, Gold Open Access, Green Open Access.
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- L. Bracciale, P. Loreti, M. Luglio, C. Roseti, and F. Zampognaro. Smartsos: Systems for maritime advanced rescue through satellite and optimized sensor networks. 2017.
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- P. Loreti, L. Bracciale, and G. Bianchi. Stablesens: Sampling time decision algorithm for iot energy harvesting devices. *IEEE Internet of Things Journal*, 6(6):9908 – 9918, 2019.
- P. Loreti, L. Bracciale, and A. Caponi. Push attack: Binding virtual and real identities using mobile push notifications. *Future Internet*, 10(2), 2018. All Open Access, Gold Open Access, Green Open Access.
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