

Curriculum Vitæ
Luca Ferretti

Personal Information

Name and Surname | **Luca Ferretti**

Current Affiliation

09/20203 → Ongoing | **Associate Professor**
University of Modena and Reggio Emilia, Department of Physics, Informatics and Mathematics
Main research interests: information and communication protocols security, with a focus on applied cryptography.

Education

- 2023 | **Italian National scientific qualification** for the second level in the competitive sector 01/B1
Italian National scientific qualification for the second level in the competitive sector 09/H1
- 2015 | **Doctor of Philosophy** in *computer and science* and engineering from the *Doctorate School in Information and Communication Tehnologies*
Department of Engineering “Enzo Ferrari”, University of Modena and Reggio Emilia
Thesis title: “Confidentiality and Integrity for cloud database services”
Advisor: Prof. Michele Colajanni
- 2012 | **Qualification to the profession of Engineer**
Passed the national abilitation in the second session of 2012 at the University of Modena and Reggio Emilia
- 2012 | **Master’s degree in Computer Science and Engineering**
University of Modena and Reggio Emilia, Department of Engineering “Enzo Ferrari”
Score: 110/110 e Lode

Previous activities withing Universities and Research Centers

- 09/2020 → 09/2023 | **Assistant professor (tenure track)**
University of Modena and Reggio Emilia, Department of Physics, Informatics and Mathematics
- 10/2018 → 09/2020 | **Assistant professor**
University of Modena and Reggio Emilia, Department of Engineering “Enzo Ferrari”
- 01/2016 → 10/2018 | **Assistant researcher**
University of Modena and Reggio Emilia, Department of Engineering “Enzo Ferrari”
- 01/2015 → 07/2015 | **Visiting scholar at University of Irvine (UCI), CA, USA**
Research activity: secure two-party protocols for the computation of genomic distance metrics
Local advisor: *Prof. Gene Tsudik*
- 01/2013 → 12/2015 | **PhD Student**
Department of Engineering “Enzo Ferrari”, University of Modena e Reggio Emilia,
advisor Prof. Michele Colajanni

International Journals

- L. Gagliardelli, L. Zecchini, L. Ferretti et al "A big data platform exploiting auditable tokenization to promote good practices inside local energy communities", Future Generation Computer Systems, Vol. 141, Apr. 2023
- D. Stabili, L. Ferretti, M. Andreolini, M. Marchetti "DAGA: Detecting Attacks to in-vehicle networks via n-Gram Analysis", IEEE Transactions on Vehicular Technology, Vol. 71, No. 11, Nov. 2022
- F. Magnanini, L. Ferretti, M. Colajanni, "Scalable, Confidential and Survivable Software Updates", IEEE Transactions on Parallel and Distributed Systems, Vol. 33, No. 1, January 2022
- F. Pollicino, D. Stabili, L. Ferretti, M. Marchetti, "Hardware limitations to secure C-ITS: experimental evaluation and solutions", IEEE Transactions on Vehicular Technology, Vol. 70, No. 12, Dec. 2021
- L. Ferretti, F. Magnanini, M. Andreolini, M. Colajanni, "Survivable Zero Trust for Cloud Computing Environments", Elsevier Computers & Security (COSE), Special Issue On Zero-trust Security in Cloud Computing Environments (CCE), Vol. 110, November 2021
- L. Ferretti, F. Longo, G. Merlino, M. Colajanni, A. Puliafito, Nachiket Tapas "Verifiable and auditable authorizations for smart industries and industrial Internet-of-Things", Journal of Information Security and Applications, Vol. 59, June 2021
- L. Ferretti, M. Marchetti, M. Colajanni, "Fog-based secure communications for low power IoT devices", ACM Transactions on Internet Technology, Vol. 19, No. 2, March 2019, ISSN 1533-5399
- L. Ferretti, M. Marchetti, M. Andreolini, M. Colajanni, "A symmetric cryptographic scheme for data integrity verification in cloud databases", Elsevier Information Sciences, Vol. 422, January 2018, ISSN 0020-0255
- L. Ferretti, F. Pierazzi, M. Colajanni, M. Marchetti, "Scalable architecture for multi-user encrypted SQL operations on cloud database services", IEEE Trans. Cloud Computing, Vol.2, No.4, Oct.-December 2014, ISSN 2168-7161
- L. Ferretti, F. Pierazzi, M. Colajanni, M. Marchetti, "Performance and cost evaluation of an adaptive encryption architecture for cloud databases", IEEE Trans. Cloud Computing, Vol.2, No.2, April - June 2014, ISSN 2168-7161
- L. Ferretti, M. Colajanni, M. Marchetti, "Distributed, concurrent and independent access to encrypted cloud databases", IEEE Trans. Parallel and Distributed Systems, vol.25, no.2, Feb. 2014 (selected as spotlight paper), ISSN 1045-9219

International Conferences

- G. Lusvardi, L. Ferretti, M. Andreolini, "Timing Side-Channel Attacks on USB Devices Using eBPF", 2024 Italian Conference on Cyber Security ITASEC2024
- L. Ferretti, M. Trabucco, "How (not) to index order revealing encrypted databases", 2023 Italian Conference on Cyber Security ITASEC2023
- L. Rossi, L. Ferretti, "WebDHT: browser-compatible distributed hash table for decentralized Web applications", Proc. IEEE 21st Int'l Symp. Network Computing and Applications, Dec. 2022
- F. Manganini, L. Ferretti, "Flexible and Survivable Single Sign-On", Proc. Int'l Symp. Cyberspace Safety and Security, Nov. 2021
- F. Pollicino, L. Ferretti, D. Stabili, M. Marchetti, "Accountable and privacy-aware flexible car sharing and rental services", Proc. IEEE 20th Int'l Symp. Network Computing and Applications, Nov. 2021
- F. Pollicino, D. Stabili, L. Ferretti, M. Marchetti "An experimental analysis of ECQV performance on VANETs", Proc. IEEE 92th Vehicular Technology Conf. Victoria, B.C. Canada, Oct. 2020
- G. Apruzzese, M. Colajanni, L. Ferretti, M. Marchetti, "Addressing Adversarial Attacks Against Security Systems Based on Machine Learning", Proc. 11th Int'l Conf. Cyber Conflict, May 2019
- L. Ferretti, F. Longo, M. Colajanni, G. Merlino, N. Tapas, "Authorization transparency for accountable access to IoT services", Proc. IEEE Int'l Conf. Internet of Things (ICIOT 2019) (best paper award), Milan, Italy, July 2019
- G. Apruzzese, M. Colajanni, L. Ferretti, A. Guido, M. Marchetti, "On the effectiveness of machine and deep learning for cyber security", Proc. 10th Int'l Conf. Cyber Conflict, May 2018
- D. Stabili, L. Ferretti, M. Marchetti, "Analyses of secure automotive communication protocols and their impact on vehicles life-cycle", Proc. IEEE Int'l SMARTCOMP Workshop on Smart Industries (SIW 2018), Taormina, Italy, June 2018
- L. Ferretti, M. Marchetti, M. Colajanni, "Verifiable delegated authorization for user-centric architectures and an OAuth2 implementation", Proc. 3rd IEEE Int'l COMPSAC Workshop on Secure Identity Management in the Cloud Environment (SIMICE 2017), Turin, Italy, July 2017
- L. Ferretti, M. Colajanni, M. Marchetti, "Implementation of verified set operation protocols based on bilinear accumulators", Proc. 15th Int.'l Conf. on Cryptology and Network Security (CANS 2016), Milan, Italy, November 2016
- L. Ferretti, M. Colajanni, M. Marchetti, "Access control enforcement on query-aware encrypted cloud databases", Proc. 5th IEEE Int'l Conf. Cloud Computing Technology and Science (CloudCom 2013), Bristol, UK, December 2013

Teaching activities

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| A.Y. 2022/2023 -
2024/2025 | <ul style="list-style-type: none">• Teaching at the <i>Network protocols and architectures</i> course (Bachelor Degree Computer Science), University of Modena and Reggio Emilia• Teaching at the <i>Applied Cryptography</i> course (Master Degree Computer Science), University of Modena and Reggio Emilia |
| A.Y. 2020/2021,
2021/2022 | <ul style="list-style-type: none">• Teaching at the <i>Network protocols and architectures</i> course (Bachelor Degree Computer Science), University of Modena and Reggio Emilia• Teaching at the <i>Cyber-Physical Security</i> course (Bachelor Degree Computer Science and Engineering), University of Modena and Reggio Emilia |
| A.Y. 2020/2021 | <ul style="list-style-type: none">• Teaching at the specialization degree on “Cyber Defense Governance”, University of Genova and University of Modena and Reggio Emilia• Teaching at the <i>Algorithms and Programming Languages</i> course (Bachelor Degree Computer Science and Engineering), University of Modena e Reggio Emilia |
| A.Y. 2019/2020 | <ul style="list-style-type: none">• Co-Teaching at the <i>Network protocols and architectures</i> course (Bachelor Degree Computer Science), University of Modena and Reggio Emilia• Co-Teaching at the <i>Cryptographic Algorithms</i> course (Master Degree Computer Science), University of Modena and Reggio Emilia• Co-Teaching at the <i>Algorithms and Programming Languages</i> course (Bachelor Degree Computer Science and Engineering), University of Modena e Reggio Emilia |
| A.Y. 2018/2019 | <ul style="list-style-type: none">• Co-Teaching at the <i>Network protocols and architectures</i> course (Bachelor Degree Computer Science), University of Modena and Reggio Emilia• Teaching at the specialization degree on “Digital forensics and cyber technologies”, University of Genova and University of Modena and Reggio Emilia• Teaching at the specialization course in Public Management and Innovation, Bologna Business School• Teaching at the Specialization course on cyber security “Cyber Academy”, University of Modena and Reggio Emilia• Teaching at the specialization degree on “Digital forensics and cyber technologies”, University of Modena and Reggio Emilia |
| A.Y. 2017/2018 | <ul style="list-style-type: none">• Teaching at the Specialization course on cyber security “Cyber Academy”, University of Modena and Reggio Emilia• Co-Teaching at the <i>Network protocols and architectures</i> course (Bachelor Degree Computer Science), University of Modena and Reggio Emilia |
| A.Y. 2016/2017 | <ul style="list-style-type: none">• Teaching at the “Blockchain e Smart Contracts” course, PhD program on “Cyber Physical Systems”, University of Messina per il corso• Teaching at the Specialization course on cyber security “Cyber Academy”, University of Modena and Reggio Emilia |

Research Projects and Industrial collaborations

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| 2024 | Anlyzing and improving security protocols for vending machines and mobile applications
Industrial project commissioned by Coges Mobile |
| 2022 → 2024 | TETI: Encryption techniques for digital preservation in compliance with the law
Research project commissioned by Doxee S.p.a. |
| 2019 → 2021 | RDS: Designing an application and a data architecture to foster virtuosity in energy communities
Research project commissioned by Enea |
| 2016 → 2021 | SmartChain: Sistemi interoperabili ed efficienti per la gestione sicura di filiere industriali
POR-FESR Emilia Romagna project |
| 2015 → 2016 | ASGARD: Analysis System for Gathered Raw Data
EU H2020 Project |
| | SAMMClouds: Secure and Adaptive Management of Multi-Clouds
FAR project |

Conferences organization

- 2022 • Program Chair conferenza Internazionale IEEE 2022 Symposium on Network Computing and Applications (NCA 2022)
- 2018 • Co-chair del workshop Internazionale IEEE 2018 Smart Industries Workshop (IEEE SIW 2018), co-locato con la Conferenza Internazionale IEEE 4th Int'l Conf. Smart Computing (SMARTCOMP 2018)
- 2015 • Publicity chair per il Workshop Internazionale 2015 ACM Cloud Computing Security Workshop (CCSW 2015), co-locato con la Conferenza Internazionale 2015 ACM Computer and Communication Security (CCS 2015)

Reviewer for international conference and journals

- 2014 → 2024 • IEEE Transaction on Information Forensics and Security, IEEE Transactions on Cloud Computing, IEEE Transactions on Network and Service Management, Elsevier Information Sciences, Elsevier Future Generation Computer Systems, Elsevier Expert Systems with Applications, IEEE Conference on Cloud Computing Technology and Science, IEEE International Symposium on Network Computing and Applications, EURASIP Journal on Information Security, MDPI Sensors, MDPI Applied Sciences

Awards

- 07/2019 • Best paper award international conference IEEE 3rd Int'l Conf. Internet of Things, Milano, Italia
- 05/2017 • Award for the best thesis PhD program Information and Communication technologies, University of Modena e Reggio Emilia
- 12/2016 • Award competition "Hackathon OCTONoMous OctoTelematics" for automotive cyber security
- 03/2016 • Award of merit for national and international research, University of Modena e Reggio Emilia
- 02/2014 • Spotlight paper "Distributed, concurrent and independent access to encrypted cloud databases", IEEE Trans. Parallel and Distributed Systems
- 08/2013 • Best paper award international conference 7th Int'l Conf. Emergin Security Information, Systems and Technologies, Barcellona, Spagna

Firma
