



Andrea Melis

Curriculum Vitae

"Do not wait to strike till the iron is hot; but make it hot by striking." - W. B. Sprague

Personal Details

- Date of Birth: 07 January 1989
- Place of Birth: Lanusei (Nuoro), Sardinia, Italy
- Nationality: Italian
- Citizenship: Italian

Professional Experience

Post-Doc Researcher Fellow

2019–present **Department of Computer Science and Engineering, University of Bologna, Italy.**

As a Post-Doc researcher fellow my work aims to study, design and implement innovative solutions that allow to improve the safety and operational robustness of connected production industrial network and devices for cyber-security contexts. The project will consider both real and actual industrial plants and machinery in their own right, such as smart devices and products made by a company and sold / installed at their customers. This project aims also to include:

- an IT risk assessment that takes into account the characteristics technological systems and industrial devices, and their interactions with processes business and business objectives;
- Identification of not only technological solutions that allow to minimize the costs vulnerability that causes the production processes to be stopped or damaged, and to improve the integrity and confidentiality of sensitive data managed by machinery and interconnected devices;
- The development of solutions that are compatible with the business reality of the territory, in terms of company size, turnover and investment constraints in Safety.

Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

🌐 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>

Phd

2016–present **Department of Electrical, Electronic and Information Engineering, University of Bologna, Italy.**

My research activity is mainly focused on computer security and on architectural threat analysis. I have been working on analysis and defense of IoT and Serverless architectures, developing tools to test and protect this architectures and formal models to describe them. Actually my main focus is the study of security solutions for SDN architectures.

Researcher Fellow

2015–2016 **Department of Electrical, Electronic and Information Engineering, University of Bologna, Italy.**

During this year i was part of the SMALL project teams. SMALL is a project funded by EIT Digital whose goal is to create a software platform that enables urban and extra-urban mobility services. In this project, my role has been twofold. With the team I have actively participated in the drafting of the software development process and the design of the platform invocation interfaces. In particular, I gave more emphasis to the security criticality introduced by this platform, from the insider threat problem to the issues of user privacy resulting from the management of personal data.

Researcher Fellow

2014–2015 **Department of Electrical, Electronic and Information Engineering, University of Bologna, Italy.**

My work focused on the security and privacy aspects of the Emilia-Romagna Regional Government project called "Mi Muovo" (I move). But above all my goal was analyze the structure of the system architecture, with different kind of tests, perform analysis on the data produced by this system and try to discover security vulnerabilities and possible privacy violations. Part of this work was published in dedicated workshop and in a journal.

Teaching

2020–Present **Adjunct professor**, Department of Electrical, Electronic and Information Engineering, Advanced Automotive Electronic Engineering.

Responsible for Real-Time Operating System Course. The course covers the fundamentals of modern real-time operating systems. Arguments that are addressed in the course are architecture, organization, and functionalities of modern operating systems, task management and resource allocation, mechanisms and tools for synchronisation and concurrent programming, characteristics of real-time operating systems and main scheduling algorithms for hard real-time periodic processes.

2018–Present **CyberChallenge Tutor**, Department of Computer Science and Engineering, Cyberchallenge.it Program.

Organizer and tutor for the University of Bologna Group for Cyberchallenge.it program. My role in this task has been twofold. First organizing the schedule for classes and lab activities with my colleagues, second i was personally in charge for 3 teaching modules of the program, Web Security 1 and 2 where i showed the main attack and defense aspects of Web Applications and Cryptography Module.

Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

🌐 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>

2014–Present **Teaching Assistant**, Department of Computer Science and Engineering, Computer Science Degree Program.

Teaching assistant of professor Marco Prandini for the laboratory activity for the course "Laboratory of System Administration". The goal of this course is to present the main subjects related to system administration, and to provide some fundamental skills needed to configure and monitor GNU/Linux systems in particular. The common thread of the lectures is an attention to safety/security as the ability to make systems resilient to faults, errors, and malicious attacks as well. In this course i provided support on the settings and configuration of the virtual lab and provided assistance to students in exercises and tests resolutions.

Education

2011–2014 **Master degree in Computer Science**, *University of Bologna*, Italy.

- Study emphases: Distributed System, Artificial Intelligence, Complex Systems, Data Mining, Machine Learning, Applied Security
- Master's Thesis: Data Sanitization for a clearing system in a public transport operators.
- Advisor: Prof. Marco Prandini

2012–2013 **Master Ubiquitous Networking, Distributed Systems and Security**, *Nice, Polytech Sophia Antipolis*, France.

- Study emphases: Distributed Systems, Distributed Algorithms, Security in Cloud Computing and Distributed Systems.
- Master's Internship: Participate in the discussion of the development of a clearing system for an EmiliaRomagna regional government project; and research and implementation of data sanitization techniques in order to prevent malicious behavior from insider threat.
- Advisor: Prof. Karima Boudaoud

2008–2011 **Bachelor of Computer Science**, *University of Bologna*, Italy.

- Study emphases: Introduction and basics of Algorithms, Programming, Networking, Database, Computer Theory and Web Technologies.
- Master's thesis: Social Engineering: Analysis of the attack methods and defense techniques.
- Advisor: Prof. Ozalp Babaoglu

2003–2008 **Diploma in Scientifics "A. Businco"**, *Jerzu*, Italy.

Followed Schools

Building Trust in the Information Age, summer school on computer security and Privacy Issuing, Università degli Studi di Cagliari Sep 2016

IEEE Winter Academy on Internet of Things, Milan Dec 2016

Tallinn University of Technology Cyber Security Summer School, Tallinn University of Technology Jul 2015

International Summer School on Information Security, Universidad de Deusto Jul 2015

International Summer School on Machine Learning for Cyber-Security, Università di Padova, Sep 2019

International Summer School on Cyber Range, Università di Trento, Feb 2020

List of Publications: <https://www.unibo.it/sitoweb/a.melis/publications>

Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

📄 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>

Fellowships/Awards

Sardinia Regional Government Fellowship for Deserving Students

- 2008 Fellowship for Deserving Bachelor Students
- 2009-2012 Annual Fellowship for Deserving Students of Scientific University Programs.

Program Committees.

- 2018 **Co-Chair** Security in Crowdsourced Applications SeCApp, Goodtechs
- 2018 **TPC** GoodTechs 2018
- 2020 **PC** Microservices 2020
- 2020 **Local Organizer** BOPL 2020

Personal Bibliography

- [1] D. Berardi et al. "TechNETium: Atomic Predicates and Model Driven Development to Verify Security Network Policies". In: *2020 IEEE 17th Annual Consumer Communications Networking Conference (CCNC)*. 2020, pp. 1–6.
- [2] Davide Berardi et al. "Security network policy enforcement through a SDN framework". In: *28th International Telecommunication Networks and Applications Conference, ITNAC 2018, Sydney, Australia, November 21-23, 2018*. IEEE Computer Society, 2018, pp. 1–4. ISBN: 978-1-5386-7177-1. DOI: 10.1109/ATNAC.2018.8615186. URL: <https://doi.org/10.1109/ATNAC.2018.8615186>.
- [3] Davide Berardi et al. "Sustainable Infrastructure Monitoring for Security-Oriented Purposes". In: *Proceedings of the 6th EAI International Conference on Smart Objects and Technologies for Social Good*. GoodTechs '20. Antwerp, Belgium: Association for Computing Machinery, 2020, 48–53. ISBN: 9781450375597. DOI: 10.1145/3411170.3411236. URL: <https://doi.org/10.1145/3411170.3411236>.
- [4] Franco Callegati et al. "Cloud-of-Things meets Mobility-as-a-Service: An insider threat perspective". In: *Computers & Security* 74 (2018), pp. 277–295. DOI: 10.1016/j.cose.2017.10.006. URL: <https://doi.org/10.1016/j.cose.2017.10.006>.
- [5] Franco Callegati et al. "Data security issues in MaaS-enabling platforms". In: *IEEE 2nd International Forum on Research and Technologies for Society and Industry Leveraging a better tomorrow, RTSI 2016, Bologna, Italy, September 7-9, 2016*. IEEE, 2016, pp. 1–5. ISBN: 978-1-5090-1131-5. DOI: 10.1109/RTSI.2016.7740624. URL: <https://doi.org/10.1109/RTSI.2016.7740624>.
- [6] Franco Callegati et al. "Federated Platooning: Insider Threats and Mitigations". In: *52nd Hawaii International Conference on System Sciences, HICSS 2019, Grand Wailea, Maui, Hawaii, USA, January 8-11, 2019*. Ed. by Tung Bui. ScholarSpace / AIS Electronic Library (AISeL), 2019, pp. 1–10. URL: <http://hdl.handle.net/10125/59758>.
- [7] Franco Callegati et al. "I want to ride my bicycle: A microservice-based use case for a MaaS architecture". In: *2017 IEEE Symposium on Computers and Communications, ISCC 2017, Heraklion, Greece, July 3-6, 2017*. IEEE Computer Society, 2017, pp. 18–22. ISBN: 978-1-5386-1629-1. DOI: 10.1109/ISCC.2017.8024498. URL: <https://doi.org/10.1109/ISCC.2017.8024498>.

Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

📄 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>

- [8] Franco Callegati et al. "Insider Threats in Emerging Mobility-as-a-Service Scenarios". In: *50th Hawaii International Conference on System Sciences, HICSS 2017, Hilton Waikoloa Village, Hawaii, USA, January 4-7, 2017*. 2017. URL: http://aisel.aisnet.org/hicss-50/eg/insider_threat/4.
- [9] Franco Callegati et al. "Privacy-Preserving Design of Data Processing Systems in the Public Transport Context". In: *Pac. Asia J. Assoc. Inf. Syst. 7.4* (2015), p. 4. URL: <https://aisel.aisnet.org/pajais/vol7/iss4/4>.
- [10] Franco Callegati et al. "Smart mobility for all: A global federated market for mobility-as-a-service operators". In: *20th IEEE International Conference on Intelligent Transportation Systems, ITSC 2017, Yokohama, Japan, October 16-19, 2017*. IEEE, 2017, pp. 1–8. ISBN: 978-1-5386-1526-3. DOI: 10.1109/ITSC.2017.8317701. URL: <https://doi.org/10.1109/ITSC.2017.8317701>.
- [11] Giovanni Delnevo et al. "Discovering the City: Crowdsourcing and Personalized Urban Paths Across Cultural Heritage". In: *Smart Objects and Technologies for Social Good - Third International Conference, GOODTECHS 2017, Pisa, Italy, November 29-30, 2017, Proceedings*. Ed. by Barbara Guidi et al. Vol. 233. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer, 2017, pp. 132–141. ISBN: 978-3-319-76110-7. DOI: 10.1007/978-3-319-76111-4_14. URL: https://doi.org/10.1007/978-3-319-76111-4_14.
- [12] Andrea Melis. "Cybersecurity issues in software architectures for innovative services". PhD thesis. alma, 2020. URL: <http://amsdottorato.unibo.it/9303/>.
- [13] Andrea Melis et al. "A Microservice Architecture Use Case for Persons with Disabilities". In: *Smart Objects and Technologies for Social Good - Second International Conference, GOODTECHS 2016, Venice, Italy, November 30 - December 1, 2016, Proceedings*. Ed. by Ombretta Gaggi et al. Vol. 195. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer, 2016, pp. 41–50. ISBN: 978-3-319-61948-4. DOI: 10.1007/978-3-319-61949-1_5. URL: https://doi.org/10.1007/978-3-319-61949-1_5.
- [14] Andrea Melis et al. "A Microservice-Based Architecture for the Development of Accessible, Crowdsensing-Based Mobility Platforms". In: *2016 International Conference on Collaboration Technologies and Systems, CTS 2016, Orlando, FL, USA, October 31 - November 4, 2016*. Ed. by Waleed W. Smari and Joseph Natarian. IEEE Computer Society, 2016, pp. 498–505. ISBN: 978-1-5090-2300-4. DOI: 10.1109/CTS.2016.0093. URL: <https://doi.org/10.1109/CTS.2016.0093>.
- [15] Andrea Melis et al. "A Policy Checker Approach for Secure Industrial SDN". In: *2nd Cyber Security in Networking Conference, CSNet 2018, Paris, France, October 24-26, 2018*. Ed. by Patrick Hebrard and Solange Ghernaouti. IEEE, 2018, pp. 1–7. ISBN: 978-1-5386-7045-3. DOI: 10.1109/CSNET.2018.8602927. URL: <https://doi.org/10.1109/CSNET.2018.8602927>.
- [16] Andrea Melis et al. "CrowdSensing for smart mobility through a service-oriented architecture". In: *IEEE International Smart Cities Conference, ISC2 2016, Trento, Italy, September 12-15, 2016*. IEEE, 2016, pp. 1–2. ISBN: 978-1-5090-1846-8. DOI: 10.1109/ISC2.2016.7580861. URL: <https://doi.org/10.1109/ISC2.2016.7580861>.

Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

📄 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>

- [17] Andrea Melis et al. "Integrating Personalized and Accessible Itineraries in MaaS Ecosystems Through Microservices". In: *MONET* 23.1 (2018), pp. 167–176. DOI: 10.1007/s11036-017-0831-z. URL: <https://doi.org/10.1007/s11036-017-0831-z>.
- [18] Andrea Melis et al. "Public Transportation, IoT, Trust and Urban Habits". In: *Internet Science - Third International Conference, INSCI 2016, Florence, Italy, September 12-14, 2016, Proceedings*. Ed. by Franco Bagnoli et al. Vol. 9934. Lecture Notes in Computer Science. Springer, 2016, pp. 318–325. ISBN: 978-3-319-45981-3. DOI: 10.1007/978-3-319-45982-0_27. URL: https://doi.org/10.1007/978-3-319-45982-0_27.
- [19] Silvia Mirri et al. "A Service-Oriented Approach to Crowdsensing for Accessible Smart Mobility Scenarios". In: *MIS* 2016 (2016), pp. 1–14. DOI: 10.1155/2016/2821680. URL: <https://doi.org/10.1155/2016/2821680>.
- [20] Catia Prandi et al. "Gamifying cultural experiences across the urban environment". In: *Multimedia Tools Appl.* 78.3 (2019), pp. 3341–3364. DOI: 10.1007/s11042-018-6513-4. URL: <https://doi.org/10.1007/s11042-018-6513-4>.

Languages

Italian **Native Language**

English **Intermediate (B2)**

French **Base-Advanced (B1)**

Scientific-Technique Fluent

Good understanding and speaking skills

Personal data

- Le informazioni contenute nel curriculum sono rilasciate ai sensi degli articoli 46/47 del D.P.R. 445/2000. Autorizzo il trattamento dei miei dati personali ai sensi del Regolamento Europeo (G.D.P.R. 2016/679).

Bologna 06/10/2020



Via Filippo Beroaldo, 35 – Bologna, Italia 40127

☎ (0039) 320 88 78767 • ✉ a.melis@unibo.it

🌐 <https://it.linkedin.com/pub/andrea-melis/84/a56/608>