



# Michele Pasqua

## *Academic Curriculum Vitæ*

### **Assistant Professor**

*Department of Computer Science - University of Verona, Italy*

## Education

- 2015–2018 **PhD in Computer Science**, *University of Verona, Italy*.  
Scholarship holder
- 2013–2015 **MSc in Computer Science and Engineering**, *University of Verona, Italy, 110/110 cum laude*.  
Curriculum: Software Engineering and Security

### PhD Thesis

- Title “*Hyper Static Analysis of Programs – An Abstract Interpretation-Based Framework for Hyperproperties Verification*”
- Supervisor Prof. Isabella Mastroeni
- Referees Prof. Antoine Miné, Prof. David A. Naumann
- Description In my PhD I have developed a methodology to verify, through static analysis, hyperproperties of computer programs. In particular, the focus is on information-flow hyperproperties, which are very pervasive in systems security. The approach is based on abstract interpretation, a very powerful formal framework for the approximation of programs' semantics. My thesis represents the first systematic approach leveraging abstract interpretation to hyperproperties verification.
- Available at <https://doi.org/10.5281/zenodo.6584085>

### Masters Thesis

- Title “*A semantic approach to Software Watermarking – A general model based on Abstract Interpretation*”, Original: “*Approccio semantico al Software Watermarking – Un modello generale basato su Interpretazione Astratta*”
- Supervisor Prof. Mila Dalla Preda
- Description The thesis gives a semantic formulation of software watermarking. In particular, the thesis presents a general mathematical definition for watermarking systems, based on abstract interpretation. With this latter, it is possible to measure the features (e.g., resilience, secrecy, accuracy) of existing watermarking techniques and to perform comparisons between different watermarking techniques.

### PhD Schools

- 2018 **Midlands Graduate School in the Foundations of Computing Science (MGS18)**, *University of Nottingham, UK*.
- 2017 **Italian Summer School of Logic**, *The University of Milan, Italy*.
- 2016 **Security and Trust of Next Generation Enterprise Information Systems**, *FBK – Bruno Kessler Foundation, Italy*.
- 2014 **International Summer School on Information Security and Protection (ISSISP14)**, *University of Verona, Italy*.

Via Cartiera 4 – San Giovanni Lupatoto (VR), 37057, Italy

☎ (+39) 333 2450770 • ✉ [michele.pasqua@univr.it](mailto:michele.pasqua@univr.it)

📄 <http://michelepasqua.github.io> • 🆔 0000-0002-9475-4836

---

## Teaching and Supervising

### Teaching

- AY 2024/2025 **Professor (Course Coordinator)**, *University of Verona*, Italy, Course: "Principles and Applications of Abstract Interpretation".  
PhD Programme in Computer Science
- AY 2023/2024 **Professor (Lab Instructor)**, *University of Verona*, Italy, Course: "Cyber-security for IoT".  
MSc in Computer Engineering for Robotics and Smart Industry
- AY 2021/2022 **Professor (Course Coordinator)**, *University of Verona*, Italy, Course: "Informatics and multimedia production".  
to  
AY 2023/2024 MSc in Publishing and Journalism
- 2020 to 2023 **Lecturer and Instructor**, *University of Verona*, Italy, "Training program in cybersecurity".  
CyberChallenge.IT
- AY 2017/2018 **Teaching Assistant**, *University of Verona*, Italy, Course: "Logic".  
BSc in Computer Science
- AY 2016/2017 **Teaching Assistant**, *University of Verona*, Italy, Course: "Programming for Bioinformatics".  
BSc in Bioinformatics
- AY 2015/2016 **Teaching Assistant**, *University of Padova*, Italy, Course: "Automata and Formal Languages".  
BSc in Computer Science

### Supervising

- 2024 **MSc Thesis Supervisor**, *University of Verona*, Italy (Scientific Sector: Informatics).  
MSc in Computer Science and Engineering – *Supervisor of 3 MSc theses*
- 2023 to 2024 **MSc Thesis Supervisor**, *University of Verona*, Italy (Scientific Sector: Informatics).  
MSc in Publishing and Journalism – *Supervisor of 4 MSc theses*
- 2022 to 2024 **MSc Thesis Co-Supervisor**, *University of Verona*, Italy (Scientific Sector: Informatics).  
MSc in Computer Science and Engineering – *Co-Supervisor of 6 MSc theses*
- 2022 **MSc Thesis Co-Supervisor**, *University of Udine*, Italy (Scientific Sector: Informatics).  
MSc in Computer Science – *Co-Supervisor of 1 MSc thesis*
- 2022 **BSc Thesis Co-Supervisor**, *University of Udine*, Italy (Scientific Sector: Informatics).  
MSc in Computer Science – *Co-Supervisor of 1 BSc thesis*
- 2018 to 2022 **BSc Thesis Co-Supervisor**, *University of Verona*, Italy (Scientific Sector: Informatics).  
BSc in Computer Science – *Co-Supervisor of 3 BSc theses*

---

## Research

My main research interests are in the fields of **software engineering** and **formal methods** for programming languages; with particular attention to functional and security testing, program verification and semantics, language-based security, distributed systems design, code protection and malware detection. Some keywords:

- abstract interpretation
- property and hyperproperty verification
- system semantics
- (modular) static analysis
- type systems
- process algebra
- bisimulation theory
- IoT and CPS security
- REST APIs
- black-box testing
- software watermarking and obfuscation
- metamorphic malware
- event-driven architecture
- autonomic systems
- security testing
- statistical model-checking

Actually, I am exploring new research topics, such as the security/correctness of blockchain-based programs (smart-contracts) and the verification of quantum programming languages.

### Indicators

Total citations **255** (Scholar) :: **160** (Scopus) :: **204** (ResearchGate)

H-index **9** (Scholar) :: **8** (Scopus) :: **8** (ResearchGate)

## Past Positions

- Oct 1, 2021 to Dec 31, 2021 **Postdoctoral Researcher**, *University of Verona*, Italy, Department of Computer Science.  
*Project*: Automatic Black-Box Testing of RESTful API  
*Supervisor*: Prof. Mariano Ceccato
- Oct 1, 2020 to Sep 30, 2021 **Postdoctoral Researcher**, *University of Udine*, Italy, Department of Mathematics, Computer Science and Physics.  
*Project*: Methods and Tools for Trustworthy Smart Systems: Innovative Programming Models and Paradigms  
*Supervisor*: Prof. Marino Miculan
- Oct 1, 2018 to Sep 30, 2020 **Postdoctoral Researcher**, *University of Verona*, Department of Computer Science.  
*Project*: Security Static Analysis for Android Things  
*Supervisor*: Prof. Massimo Merro

## Participation in Research Projects

- 2023 to Present **Research Assistant**, *PRIN project "Smartitude: Automated Testing and Security Assessment of Smart Contracts" (2023-2025)*, Funded by "Ministry of Education, University and Research (Italy)", Coordinator: Dr. Dario Di Nucci.
- 2021 to Present **Principal Investigator**, *PON project "Integrazione di servizi rivolti al cittadino per facilitare la corretta raccolta differenziata dei rifiuti urbani" (2021-2024)*, Funded by "Ministry of Education, University and Research (Italy)", Coordinator: Prof. Mariano Ceccato.
- 2023 **Research Assistant**, *Project "Automated Testing of REST APIs"*, Funded by "Muscope Cybersecurity Srl", Coordinator: Prof. Mariano Ceccato.
- 2023 **Research Assistant**, *Project "Machine Learning for automated testing of REST APIs"*, Funded by "Equixely Srl", Coordinator: Prof. Mariano Ceccato.
- 2022 to 2023 **Principal Investigator**, *SNSF project "Metamorphic Hyperproperty Testing" (2022-2023)*, Funded by "Swiss National Science Foundation (Switzerland)", Coordinator: Prof. Paolo Tonella.
- 2021 **Research Assistant**, *Joint project "Build Trust Proof of Concept" (2021)*, Funded by "University of Verona and Build Trust Srl", Coordinator: Prof. Franco Fummi.
- 2020 to 2022 **Research Assistant**, *PRIN project "IT MATTERS - Methods and Tools for Trustworthy Smart Systems" (2019-2022)*, Funded by "Ministry of Education, University and Research (Italy)", Coordinator: Prof. Rocco De Nicola.
- 2019 to 2022 **Research Assistant**, *PRIN project "ASPR - Analysis of Program Analyses" (2019-2022)*, Funded by "Ministry of Education, University and Research (Italy)", Coordinator: Prof. Roberto Giacobazzi.
- 2018 to 2020 **Research Assistant**, *Joint project "SAINTS - Security Static Analysis for Android Things" (2018-2020)*, Funded by "University of Verona (Italy) and JuliaSoft Srl", Coordinator: Prof. Massimo Merro.
- 2018 to 2020 **Research Assistant**, *Project "ARES - Analyzing Modern Software Security" (2018-2020)*, Funded by "University of Verona (Italy)", Coordinator: Prof. Isabella Mastroeni.
- 2016 to 2017 **Research Assistant**, *FIRB project "FACE - Formal Avenue for Chasing Malware" (2014-2018)*, Funded by "Ministry of Education, University and Research (Italy)", Coordinator: Prof. Mila Dalla Preda.

## Fundings

- 2023 **Direct Allocation**, *Technology consulting agreement*, Amia Verona Spa (Italy).  
Consulting activities concerning information systems and IoT infrastructures, for a total compensation of € 15'660 before VAT.
- 2023 **Competitive Grant**, *Fondo Italiano per le Scienze Applicate (FISA) 2022*, Ministry of Education, University and Research (Italy).  
Principal Investigator of the project "Distributed Reactive Internet of Things" (proposal n. FISA-2022-00571, Information and Communication Technology), selected for a funding amount of € 1'070'000 (project not funded due to budget saturation).

- 2022 **Competitive Grant**, *SNSF Scientific Exchange Programme 2022*, Swiss National Science Foundation (Switzerland).  
Principal Investigator of the project “Metamorphic Hyperproperty Testing” (proposal n. IZSEZO\_213565), granted with a funding amount of CHF 18'500.

### Research Visits

- 2022 to 2023 **Università della Svizzera Italiana**, *SNSF project “Metamorphic Hyperproperty Testing” (2022-2023)*, Funded by “Swiss National Science Foundation (Switzerland)”, Coordinator: Prof. Paolo Tonella (6 months).
- 2018 **Sorbonne Université**, *ERC project “MOPSA: Modular Open Platform for Static Analysis” (2016-2021)*, Funded by “European Research Council (Consolidator Grant Agreement 68139)”, Coordinator: Prof. Antoine Miné (2 months).

### International Collaborations

- 2022 to Present **Academic**, *Software Institute*, Lugano (Switzerland).  
*Topic*: Hypertesting of Program  
*Main contact*: Prof. Paolo Tonella
- 2021 to 2022 **Academic**, *Georgia Institute of Technology*, Atlanta (USA).  
*Topic*: REST API Testing  
*Main contact*: Prof. Alessandro Orso
- 2021 to 2022 **Industrial**, *IBM Research*, Yorktown Heights (USA).  
*Topic*: REST API Testing  
*Main contact*: Dr. Saurabh Sinha
- 2021 to 2022 **Industrial**, *IBM Research*, Haifa (Israel).  
*Topic*: REST API Testing  
*Main contact*: Dr. Rachel Tzoref-Brill
- 2018 to 2020 **Academic**, *KTH Royal Institute of Technology*, Stockholm (Sweden).  
*Topic*: Formal Methods for IoT Security  
*Main contact*: Prof. Musard Balliu

### Committees and Reviewing

- ISSTA25 **Program Committee Member**, *34<sup>th</sup> ACM International Symposium on Software Testing and Analysis*, June 25-28, 2025.  
Trondheim, NO
- ICST25 **Publicity Co-Chair**, *18<sup>th</sup> IEEE International Conference on Software Testing, Verification and Validation*, May, 2025.  
Naples, IT
- SCAM24 **Program Committee Member**, *24<sup>th</sup> IEEE International Working Conference on Source Code Analysis and Manipulation – Research Track; New Ideas and Emerging Results Track*, October, 2024.  
Flagstaff, US
- NSAD24 **Program Co-Chair**, *10<sup>th</sup> International Workshop on Numerical and Symbolic Abstract Domains*, October 22, 2024.  
Pasadena, US
- PeerJ CS **Editorial Board Member**, *PeerJ Computer Science*, Journal, PeerJ (from March 22, 2024).
- SAS24 **Program Committee Member**, *31<sup>st</sup> Static Analysis Symposium*, October 20-22, 2024.  
Pasadena, US
- LiSSAI24 **Organizing Committee Member**, *Lipari Summer School on Abstract Interpretation*, September 1-7, 2024.  
Lipari, IT
- ECAI24 **Program Committee Member**, *27<sup>th</sup> European Conference on Artificial Intelligence*, October 19-24, 2024.  
Santiago de Compostela, ES
- ASE24 **Program Committee Member**, *39<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering*, April 12-November 1, 2024.  
Sacramento, US

Via Cartiera 4 – San Giovanni Lupatoto (VR), 37057, Italy

☎ (+39) 333 2450770 • ✉ michele.pasqua@univr.it

📄 <http://michelepasqua.github.io> • 🆔 0000-0002-9475-4836

- ICSE24 **Program Committee Member**, 46<sup>th</sup> IEEE/ACM International Conference on Software Engineering – Demonstrations Track, April 12-21, 2024.  
Lisbon, PT
- COSE **Reviewer**, *Computers and Security*, Journal, Elsevier (2024).
- FMSD **Reviewer**, *Formal Methods in System Design*, Journal, Springer (2023 – 2024).
- TIFS **Reviewer**, *Tran. on Information Forensics and Security*, Journal, IEEE (2023 – 2024).
- SCAM23 **Program Co-Chair**, 23<sup>rd</sup> IEEE International Working Conference on Source Code Analysis and Manipulation – New Ideas and Emerging Results Track, October 2-3, 2023.  
Bogotá, CO
- ECAI23 **Program Committee Member**, 26<sup>th</sup> European Conference on Artificial Intelligence, October 1-6, 2023.  
Kraków, PL
- JSS **Reviewer**, *Journal of Systems and Software*, Journal, Elsevier (2022 – 2024).
- TSE **Reviewer**, *Tran. on Software Engineering*, Journal, IEEE (2022 – 2024).
- TOSEM **Reviewer**, *Tran. on Software Engineering and Methodology*, Journal, ACM (2022 – 2024).
- COMCOM **Reviewer**, *Computer Communications*, Journal, Elsevier (2023).
- SCAM22 **Program Committee Member**, 22<sup>nd</sup> IEEE International Working Conference on Source Code Analysis and Manipulation – Research Track, October 3-4, 2022.  
Limassol, CY
- SCAM22 **Proceedings and Local Chair**, 22<sup>nd</sup> IEEE International Working Conference on Source Code Analysis and Manipulation – Research Track, October 3-4, 2022.  
Limassol, CY
- AUSE **Reviewer**, *Automated Software Engineering*, Journal, Springer (2022).
- SCN **Reviewer**, *Security and Communication Networks*, Journal, Wiley and Hindawi (2022).
- VALID19 **Program Co-Chair**, 11<sup>th</sup> International Conference on Advances in System Testing and Validation Lifecycle – Formal Methods for Software Analysis and Verification Special Track, November 26, 2019.  
Valencia, ES

## Other Research Activities

- Jul 24, 2023 to Feb 7, 2024 **Public Tender Committee Member**, *Amia Verona Spa*, Call 8839319 – CIG 9534845302.  
Technology consultant regarding the information system and the IoT infrastructure for the public tender entitled “Accordo quadro con un unico operatore economico per la fornitura di sistema integrato ed intelligente per la raccolta differenziata “4.0” di rifiuti. Valore stimato: € 19.000.000,00 + IVA, oneri pari a zero.”
- Dec 14, 2023 **Evaluation Committee Member**, *University of Verona*, Italy, AdR 4387/23 (Informatics).  
Research contract entitled “Smartitude: Automated Testing and Security Assessment of Smart Contracts”
- Jun 21, 2023 **Evaluation Committee Member**, *University of Verona*, Italy, AdR 4218/23 (Informatics).  
Research contract entitled “Verifica e integrazione di REST API”
- Dec 1, 2022 to Dec 6, 2022 **Evaluation Committee Member**, *University of Verona*, Italy, AdR R4094/22 (Informatics).  
Research contract entitled “Automated software engineering and software protection for securing edge computing in IoT artificial intelligence applications”
- Dec 1, 2022 to Dec 6, 2022 **Evaluation Committee Member**, *University of Verona*, Italy, AdR R4095/22 (Informatics).  
Research contract entitled “Automated software engineering and secure software-hardware interfacing for securing edge computing in IoT artificial intelligence applications”

## Publications

### Articles in International Journals with Referee

- TCS24 Behavioral Equivalences for AbU: Verifying Security and Safety in Distributed IoT Systems – *Pasqua M. and Miculan, M.* – In: *Theoretical Computer Science* (pp. 1–23), Elsevier, 2024
- TCS23 AbU: A Calculus for Distributed Event-driven Programming with Attribute-based Interaction – *Pasqua M. and Miculan, M.* – In: *Theoretical Computer Science* (pp. 1–32), Elsevier, 2023



- JSS23 Enhancing Ethereum smart-contracts static analysis by computing a precise Control-Flow Graph of Ethereum bytecode – *Pasqua M., Benini A., Contro F., Crosara M., Dalla Preda M. and Ceccato M.* – In: *Journal of Systems and Software* (pp. 1–18), Elsevier, 2023
- ACCESS23 The AbU Language: IoT Distributed Programming Made Easy – *Pasqua, M., Comuzzo, M. and Miculan, M.* – In: *IEEE Access* (pp. 1–14), IEEE, 2023 (to appear)
- STVR22 Automated Black-Box Testing of Nominal and Error Scenarios in RESTful APIs – *Corradini, D., Zampieri, A., Pasqua M., Viglianisi, E., Dallago, M. and Ceccato, M.* – In: *Software Testing, Verification and Reliability* (pp. 1–33), John Wiley & Sons, 2022
- TOPS21 Friendly Fire: Cross-App Interactions in IoT Platforms – *Balliu, M., Merro, M., Pasqua M. and Shcherbakov, M.* – In: *ACM Trans. on Privacy and Security* (pp. 1–40), ACM Press, 2021
- MSCS19 Semantics-based Software Watermarking by Abstract Interpretation – *Dalla Preda, M. and Pasqua, M.* – In: *Mathematical Structures in Computer Science* (pp. 339–388), Cambridge University Press, 2019

### Articles in International Conferences with Referee

- ICSE24 Hypertesting of Programs: Theoretical Foundation and Automated Test Generation – *Pasqua, M., Ceccato, M. and Tonella, P.* – In: *Proceedings of the 46<sup>th</sup> International Conference on Software Engineering* (to appear), ACM, 2024
- SAS23 Domain Precision in Galois Connection-less Abstract Interpretation – *Mastroeni, I. and Pasqua, M.* – In: *Proceedings of the 30<sup>th</sup> Static Analysis International Symposium* (pp. 434–459), Springer, 2023
- ISSTA23 Enhancing REST API Testing with NLP Techniques – *Kim, M., Corradini, D., Pasqua, M., Ceccato, M., Orso, A., Sinha, S. and Tzoref-Brill, R.* – In: *Proceedings of the 32<sup>nd</sup> International Symposium on Software Testing and Analysis* (pp. 1232–1243), ACM, 2023
- ICSE23 Automated Black-box Testing of Mass Assignment Vulnerabilities – *Corradini, D., Pasqua, M. and Ceccato, M.* – In: *Proceedings of the 45<sup>th</sup> International Conference on Software Engineering* (pp. 2553–2564), IEEE, 2023
- ICSME22 RestTestGen: An Extensible Framework for Automated Black-box Testing of RESTful APIs – *Corradini, D., Zampieri, A., Pasqua, M. and Ceccato, M.* – In: *Proceedings of the 38<sup>th</sup> International Conference on Software Maintenance and Evolution* (pp. 504–508), IEEE, 2022
- IECON22 Integrating Smart Contracts in Manufacturing for Automated Assessment of Production Quality – *Gaiardelli, S., Spellini, S., Pasqua, M., Ceccato, M. and Fummi, F.* – In: *Proceedings of the 48<sup>th</sup> Annual Conference of the IEEE Industrial Electronics Society* (pp. 1–6), IEEE, 2022
- SAC22 Verifying Opacity by Abstract Interpretation – *Mastroeni, I. and Pasqua, M.* – In: *Proceedings of the 37<sup>th</sup> ACM/SIGAPP Symposium On Applied Computing* (pp. 1817–1826), ACM, 2022
- ICTCS22 Distributed Programming of Smart Systems with Event-Condition-Action Rules (Short Paper) – *Miculan, M. and Pasqua, M.* – In: *23<sup>rd</sup> Italian Conference on Theoretical Computer Science* (pp. 1–6), CEUR-WS, 2022
- SEFM21 On the Security and Safety of AbU Systems – *Pasqua, M. and Marino, M.* – In: *Proceedings of the 19<sup>th</sup> International Conference on Software Engineering and Formal Methods* (pp. 178–198), Springer, 2021
- SCAM21 Empirical Comparison of Black-box Test Case Generation Tools for RESTful APIs – *Corradini, D., Zampieri, A., Pasqua, M. and Ceccato, M.* – In: *Proceedings of the 21<sup>st</sup> International Working Conference on Source Code Analysis and Manipulation* (pp. 226–236), IEEE, 2021
- ICSME21 Restats: A Test Coverage Tool for RESTful APIs – *Corradini, D., Zampieri, A., Pasqua, M. and Ceccato, M.* – In: *Proceedings of the 37<sup>th</sup> International Conference on Software Maintenance and Evolution* (pp. 594–598), IEEE, 2021
- ICTAC21 A Calculus for Attribute-based Memory Updates – *Miculan, M. and Pasqua, M.* – In: *Proceedings of the 18<sup>th</sup> International Colloquium on Theoretical Aspects of Computing* (pp. 366–385), Springer, 2021
- FormaliSE20 Impact Analysis of Cyber-Physical Attacks on a Water Tank System via Statistical Model Checking – *Munteanu, A., Merro, M. and Pasqua, M.* – In: *Proceedings of the 8<sup>th</sup> International Conference on Formal Methods in Software Engineering* (pp. 34–43), ACM, 2020

Via Cartiera 4 – San Giovanni Lupatoto (VR), 37057, Italy

☎ (+39) 333 2450770 • ✉ [michele.pasqua@univr.it](mailto:michele.pasqua@univr.it)

📄 <http://michelepasqua.github.io> • 🆔 0000-0002-9475-4836

- CSF19 Securing Cross-App Interactions in IoT Platforms – *Balliu, M., Merro, M. and Pasqua, M.* – In: Proc. of the 32<sup>th</sup> Computer Security Foundations Symposium (pp. 319–334), IEEE, 2019
- SAC19 Statically Analyzing Information Flows: An Abstract Interpretation-based Hyperanalysis for Non-Interference – *Mastroeni, I. and Pasqua, M.* – In: Proceedings of the 34<sup>th</sup> ACM/SIGAPP Symposium On Applied Computing (pp. 2215–2223), ACM, 2019
- SAS18 Verifying Bounded Subset-Closed Hyperproperties – *Mastroeni, I. and Pasqua, M.* – In: Proc. of the 25<sup>th</sup> Static Analysis International Symposium (pp. 263–283), Springer, 2018
- SAS17 Hyperhierarchy of Semantics: A Formal Framework for Hyperproperties Verification – *Mastroeni, I. and Pasqua, M.* – In: Proceedings of the 24<sup>th</sup> Static Analysis International Symposium (pp. 232–252), Springer, 2017
- ICTCS17 On topologies for (hyper)properties – *Pasqua, M. and Mastroeni, I.* – In: Proceedings of the 18<sup>th</sup> Italian Conference on Theoretical Computer Science (pp. 1–12), CEUR-WS, 2017

### Articles in International Workshops with Referee

- VALID19 Chameleon: The Gist of Dynamic Programming Languages – *Buro, S. and Pasqua, M.* – In: Proceedings of VALID 2019 - Special track: Formal Methods for Software Analysis and Verification (pp. 1–5), IARIA, 2019
- FMW19 An abstract domain for objects in dynamic programming languages – *Arceri, V., Pasqua, M. and Mastroeni, I.* – In: Proceedings of the Formal Methods 2019 International Workshops (pp. 136–151), Springer, 2019
- NSAD16 Software Watermarking: A Semantics-based Approach – *Dalla Preda, M. and Pasqua, M.* – In: Proceedings of the 6<sup>th</sup> Workshop on Numerical and Symbolic Abstract Domains (pp. 71–85), Elsevier, 2016

### Extended Abstracts and Technical Reports

- ITASEC22 Security and Safety of IoT Systems Based on ECA Rules (Extended Abstract) – *Pasqua, M. and Miculan, M.* – In: 6<sup>th</sup> Italian Conference on CyberSecurity (pp. 1–12), 2022
- TR21b On the Security and Safety of AbU Systems (supplementary material) – *Pasqua, M. and Miculan, M.* – Technical Report: Zenodo October/2021, <https://doi.org/10.5281/zenodo.5570332>, 2021
- TR21a A Calculus for Attribute-based Memory Updates (supplementary material) – *Miculan, M. and Pasqua, M.* – Technical Report: Zenodo July/2021, <https://doi.org/10.5281/zenodo.5057165>, 2021
- ITASEC20 Friendly Fire: Cross-App Interactions in IoT Platforms (Extended Abstract) – *Balliu, M., Merro, M. and Pasqua, M.* – In: 4<sup>th</sup> Italian Conference on CyberSecurity (pp. 1–12), 2020
- TR16 A semantics-based approach to software watermarking by abstract interpretation – *Dalla Preda, M. and Pasqua, M.* – Technical Report: RR 98/2016 - University of Verona, 2016

## Public Talks

### Invited Talks and Lectures

- Sep 11, 2024 **Formally Prove and Empirically Disprove Program Hyperproperties**, 3<sup>rd</sup> Summer School on Security Testing and Verification, Brussels, BE.  
Invited Lecture
- May 25, 2023 **Static Analysis Properties as Program Hyperproperties**, 2<sup>nd</sup> Symposium on Challenges of Software Verification, Venice, IT.  
Invited Talk

### Conference Presentations

- Apr 17, 2024 **Hypertesting of Programs: Theoretical Foundation and Automated Test Generation**, 46<sup>th</sup> International Conference on Software Engineering, Lisbon, PT.
- Oct 22, 2023 **Domain Precision in Galois Connection-less Abstract Interpretation**, 30<sup>th</sup> Static Analysis International Symposium, Cascais, PT.

- Sep 9, 2022 **Distributed Programming of Smart Systems with Event-Condition-Action Rules**, 23<sup>rd</sup> Italian Conference on Theoretical Computer Science, Rome, IT.
- Dec 8, 2021 **On the Security and Safety of AbU Systems**, 19<sup>th</sup> International Conference on Software Engineering and Formal Methods, (virtual).
- Sep 10, 2021 **A Calculus for Attribute-based Memory Updates**, 18<sup>th</sup> International Colloquium on Theoretical Aspects of Computing, Nur-Sultan, KZ (virtual).
- Feb 6, 2020 **Friendly Fire: Cross-App Interactions in IoT Platforms**, 4<sup>th</sup> Italian Conference on Cyber-Security, Ancona, IT.
- Oct 8, 2019 **An abstract domain for objects in dynamic programming languages**, 8<sup>th</sup> International Workshop on Numerical and Symbolic Abstract Domains, Porto, PT.
- Jun 27, 2019 **Securing Cross-App Interactions in IoT Platforms**, 32<sup>th</sup> IEEE Computer Security Foundations Symposium, Hoboken, USA.
- Apr 10, 2019 **Abstract Interpretation of Information Flows: A Sound Static Analyzer for Non-Interference**, 34<sup>th</sup> ACM/SIGAPP Symposium On Applied Computing, Limassol, CY.
- Aug 30, 2018 **Verifying Bounded Subset-Closed Hyperproperties**, 25<sup>th</sup> Static Analysis International Symposium, Freiburg im Breisgau, DE.
- Sep 27, 2017 **On topologies for (hyper)properties**, 18<sup>th</sup> Italian Conference on Theoretical Computer Science, Naples, Italy.
- Sep 1, 2017 **Hyperhierarchy of Semantics: A Formal Framework for Hyperproperties Verification**, 24<sup>th</sup> Static Analysis International Symposium, New York, USA.
- Aug 29, 2016 **Software Watermarking: A Semantics-based Approach**, 7<sup>th</sup> International Workshop on Numerical and Symbolic Abstract Domains, Edinburgh, UK.

## Seminars

- Sep 21, 2022 **A gentle introduction to hyperproperties**, Università della Svizzera Italiana, Switzerland.  
Invited talk
- May 3, 2019 **Semantics-based Software Watermarking by Abstract Interpretation**, University of Verona, Italy.  
MSc course "Software Security"
- May 2, 2018 **Hyperproperties and their verification**, Sorbonne University, France.  
Invited talk
- Mar 15, 2018 **Hyperproperties and Temporal Logics**, University of Verona, Italy.  
PhD course "Temporal Logic"
- Nov 22, 2017 **Semantics-based Software Watermarking by Abstract Interpretation**, University of Verona, Italy.  
MSc course "Software Security"
- Dec 21, 2016 **Semantics-based Software Watermarking by Abstract Interpretation**, University of Verona, Italy.  
MSc course "Software Security"
- May 27, 2016 **Measurements in Quantum Computing**, University of Verona, Italy.  
PhD course "Quantum Computing"

## Languages

Italian **Mothertongue**  
English **Advanced**

CEFR B2 Certificate - University of Verona

## Affiliations and Awards

- 2023 **Distinguished Reviewer Award**, *Tran. on Software Engineering, Journal, IEEE*.
- 2022–Present **Member of GRIN**, *Gruppo di Informatica*.
- 2020–Present **CyberChallenge.IT**, *University of Verona team*.
- 2019–Present **Member of ACM**, *Association for Computing Machinery*.


Via Cartiera 4 – San Giovanni Lupatoto (VR), 37057, Italy  
 ☎ (+39) 333 2450770 • ✉ michele.pasqua@univr.it  
 🌐 <http://michelepasqua.github.io> • 🆔 0000-0002-9475-4836



2017–Present **Member of EATCS**, *European Association for Theoretical Computer Science*, Italian Chapter.  
2019–2022 **Member of IEEE**, *Institute of Electrical and Electronic Engineers*.

In compliance with the Italian D. Lgs. 2003/196 and the European GDPR 2016/679, I hereby authorize you to use and process my personal details contained in this document.

Verona June 14, 2024



Via Cartiera 4 – San Giovanni Lupatoto (VR), 37057, Italy  
☎ (+39) 333 2450770 • ✉ michele.pasqua@univr.it  
📄 <http://michelepasqua.github.io> • 🆔 0000-0002-9475-4836