

Updated on September 5, 2022

Research Interest

My primary research interests are in the areas of systems security, with a focus on hardware- assisted security, trustworthy execution environments, mobile malware analysis, tracing and debugging transparency, transportation security, system integrity checking, and plausible deniability encryption.

Education

- 2003 Bachelor degree in Telecommunication Engineering, University of Rome "Tor Vergata", 110/110 with great distinction. Thesis on 3GPP profiling.
- 2006 Bachelor degree in Telecommunication Engineering, University of Rome "Tor Vergata", 110/110 with great distinction. 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

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

Research Experience

National

- 2009-12 Involved in three research projects for Telecom Italia Lab (S3, CAMPUS++, SPOON), working on embedded systems and IEEE 802.15.4.
- 2009-12 Joined two Italian research project (PRIN): Profiles and Peoplenet. He worked on the performance evaluation of distributed systems.
- 2021-2022 Technical coordinator of a research activity within the POR FESR BLORIN project, working on on Blockchain for energy management.

International

- 2011 Visiting scholar at RLE at MIT, Boston, MA. He worked on partial data coding.
- 2015 Visiting scholar at Trinity College, Dublin, IE. He worked on privacy preserving recommending systems.
- from 2016 Joined a research project with Galápagos National Park for the conservation of Pink Iguanas. He went there for two months in two field trips, working with engineers and biologists. He worked on embedded systems and on satellite connectivity in remote areas.
- 2015-16 Joined the EU Japan research project ICN2020 on Information Centric Networks. Works on the performance evaluations of distributed systems.
- 2018-2021 Unit Technical Coordinator of H2020 EU project BPR4GDPR, where he led the WP on Privacy Enhancing Technologies.

Grants and responsibility

I managed the following research projects:

- 2018-2019 **PI**, Research project for Entirid (Silicon Valley startup), Blockchain and secure indoor localization for smart space security (20K\$)
- 2020-2021 **PI**, 54k€, Spin off grant from Lazioinnova, Creation of new solutions for eHealth
- 2020-2021 **PI**, 50k€, EU project HosmartAI Open Call, De-identification and pseudonimization of FHIR data
- 2019-2021 **Unit Technical Coordinator**, 3M€, EU project BPR4GDPR, Leader of Privacy Enhancing technologies WP
- 2021-2022 **Technical Coordinator**, 30k€, GEANT Innovation Program, ABEBBox: (usable) privacy solutions for File Storage and Synchronisation services
- 2022 **PI**, 30k€, GEANT Innovation Program, eBPF programming made easy
- 2021-2022 **Technical Coordinator**, 70k€, Project BLORIN, Blockchain for energy management

Startups

I founded the following startups:

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

Sharigo was technology provider for smart mobility, specialized in taxi fleet management. It managed more than 1000 taxi cabs in Italy, guaranteeing a real time service 24/7. Sharigo participated in an joint venture with trenitalia and CNIT for the SESAMO project. If you got into an Italian taxi in those years, you had 2.5% of change of using this system.

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

Docunque is a professional software for physicians, helping them to get the most out of medical data. It has more than 4000 registered users, around 1 every 50 Italian active doctors.

I occasionally served as data science advisor for silicon valley startups (Entirid, Kuantsol).

Teaching Experience

University of Rome "Tor Vergata"

2011-12 Adjunct Professor for the course of Local network configuration and management (30 students/year)

from 2013 Professor of Fundamentals of Computer Science (150 students/year)

from 2020 Co-lecturer of the course of Web Technologies (100 students/year)

from 2022 Co-lecturer of the course of Digital Health (30 students/year)

Sheffield Information School

2018-2020 Co-lecturer of the course of Big Data Analytics

Skills

- Proficient in Python, C, Javascript
- Familiar with Data Analysis and Machine Learning libraries and tool such as numpy, scipy, pandas, sklearn, XGBoost, LightGBM, pytorch, seaborn
- Experience with embedded system programming (CC1310, CC2510)

Professional Service

- Served as reviewer in many international journal such as Transaction on Networking, Transaction on Mobile Computing, IEEE, Transactions on Communications, Elsevier Computer Communications and many top notch conferences
- Has been involved in the organization of many prestigious conferences such as CoNEXT 2015, WCNC 2018, IEEE SECON 2021.
- Has been in Technical Program Committee of many prestigious conferences such as WCNC 2018, ISNCC 2018 , IFIP 2020, ISAECT 2020 , IEEE SECON 2021 and 2022.
- Topic Editor for MDPI Sensors (2022)
- General Chair for the Biases in Human Computation and Crowdsourcing (BHCC) conference (2022)

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, pages 92–99. Elsevier B.V., 2014. cited By 51.

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. pages 105–112, 2011. cited By 0.

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. cited By 4.

D. Battaglino, L. Bracciale, A. Detti, F.L. Piccolo, A. Bragagnini, M.S. Turolla, and N. Blefari-Melazzi. Campus++: A publish-subscribe architecture for intermittently connected 802.15.4 networks. pages 164–166, 2011. cited By 1.

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. cited By 28.

G. Bianchi, L. Bracciale, K. Censor-Hillel, A. Lincoln, and M. Médard. The one-out-of-kretrieval problem and linear network coding. *Advances in Mathematics of Communications*, 10(1):95–112, 2016. cited By 2.

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. cited By 28.

G. Bianchi, C. Carusi, and L. Bracciale. An online approach for joint task assignment and worker evaluation in crowd-sourcing. Institute of Electrical and Electronics Engineers Inc., 2017. cited By 3.

- G. Bianchi, N.B. Melazzi, L. Bracciale, F.L. Piccolo, and S. Salsano. Fundamental delay bounds in peer-to-peer chunk-based real-time streaming systems. 2009. cited By 8.
- 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. cited By 63.
- L. Bracciale, D. Battaglini, 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. pages 25–32, 2011. cited By 6.
- 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. cited By 13.
- 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. pages 1–7. IEEE Computer Society, 2008. cited By 16.
- L. Bracciale and P. Loreti. Lyapunov drift-plus-penalty optimization for queues with finite capacity. *IEEE Communications Letters*, 24(11):2555–2558, 2020. cited By 2.
- L. Bracciale, P. Loreti, and G. Bianchi. Human time-scale duty cycle for opportunistic wifi based mobile networks. IEEE Computer Society, 2013. cited By 10.
- L. Bracciale, P. Loreti, and G. Bianchi. Simulating the statistics of the first meetings using dynamic 'open environments'. pages 229–234. IEEE Computer Society, 2014. cited By 1.
- 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. cited By 19.
- 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. cited By 0.
- L. Bracciale, P. Loreti, A. Detti, R. Paolillo, and N.B. Melazzi. Lightweight named object: An icn-based abstraction for iot device programming and management. *IEEE Internet of Things Journal*, 6(3):5029–5039, 2019. cited By 22.
- L. Bracciale, P. Loreti, M. Luglio, C. Roseti, and F. Zampognaro. Smartsos: Systems for maritime advanced rescue through satellite and optimized sensor networks. Institute of Electrical and Electronics Engineers Inc., 2017. cited By 3.
- L. Bracciale, P. Loreti, E. Raso, and G. Bianchi. Toolate: Cryptographic data access control for offline devices through efficient key rotation. pages 57–62. Association for Computing Machinery, Inc, 2021. cited By 0.
- L. Bracciale, P. Loreti, E. Raso, G. Bianchi, P. Gallo, and E.R. Sanseverino. A privacy-preserving blockchain solution to support demand response in energy trading. pages 677–682. Institute of Electrical and Electronics Engineers Inc., 2022. cited By 0.
- L. Bracciale, P. Loreti, E. Raso, M. Naldi, and G. Bianchi. Coprotect: Collaborative management of cryptographic keys for data security in cloud systems. pages 361–368. SciTePress, 2020. cited By 1.
- L. Bracciale, F.L. Piccolo, D. Luzzi, N.B. Melazzi, G. Bianchi, and S. Salsano. A theory-driven distribution algorithm for peer-to-peer real time streaming. pages 2291–2296, 2008. cited By 2.
- L. Bracciale, F.L. Piccolo, D. Luzzi, and S. Salsano. Opss: An overlay peer-to-peer streaming simulator for large-scale networks. *Performance Evaluation Review*, 35(3):25–27, 2007. cited By 9.
- L. Bracciale, F.L. Piccolo, D. Luzzi, and S. Salsano. Simulation of peer-to-peer streaming over large-scale networks using opss. Association for Computing Machinery, 2007. cited By 2.
- C. Carusi, G. Bianchi, and L. Bracciale. An online approach for joint task assignment and worker evaluation in crowd-sourcing. *Pervasive and Mobile Computing*, 50:94–113, 2018. cited By 4.
- A. Checco, L. Bracciale, P. Loreti, S. Pinfield, and G. Bianchi. Ai-assisted peer review. *Humanities and Social Sciences Communications*, 8(1), 2021. cited By 9.
- G. Colosimo, M. Gargano, P. Loreti, L. Bracciale, M. De Luca, A. Catini, C. Di Natale, C. Vera, C.R. Sevilla, G.P. Gerber, and G. Gentile. Remote tracking of galápagos pink land iguana reveals large elevational shifts in habitat use. *Journal for Nature Conservation*, 68, 2022. cited By 0.
- A. Detti, L. Bracciale, and F. Fedi. Robust data replication algorithm for manets with obstacles and node failures. 2010. cited By 8.
- A. Detti, L. Bracciale, P. Loreti, and N.B. Melazzi. Modeling lru cache with invalidation. *Computer Networks*, 134:55–65, 2018. cited By 10.
- A. Detti, L. Bracciale, P. Loreti, G. Rossi, and N. Blefari Melazzi. A cluster-based scalable router for information centric networks. *Computer Networks*, 142:24–32, 2018. cited By 16.

- A. Detti, M. Orru, R. Paolillo, G. Rossi, P. Loreti, L. Bracciale, and N.B. Melazzi. Application of information centric networking to nosql databases: The spatio-temporal use case. volume 2017-June. IEEE Computer Society, 2017. cited By 14.
- G.V. Lioudakis, M.N. Koukovini, E.I. Papagiannakopoulou, N. Dellas, K. Kalaboukas, R.M. de Carvalho, M. Hassani, L. Bracciale, G. Bianchi, A. Juan-Verdejo, S. Alexakis, F. Gaudino, D. Cascone, and P. Barracano. Facilitating gdpr compliance: The h2020 bpr4gdpr approach. *IFIP Advances in Information and Communication Technology*, 573 AICT:72–78, 2020. cited By 4.
- F. Lo Piccolo, D. Battaglino, L. Bracciale, A. Bragagnini, M.S. Turolla, and N.B. Melazzi. Ipv6 solutions enabling mobile services for the “internet of things”. pages 63–68. VDE Verlag GmbH, 2010. cited By 1.
- F. Lo Piccolo, D. Battaglino, L. Bracciale, A. Bragagnini, M.S. Turolla, and N.B. Melazzi. On the ip support in ieee 802.15.4 Ir-wpans: Self-configuring solutions for real application scenarios. 2010. cited By 7.
- C. Lodovisi, P. Loreti, L. Bracciale, and S. Betti. Performance analysis of hybrid optical-acoustic auv swarms for marine monitoring. *Future Internet*, 10(7), 2018. cited By 16.
- P. Loreti and L. Bracciale. Optimized neighbor discovery for opportunistic networks of energy constrained iot devices. *IEEE Transactions on Mobile Computing*, 19(6):1387–1400, 2020. cited By 13.
- 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. cited By 4.
- P. Loreti, L. Bracciale, and A. Caponi. Push attack: Binding virtual and real identities using mobile push notifications. *Future Internet*, 10(2), 2018. cited By 7.
- P. Loreti, L. Bracciale, G. Colosimo, C. Vera, G.P. Gerber, M. de Luca, and G. Gentile. Assessment and validation of miniaturized technology for the remote tracking of critically endangered galápagos pink land iguana (*Conolophus marthae*). *Animal Biotelemetry*, 8(1), 2020. cited By 2.
- P. Loreti, A. Catini, M. De Luca, L. Bracciale, G. Gentile, and C. Di Natale. The design of an energy harvesting wireless sensor node for tracking pink iguanas. *Sensors (Switzerland)*, 19(5), 2019. cited By 30.
- P. Loreti, A. Mayer, P. Lungaroni, F. Lombardo, C. Scarpitta, G. Sidoretti, L. Bracciale, M. Ferrari, S. Salsano, A. Abdelsalam, R. Gandhi, and C. Filsfils. Srv6-pm: A cloud-native architecture for performance monitoring of srv6 networks. *IEEE Transactions on Network and Service Management*, 18(1):611–626, 2021. cited By 3.
- A. Mayer, P. Loreti, L. Bracciale, P. Lungaroni, S. Salsano, and C. Filsfils. Performance monitoring with H2: Hybrid kernel/ebpf data plane for srv6 based hybrid sdn. *Computer Networks*, 185, 2021. cited By 2.
- F.L. Piccolo, D. Battaglino, L. Bracciale, M.D. Filippo, A. Bragagnini, M.S. Turolla, and N.B. Melazzi. Towards fully ip-enabled ieee 802.15.4 Ir-wpans. 2009. cited By 13.
- E. Raso, L. Bracciale, P. Loreti, and G. Bianchi. Abebox: A data driven access control for securing public cloud storage with efficient key revocation. Association for Computing Machinery, 2021. cited By 0.