Associate Prof. Isabella Mastroeni

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Profile

PLACE AND DATE OF BIRTH

Legnago, August 29th, 1977;

SPOKEN LANGUAGES

Italian and English;

ACTUAL POSITION

Associate professor since Novembre 1st, 2014, Department of Computer Science, University of Verona (SSD 01/B1 - Informatica).

RESEARCH INTERESTS

- *Security and SW Engineering:* Formal methods for software analysis, language-based security, information flow and non interference, program slicing, obfuscation and watermarking;

- *Theoretical computer science (Formal methods):* Semantics of programming languages, formal methods for static analysis of programming languages, abstract interpretation, abstract domain transformers.

Education

MARCH 31ST, 2005

PhD in Computer Science, 2002/2004, Department of Computer Science, University of Verona;

JULY 25TH, 2001

Master degree in Computer Science, University of Verona, final grade 110/110 cum laude;

JULY 1996

High School Diploma, Liceo Scientifico Statale L. Da Vinci (Cerea, Verona). Final grade 60/60.

Career breaks

AUGUST 20TH, 2011 - JANUARY 19TH, 2012

Mandatory maternity leave (Law 30/12/71 n. 1204). Record N. 1835 of 20/07/2011 and N. 2318 of 22/09/2011

Mandatory maternity leave (Law 30/12/71 n. 1204). Record N. 2546 of 10/06/2008 and N. 3370 of 10/09/2008.

Curriculum vitae et studiorum

AUGUST 7TH, 2018

She earns the "Abilitazione Scientifica Nazionale" (Scientific National Habilitation) as Full Professor in Computer Science (SSD 01/B1 - Informatica). Expiration date August 7th, 2027.

NOVEMBER 1ST, 2014

She is hired as Associate professor, Department of Computer Science - University of Verona (SSD 01/B1 - Informatica)

FEBRUARY 27TH, 2014

Info Day on Communicating Research, organized in Cooperation with APRE, Verona.

FEBRUARY 17TH, 2014

Info Day Secure Societies Horizon 2020 "Secure Societies – Protecting freedom and security of Europe and its citizens " 2014-2015, Rome.

JANUARY 29TH, 2014

She earns the "Abilitazione Scientifica Nazionale" (Scientific National Qualification) as Associate Professor in Computer Science (SSD 01/B1 - Informatica).

MARCH 1ST, 2013 - FEBRUARY 28TH, 2014

Advisor of a research grant assigned to Dr. Mila Dalla Preda, SSD INF/01 INFORMATICA, with the following research program: *"Detection of malware attacks by analyzing dependencies"*.

MARCH 1ST, 2006 - OCTOBER 31ST 2014

She is hired as Assistant Professor (Researcher), Department of Computer Science, Faculty of Mathematical, Physical and Natural Sciences (SSD INF/01). Confirmed in the role in March 1st, 2009.

NOVEMBER 1ST, 2005 - FEBRUARY 28TH, 2006

She is hired with a research grant, Department of Computer Science, University of Verona. Scientific advisor: Prof. Roberto Giacobazzi.

APRIL 15TH, 2005 - AUGUST 15TH, 2005

She is hired with a full-time position as Research Associate at the Department of Computing and Information Science, Kansas State University, Kansas, USA.

MARCH 31ST, 2005

She defends her PhD Thesis in Computer Science. THESIS: *Abstract Non-Interference: An Abstract Interpretation-based approach to Secure Information Flow*. Advisor Prof. Roberto Giacobazzi. PhD thesis reviewers Prof. Patrick Cousot (ENS, Parigi) and Prof. Chris Hankin

(Imperial College, Londra). Defense Commission: Prof. Andrea Masini, Prof. Giorgio Levi and Prof. Bruno Siciliano.

She cooperates, with a research contract, to the research activities coordinated by Prof. Roberto Giacobazzi. Subject: *Time-based Abstract Non-Interference: Classification of real time systems.*

She wins a grant for a PhD student position in Computer Science, in the Computer Science Department of the University of Verona. Attends the following courses and schools: 30th Intern. Spring School on Semantics of Programming Languages (Agay, France); 2nd IS on Formal Methods for the Design of Computer, Communications and Software Systems (Bertinoro, Italia); Non-conventional computational methods (Prof. V. Manca, Verona); Model Checking (Prof. R. Segala, Verona); 15th Intern. School for Computer Science Researchers on Algorithms for Data Mining and Pattern Discovery (Lipari, Italia); Programming languages foundations: Types and models (Prof. R. Giacobazzi and Prof. A. Masini, Verona); Stone duality (Prof. E. Gregorio, Verona); Abstract Interpretation (Prof. P. Cousot and D. Schmidt, Verona).

She cooperates, with a research contract, to the research activities coordinated by Prof. Roberto Giacobazzi. Subject: *Design of a system for the parametric analysis of security properties.*

She cooperates, with a research contract, to the research activities coordinated by Prof. Roberto Giacobazzi. Subject: *Automatic certification of programs by abstract interpretation*.

Laurea (master) degree in Computer Science with final grade 110/110 cum laude, with a special mention for the particular curriculum, for the obtained results and for having reached the graduation in the first possible session. Thesis title: *Costruzione sistematica di semantiche mediante interpretazione astratta* (Tr: *Systematic construction of semantics by abstract interpretation*). Tutor: Prof. Roberto Giacobazzi.

She cooperates, with a research contract, to the research activities coordinated by Prof. Roberto Giacobazzi. Subject: *Development of a domain for the static analysis of numerical powers*.

She wins a grant of a month for a summer course of English language at the University of Wales, Aberystwith, Wales.

She attends the Computer Science laurea course in the University of Verona, with particular interests for the mathematical aspects of Computer Science. Average exam evaluation 109,51/110.

Research Visits

APRIL 2014

Period at the "University of Louisiana at Lafayette - Center for Advanced Computer Studies" (Lafayette, Louisiana) for a research cooperation with Prof. Arun Lakhotia.

APRIL 2007

Period at the "Kansas State University" (Manhattan, Kansas) for a research cooperation with Prof. Anindya Banerjee.

APRIL 2006 - MAY 2006

Period at the "Kansas State University" (Manhattan, Kansas) for a research cooperation with Prof. Anindya Banerjee.

APRIL 2005 - AUGUST 2005

Scientific cooperation with Prof. Dave Schmidt and with Prof. Anindya Banerjee, at the Kansas State University, Kansas, USA.

MARCH 2005

She visits the group of *Semantics, proofs and Abstract Interpretation* coordinated by Dr. Radhia Cousot at the École polytechnique of Paris.

MAY 2002 - JULY 2002

Period at the "Laboratoire d'informatique de l'École polytechnique (LIX)" in Paris, for research activities for the PhD in the European Project "Validation of critical software by static analysis and abstract testing", IST-1999- 20527 (DAEDALUS) coordinated by Prof. Patrick Cousot and by Dr. Radhia Cousot, on validation of software components embedded in future generation critical concurrent systems by exhaustive semantic-based static analysis and abstract testing methods based on abstract interpretation;

Research Projects

• PI to funded research projects

PRIN-PNRR2022 (2023-2025)

Resource Awareness in Programming: Algebra, Rewriting, and Analysis. Progetto coordinato tra le Università di Bologna (PI), di Pisa, di Padova e di Verona. Ruolo: **Responsabile dell'unità di Verona. Budget unità 25K.**

RICERCA DI BASE 2017 (2019-2021)

ARES: Analyzing secuRity in modErn Software. Progetti finalizzati alla ricerca di base finanziati dall'Università di Verona. Ruolo: **Principal investigator. Budget 44K**

JOINT- PROJECT 2016

Abstract Interpretation of COBOL (Arctic). Joint project between university and enterprises founded by University of Verona. Company principal investigator Sig. Pietrogrado Alberto - Corvallis S.P.A. Role: **Research principal investigator. (University finantial contribution: 44.400€; Partner contribution: 76.400€; Total project budget 152.800€)**

JOINT- PROJECT 2014

Abstract interpretation based analysis of Scripting Languages (AbstScript). Joint project between university and enterprises founded by University of Verona. Company principal investigator Sig. Paolo Errico - Maxfone. Role: **Research principal investigator. (University finantial contribution: 33.300€; Partner contribution: 57.300; Total project budget 114.600€)**

JOINT- PROJECT 2009

Nullness analysis via interactive web (ANUBI). Joint projects between university and companies, funded by the university of Verona. Company partner: Julia SW (Prof. F. Spoto) Role: **Research principal investigator. (Total project budget: 40.000€)**

YOUNG RESEARCHERS 2006

Methods for the certification of the security degree of programs and data bases, both in terms of maximal observational safe capability and of maximal released information, by using model checking and bisimulation techniques. Research project funded by the Department of Computer Science - University of Verona. Role: **Principal scientific investigator. (Budget: 3.000€)**

• Participation to funded research projects

BANDO A CASCATA SPOKE 5: HIGH-QUALITY AI (2024-2025)

BEHAVE-Learning Safe Behaviours for human-robot cooperation. PE00000013 "PNRR MUR - M4C2 - FAIR - Future Artificial Intelligence Research (FAIR)". Partecipazione attiva alla ricerca

BANDO A CASCATA SPOKE 6: SOFTWARE AND PLATFORM SECURITY (2024-205)

SOP-Securing sOftware Platforms. PE00000014 PE7 "PNRR MUR - M4C2 - SERICS - SEcurity and RIghts in the CyberSpace (SERICS)". Partecipazione attiva alla ricerca

BANDO A CASCATA SPOKE 4: NEXT GENERATION CYBER RANGES (2024-205)

NoMeN-Novel Methodologies and Tools for Next Generation Cyber Ranges. PE00000014 PE7 "PNRR MUR - M4C2 - SERICS - SEcurity and RIghts in the CyberSpace (SERICS)". Partecipazione attiva alla ricerca.

PRIN 2017 (2018-2020)

ASPRA: Analysis of Program Analysis. Progetto MIUR coordinato tra le università di Pisa , Verona (coordinatore nazionale), Padova and Bologna. Role: Active researcher.

FIRB 2013

FACE - Formal avenue for chasing malware. MIUR project "Futuro in ricerca 2013" coordinated between the universities of Milano and Verona (principal investigator Dr.ssa M. Dalla Preda). Role: Active researcher.

PRIN 2010-2011

Security Horizon. MIUR Project coordinated among the universities of Pisa (coordinator), Genova, Cagliari, Napoli, Milano, Venezia, CNR and Verona (local principal investigator Prof. L. Viganò). Role: Active researcher.

PRIN 2007

SOFT - Security-Oriented Formal Techniques. MIUR project coordinated among the universities of Pisa, Venezia (coordinator), Verona (local principal investigator Prof. L. Viganò). Role: Active researcher.

PRIN 2004

AIDA Abstract Interpretation Design and Applications. MIUR COFIN project coordinated among the universities of Bologna, Padova, Parma, Pisa, Udine, Venezia, Verona (Principal investigator Prof. R. Giacobazzi). Role: Active researcher.

FIRB 2003 - 2005

(SPY-Mod) Abstract interpretation and model checking for the verification of embedded systems. FIRB (basic research) MIUR project coordinated among the universities of Padova (coordinator), Venezia, Verona (local principal investigator Prof. R. Giacobazzi). Role: Active researcher.

CRUI PROJECT 2002 - 2003

Abstraction for verification (jointly with Max Plank Institute - Saarbrucken), German-italian action VIGONI, CRUI, 2002-2003. Principal investigator Prof. R. Giacobazzi. Role: Active researcher.

PRIN 2002

Automatic verification of reactive systems by abstract interpretation and model checking. MURST project coordinated among the universities of Bologna (coordinator), Genova, Padova, Parma, Udine, Verona (local principal investigator Prof. R. Giacobazzi), CNR-IEI-CNUCE Pisa. Role: Active researcher.

PRIN 2000

Abstract Interpretation, type systems and control-flow analysis. MURST project coordinated among the universities of Pisa (coordinator), Torino, Venezia, Verona (local principal investigator Prof. R. Giacobazzi). Role: Active researcher.

Automatic program certification by abstract interpretation. MURST project coordinated among the universities of Parma, Pisa, Udine, Venezia, Verona (Principal investigator Prof. R. Giacobazzi). Role: Active researcher.

• Participation to positively evaluated but not funded projects

ATHENA - Formal Approaches against Modern Malware. MIUR project "Futuro in ricerca 2012" coordinated among the universities of Bologna, Milano and Verona (coordinator). Role: **Principal investigator. Evaluation by two expert reviewers 100/100 (Total project budget 797.000€).**

TINCS - Trust in Networked Critica Software. Proposal FP7-ICT-2011-8, coordinated among IMDEA - Spain (coordinator), ENS - France, AbsInt SME - Germany, University of Verona (local principal investigator Prof. R. Giacobazzi), EADS Innovation Work - France.   Role: Active researcher. Evaluation: 11.5/15.

AIDA2009: Abstract Interpretation Design and Applications. Project coordinated among the universities of Chieti-Pescara, Padova, Parma (coordinator), Pisa, Verona (local principal investigator Prof. R. Giacobazzi). Role: Active researcher. Evaluation: 57/60.

FUCSIA - Obfuscation and Steganography by Abstract Interpretation. Proposal FP7-ICT-2007-C, coordinated among University of Verona (principal investigator Prof. R. Giacobazzi), Imperial College - UK, ENS - France and Cloakware - Canada. Role: Active researcher. Evaluation: 4.1/5.

FUCSIA - Obfuscation and Steganography by Abstract Interpretation. Proposal FP7-ICT-2007-C, coordinated among University of Verona (principal investigator Prof. R. Giacobazzi), Imperial College - UK, ENS - France and Cloakware - Canada. Role: Active researcher. Evaluation: 4/5.

Static and dynamic analysis for automatic certification of software security. Project coordinated among the universities of Venezia (coordinator), Parma, Pisa e Verona (local principal investigator Prof. R. Giacobazzi). Role: Active researcher. Evaluation: 46/60.

Reviewer for Conferences, Journals, Projects and PhD Theses

• Conferences

- Mathematica Foundations of Program Semantics - MFPS (2025,2022)

- Italian conference on cybersecurity - ITASEC (2021)

- International Conference on Mathematical Foundations of Computer Science MFCS (2020)

- International Workshop on Security in Mobile Technologies SecMT (2020)

- Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages - POPL (2021, 2018,2017,2013, 2008, 2007);

- Italian Conference on Theoretical Computer Science ICTCS (2018)

- International Symposium on Code Generation and Optimization - CGO (2016)

- Program Protection and Reverse Engineering Workshop - PPREW (2015)

- International Conference on Verification, Model Checking and Abstract Interpretation - VMCAI (2015, 2014, 2013, 2010, 2006, 2005);

- Convegno Italiano di Logica Computazionale - CILC (2015, 2011);

- Italian Conference on Theoretical Computer Science - ICTCS (2014, 2018, 2021);

- International Static Analysis Symposium - SAS (2014, 2013, 2012, 2011,2007, 2006, 2005, 2004, 2003, 2002);

- IEEE Computer Security Foundations Symposium - CSF (2014, 2011, 2008);

- EACSL Annual Conference on Computer Science Logic - CSL (2013);

- International Symposium on Foundations & Practice of Security - FPS (2013);

- Semantics, Abstract Interpretation, and Reasoning About Programs: Essays Dedicated to David A. Schmidt on the Occasion of His 60th Birthday (2013);

- International Conference on Current Trends in Theory and Practice of Computer Science - SOFSEM (2013);

- European Symposium on Programming - ESOP (2019, 2013, 2012, 2010);

- International Symposium on Logic-Based Program Synthesis and Transformation - LOPSTR (2012, 2008);

- International Conference on Automated Deduction - CADE (2011);

- IEEE International Conferences on Intelligence and Security Informatics - ISI (2011);

- European Symposium on Research in Computer Security - ESORICS (2009);

- International Workshop on Formal Aspects in Security and Trust - FAST (2009);

- ACM SIGPLAN Workshop on Programming Languages and Analysis for Security - PLAS (2008);

- Logic Programming and Automated Reasoning - LPAR (2008);

- ACM Symposium on Applied Computing - SAC (2007);

- Conference on Programming Language Design and Implementation - PLDI (2006);

- Annual Asian Computing Science Conference - ASIAN (2006);

- International Conference on Tools and Algorithms for the Construction and Analysis of Systems - TACAS (2005);

- International Workshop on Source Code Analysis and Manipulation - SCAM (2005);

- Asian Symposium on Programming Languages and Systems - APLAS (2005);

- International Conference on Algebraic Methodology And Software Technology - AMAST (2004);

- Italian Conference on Cybersecurity - ITASEC (2021, 2019)

International journals

- ACM Transactions on Programming Languages and Systems - TOPLAS (2024)

- International Journal on Software Tools for Technology Transfer - STTT (2024)

- SN Computer Science - SNCS (2020)

- Journal of Systems and Software - JSS (2018)

- Fundamenta Informaticae (2017,2016);

- IEEE Transactions on Software Engineering (2015);

- Mathematical Problems in Engineering (2015);

- Central European Journal of Mathematics (2014);

- International Journal of Information Security - IJIS (2014);

- Leibniz Transactions on Embedded Systems - LITES (2013);

- Science of Computer Programming (2020,2013, 2005);

- Journal of Computer Security - JCS (2012);

- Central European Journal of Computer Science (2011);

- LNCS Transactions in Computational Science (2010);

- Computer Languages, Systems and Structures (2010);

- IEEE Transactions on Automatic Control (2009);

- Journal of Logic and Algebraic Programming (2009, 2008);

- Theoretical Computer Science - TCS (2019,2009, 2008);

- International Journal of Computer Mathematics (2008, 2007);

- Mathematical Structure on Computer Science - MSCS (2006);

- Higher-Order and Symbolic Computation - HOSC (2006, 2004);

Research projects

- FARE 2020 Framework per l'attrazione ed il rafforzamento delle eccellenze per la Ricerca in Italia (2021)

- Young researchers program "Rita Levi Montalcini" 2019

- PISCOPIA Fellowship Programme, Marie Curie Action, European Seventh Framework Programme. 2013

- Project "Assegni Ricerca" di Fondazione CARIGE, 2019

• PhD Theses

- Denis Mazzucato. Static Analysis by Abstract Interpretation of Quantitative Program Properties. Relatrice Prof. Caterina Urban - Inria - ENS/Université PSL - CNRS, 2024.

- Francesco Parolini. Static Analysis for Security Properties of Software by Abstract Interpretation. (Advisor Prof. Antoine Miné) - Sorbonne University, Paris, 2024.

- Raphael Monat. Static Type and Value Analysis by Abstract Interpretation of Python Programs with Native C Libraries. - (Advisor Prof. Antoine Miné) Sorbonne University, Paris, 2021

- Marc Chevalier. Proving the security of software-intensive embedded systems by abstract interpretation. (Advisor Prof. Xavier Rival) - Ecole Normale Superieure, Paris, 2020.

- Hugo Illous. Abstract Heap Relations for a Compositional Shape Analysis. (Advisor Prof. Xavier Rival) - Ecole Normale Superieure, Paris, 2019.

- Giulia Costantini. *Lexical and Numerical Domains for Abstract Interpretation*. (Advisor: Prof. Agostino Cortesi) - Department of Computer Science, University of Venezia, 2013.

- Matteo Centenaro. *Type-based Analysis of Security APIs*. (Advisor: Prof. Riccardo Focardi) - Department of Computer Science, University of Venezia, 2011.

Participation to International Conferences and Workshops

- International Workshop on Verification and Program Transformation - VPT: March 2021 - Luxemburg/Virtual (speaker)

- International Symposium on Foundations & Practice of Security - FPS: October 2015 - Clermont-Ferrand (speaker).

- International Workshop on Software Protection - SPRO: May 2015 - Florence (speaker)

- International Summer School on Information Security and Protection - ISSISP (2014): Speaker del Tutorial in "Static and Dynamic analysis".

- Dagstuhl Seminar 14241 - Challenges in Analysing Executables: Scalability, Self-modifying Code and Synergy: June 2014 (speaker)

- Workshop in Interferences and Dependencies (ID): 2013 - Roma (speaker)

- Dave Schmidt Festschrift, Semantics, Abstract Interpretation, and Reasoning about Programs (SAIRP): 2013 - Kansas (speaker)

- International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI): 2025 - Denver (session chair and speaker), 2013 - Rome (session chair), 2008 - San Francisco (speaker), 2004 - Venezia, 2003 - New York (speaker)

- ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL): 2025 - Denver (speaker), 2017 (session chair) - Parigi, 2013 - Roma, 2004 - Venezia (speaker), 2002 - Oregon

- ACM SIGPLAN Workshop on Partial Evaluation and Semantics-Based Program Manipulation (PEPM): 2008 - San Francisco (speaker), 2002 - Oregon (speaker)

- Conference on the Mathematical Foundations of Programming Semantics (MFPS): 2007 - New Orleans (speaker)

- International Workshop on Programming Language Interference and Dependence (PLID): 2007 - Danimarca (speaker, session chair), 2005 - Londra (speaker), 2004 - Verona (speaker)

- Workshop on Current and Emerging Research Issues in Computer Security (CERICS): 2006 - Royal Holloway (speaker)

- Conference of the European Association for Computer Science Logic (CSL): 2005 - Karpacz (speaker)

- European Symposium on Programming (ESOP): 2005 - Edinburgh (speaker),

- International Workshop "Mathematical Methods, Models and Architectures for Computer Networks Security" (MMM- ACNS): 2005 - St. Petersburg (speaker)

- International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS): 2005 - Uppsala (speaker)

- Asian Symposium on Programming Languages and Systems (APLAS): 2022 - Aucklad NZ (speaker), 2005 - Giappone (speaker)

- International Static Analysis Symposium (SAS): 2022 - Auckland NZ (speake, session chair), 2016 - Edinburgh (speaker), 2005 - Londra (speaker), 2004 - Verona, 2002 - Madrid, 2001 - Parigi

- Workshop on Formal Aspects in Security and Trust (FAST): 2004 - Pisa

- Symposium on Programs as Data Objects (PADO): 2001 - Danimarca (speaker)

- International Conference on Principles and Practice of Declarative Programming (PPDP): 2000 - Canada (speaker)

- APPIA-GULP-PRODE, Joint conference on Declarative Programming (AGP): 2000 - Cuba (speaker)

Member of program and organizing committee

• PC Chair

- PC chair of the "6th International Workshop on Numerical and Symbolic Abstract Domains" - NSAD (2016), co-located with SAS 2016;

- PC co-chair of the 14th International symposium on Verification, Model Checking and Abstract Interpretation - VMCAI (2013);

• Program committees

- Mathematical Foundations of Program Semantics - MFPS (2025, 2022)

- Italian Conference on Theoretical Computer Science - ICTCS (2021)

- International Conference on Emerging Security Information, Systems and Technologies - SECURWARE (2018)

- European Symposium on Programming - ESOP (2019, 2012):

- Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages - POPL (2023,2017);

- Program Protection and Reverse Engineering Workshop - PPREW (2015);

- Italian Conference on Computational Logic - CILC (2015, 2011);

- International symposium on Verification, Model Checking and Abstract Interpretation - VMCAI (2014);

- Italian Conference on Theoretical Computer Science - ICTCS (2014, 2018);

- International Static Analysis Symposium - SAS (2023, 2022, 2014, 2010);

- ERC (External Review Committee) of ACM SIGPLAN - SIGACT Symposium on Principles of Programming Languages - POPL (2013);

- International Symposium on Logic-Based Program Synthesis and Transformation - LOPSTR (2012);

- Workshop on Numerical and Symbolic Abstract Domains - NSAD (2012);

- ACM SIGPLAN Workshop on Programming Languages and Analysis for Security - PLAS (2008);

• Organizing committee

- Organizer and scientific committee member (together with Vincenzo Arceri and Antoine Miné) of the Lipari Summer School on Abstract Interpretation to be held in Semptember 1-7, 2024.

- Organizer (together with A. Gurfinkel, F. Logozzo, A. Miné, P. Mueller) of the 5-day Dagstuhl Seminar 20251 "Theoretical Advances and Emerging Applications in Abstract Interpretation" to be held in June 14th-19th, 2020 - cancelled due to pandemic situation.

- International Summer School on Information Security and Protection - ISSISP (2014);

- International symposium on Verification, Model Checking and Abstract Interpretation - VMCAI (2013);

- Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages - POPL (2013);

- International workshop on Programming Language Interference and Dependence - PLID (2004, 2005, 2007);

- International Static Analysis Symposium - SAS (2004);

PhD students Advisor

- Co-advisor del dott. Nicola Assolini, PhD student of the XXXVIII cycle of the Computer Science PhD, Computer Science Department - University of Verona.

- Advisor of Samuele Buro, PhD student of the XXXIII cycle of the Computer Science PhD, Computer Science Department - University of Verona.

- Advisor of Vincenzo Arceri, PhD student of the XXXII cycle of the Computer Science PhD, Computer Science Department - University of Verona.

- Advisor of Michele Pasqua, PhD student of the XXXI cycle of the Computer Science PhD, Computer Science Department - University of Verona.

Institutional responsibilities

• PhD Admission boards

- Member of admission board for the XL PhD cycle in Computer Science (2024). Computer Science department - University of Verona.

- Member of admission board for the XXXIII PhD cycle in Computer Science (2017). Computer Science department - University of Verona.

- Member of admission board for the XXX PhD cycle in Computer Science (2014). Computer Science department - University of Verona.

- Member of admission board for the XXVI PhD cycle in Computer Science (2010). Computer Science department - University of Verona

• PhD dissertation defense boards

- Member of the final defense board for the PhD in Computer Science of   Dr. FDenis Mazzuccato. PhD Inria - ENS/Université PSL - CNRS, Paris. 2024

- Member of the final defense board for the PhD in Computer Science of Dr. Francesco Parolini. PhD Sorbonne University Paris. 2024

- Member of the final defense board for the PhD in Computer Science of Dr. Raphael Monat. PhD Sorbonne University Paris. 2021

- Member of the final defense board for the PhD in Computer Science of Dr. Marc Chevalier. PhD Ecole Normale Superieure Paris. 2020

- Member of the final defense board for the PhD in Computer Science of Dr. Hugo Illous. PhD Ecole Normale Superieure Paris 2019

- Member of the final defense board for the PhD in Computer Science of Dr. Andrea Toppan (XXV ciclo) - PhD School of science engineering and medicine, University of Verona (June 18th, 2014).

- Member of the final defense board for the PhD in Computer Science of Dr. Bhattacharya Sukriti, Dr. Centenaro Matteo (XXIII ciclo) and Dr. Zabeo Alex (XXII ciclo). PhD School in Science and Technology, University Ca' Foscari Venezia. (February 22nd, 2011).

- Internal member of the final defense board for the PhD in Computer Science of Dr. Andrea Turrini - PhD Schools on Science, Engineering and Medicine, University of Verona. (May 15th, 2009).

• Non academic boards

Member of the board for a competitive examination for qualified candidates for n. 1 permanent full-time position at the CCIAA (Chamber of Commerce, Industry and Craft) of Verona. Professional profile: "Manager of information-technology services" working position of "Expert in information-technology services", 2010.

• Other commissions and/or participations

NOVEMBER 2023 - EXTANT
Director of the Percorso di Formazione iniziale docenti Classe A 41, Università di Verona.

NOVEMBER 2021 - MARCH 2024
AQ (Quality Assurance) Research Referent for the Computer Science Department.

JANUARY 2015 - EXTANT
AQ (Quality Assurance) Referent for the Bachelor Laurea Degree in Computer Science.

MARCH 2006 - EXTANT

- Member of the Computer science department - University of Verona;

- Member of the Computer Science PhD Board, Computer Science Department - University of Verona. Member of the evaluating boards of the following PhD students: Andrea Turrini, Enrico Visentini e Luigi Di Guglielmo, Durica Nikolic, Andrea Toppan, Tara Ghasempouri;

2014 - FEBRUARY 2018
Representative of the Computer Science Department in the scientific-administrative commission of the Meneghetti Library. University of Verona.

2010 - 2016

Member of the Joint Committee for cultural, sportive, and ricreative student activities - University of Verona.

2010 - 2012

Member of the didactic commission of the Master (magistrale) Laurea degree in Engineering and Computer Sciences.

Invitations

JUNE 28 2024, JUNE 16 2023, MAY 27 2022, JUNE 4 2021

Invited as speakerin the webinar in "Cybersecurity", organized in the "Corso di Perfezionamento in Frodi Aziendali: Individuazione, Contrasto e Prevenzione", Dipartimento di Economia Aziendale (Università di Verona) in the program "Master Tips on Internal Auditing & Fraud Prevention.

MAY 10 , 2019

Invited as speaker for a seminar on computer science security organized by CCIA "Sicurezza avanzata 4.0", Verona.

DECEMBER 14, 2018

Invited as speaker for a seminar on computer science security organized by CCIA "Sicurezza avanzata 4.0", Verona.

NOVEMBER 30, 2018

Invited as speaker for a seminar on computer science security organized by CCIA "Sicurezza avanzata 4.0", in the context of JOB&ORIENTA 2018. Verona.

MAY, 22ND 2018

Invited as speaker in the session "Protezione di sistemi e servizi" in the context of the conference ABI BANCHE E SICUREZZA 2018. Milan May 22-23 2018.

MARCH, 26TH 2018

Invited as a speaker about "Security and Industry 4.0" in the context of the conference "LA SICUREZZA INFORMATICA AI TEMPI DELL'INDUSTRIA 4.0",   organized by Confindustria. Verona March 26th.

JULY 9TH - JULY 14TH 2017

Invited to the Dagstuhl Seminar 17281 - Malware Analysis From Large-Scale Data Triage to Targeted Attack Recognition. Organizers: Saumya K. Debray (University of Arizona), Thomas Dullien (Zurich), Arun Lakhotia (University of Louisiana), Sarah Zennou (Airbus Group). (Declined)

MARCH 2ND - MARCH 5TH 2015

Invited to NII Shonan Meeting, title "Low level code analysis and applications to computer security". National Institute of Informatics (NII), Japan. (Declined)

Invited to the Dagstuhl Seminar 14241 - Challenges in Analysing Executables: Scalability, Self-modifying Code and Synergy. Organizers: Roberto Giacobazzi (University of Verona, IT), Axel Simon (TU München, DE), Sarah Zennou (EADS-Suresnes, FR).

Invited to Dagstuhl Seminar 14171 - Evaluating Software Verification Systems: Benchmarks and Competitions. Organizers: Dirk Beyer (Universität Passau, DE), Marieke Huisman (University of Twente, NL), Vladimir Klebanov (KIT – Karlsruhe Institute of Technology, DE), Rosemary Monahan (NUI Maynooth, IE). (Declined)

Invited speaker to the 27th CREST Open workshop - Malware CREST27, UCL, London.

Invited speaker to the 19th CREST Open workshop - Interference and Dependence CREST19, UCL, London.

Invited to participate as invited speaker to the 3rd Intern. Workshop on Numerical and Symbolic Abstract Domains (declined being in maternity leave).

Invited to the one-day workshop on security, at the École Normale Supériéure (Paris) organized by Patrick Cousot. Other speakers: Bruno Blanchet (ENS), Cédric Fournet (Microsoft Cambridge) and Jean Goubault-Larrecq (LSV/ENS Cacha).

Academic recognitions and awards

Awarded with an unrestricted grant by the Facebook's Research Operations and Academic Relations team for her work on Abstract interpretation for malware detection" (30.000$).

In the process of Research Quality Evaluation (VQR) 2004-2010, the following papers have been both evaluated as *Excellent*:

- R. Giacobazzi, I. Mastroeni (2005). Transforming semantics by abstract interpretation. THEORETICAL COMPUTER SCIENCE, vol. 337, p. 1-50, ISSN: 0304-3975

- R. Giacobazzi, I. Mastroeni (2010). Adjoining classified and unclassified information by Abstract Interpretation. JOURNAL OF COMPUTER SECURITY, vol. 18, p. 751-797, ISSN: 0926-227X, doi: 10.3233/JCS-2009-0382.

The CIVR commette (Area 01 "Mathematical and computer sciences") of the University of Verona selected for its quality the paper: R. Giacobazzi, I. Mastroeni (2004). *Abstract Non-*

Interference: Parameterizing Non-Interference by Abstract Interpretation. In: 31st Annual ACM SIGPLAN-SIGACT Symp. on Principles of Programming Languages (POPL'04).

2005

She is warded as the best italian PhD thesis of 2005 in theoretical computer science by the Italian Chapter of EATCS.

Publications

In the publications with more than one author the contribution to the publication is specified by using star keys on the name with the following meaning: * (major contribution), ** (equivalent contribution), *** (secondary contribution), **** (minor contribution).

• Papers on International Journals (Metrics 2015)

[J1] R. Giacobazzi and I. Mastroeni**. *Non-standard semantics for program slicing*. In Higher-Order and Symbolic Computation (HOSC). Special issue on Partial Evaluation and Semantics-Based Program Manipulation. 16(4), 297-339. December 2003. **CITATIONS: 21 (Scopus, 21 self-excluded), 39(Google scholar). METRICS: (2003) SJR 1,1, IF 1,50; H-index 26.**

[J2] I. Mastroeni. *Algebraic Power Analysis by Abstract Interpretation*. In Higher-Order and Symbolic Computation (HOSC), 17(4), 299-347. December 2004. **METRICS: (2004) SJR 1,37, IF 1,48; H-index 26.**

[J3] R. Giacobazzi and I. Mastroeni**. *Transforming Semantics by Abstract Interpretation*. In Theoretical Computer Science (TCS), 337(1-3), 1-50, June 2005. **METRICS: (2005) SJR 1,00, IF 1,06; H-index 87.**

[J4] R. Giacobazzi and I. Mastroeni*. *Adjoining classified and unclassified information by Abstract Interpretation*. Journal of Computer Security. 18(5): 751-797, 2010. **METRICS: (2010) SJR 1,02, IF 1,90; H-index 46**

[J5] R. Giacobazzi and I. Mastroeni*. *A Proof System for Abstract Non-Interference*. Journal of Logic and Computation, 20: 449-479. April 2010. **METRICS: (2010) SJR 0,87, IF 1,07; H-index 43.**

[J6] M. Balliu and I. Mastroeni**. *A Weakest Precondition Approach to Robustness*. Special issue of "LNCS Transactions on Computational Science" on Security in Computing, 10: 261-297 (2010).

[J7] I. Mastroeni* and R. Giacobazzi. *An Abstract Interpretation-based Model for Safety Semantics*. Journal of Computer Mathematics, 88(4): 665-694, 2011. **METRICS: (2011) SJR 0,37, IF 0,69; H-index 33.**

[J8] I. Mastroeni[*] and A. Banerjee. *Modeling Declassification Policies using Abstract Domain Completeness*. Special issue of "Mathematical Structures in Computer Science" on Programming Language Interference and Dependence, 21(6): 1253-1299, 2011. **METRICS: (2011) SJR 0,58, IF 1,22; H-index 24.**

[J9] R. Giacobazzi and I. Mastroeni[**]. *Making abstract models complete*. In Mathematical Structures in Computer Science, 26(4) pages 658 -701. Cambridge University Press. May 2016. **METRICS: (2016) SJR 0,22, IF 0,52; H-index 26.**

[J10] I. Mastroeni[*] and R. Giacobazzi. *Weakening additivity in adjoining closures*. ORDER, 33(3) pages 503-516. Springer, November 2016. **METRICS: (2016) SJR 0,47, IF 0,61; H-index 20.**

[J11] R. Giacobazzi, I. Mastroeni** and M. Dalla Preda. *Maximal Incompleteness as Obfuscation Potency*. Formal Aspects of Computing 29 (1) pages 3-31, 2017. **METRICS: (2016) SJR 0,43, IF 1,38; H-index 34.**

[J12] I. Mastroeni** and D. Zanardini. *Abstract Program Slicing: an Abstract Interpretation-based approach to Program Slicing*. ACM Transactions on Computational Logic 18 (1), 2017. **METRICS: (2016) SJR 0,637, IF 0,47; H-index 33.**

[J13] M. Dalla Preda and I. Mastroeni**. *Characterizing property-driven obfuscation*. Journal of Computer Security 26 (1) pages 31-69, 2018. **METRICS: (2016) SJR 0,37, IF 1,27; H-index 50.**

[J14] R. Giacobazzi and I. Mastroeni**. *Abstract Non-Interference: A Unifying Framework for Weakening Information Flow*. ACM Transactions on Privacy and Security (formerly TISSEC), 21(2): 9:1 - 9:31. 2018. **METRICS: (2016) SJR 0,835, IF 3,345; H-index 54.**

[J15] V. Arceri, I. Mastroeni and S. Xu. *Static Analysis for ECMAScript String Manipulation Programs*. APPLIED SCIENCES, Vol. 10, n. 3525, pp. 1-35, 2020.

[J16] S. Buro and I. Mastroeni. *On the semantic equivalence of language syntax formalisms*. Theoretical Computer Science, Vol. 840, pp. 234-248, 2020.

[J17] V. Arceri, M. Oliaro, A. Cortesi and I. Mastroeni. *Completeness of string analysis for dynamic languages*. Information and Computation, Vol. 4, n. 2, pp. 1-38, 2021.

[J18] V. Arceri and I. Mastroeni. *Analyzing Dynamic Code: A Sound Abstract Interpreter for evil eval*. ACM Transactions on Privacy and Security (formerly TISSEC), Vol. 281, pp. 1-25, 2021.

[J19] S. Buro, R. Crole, I. Mastroeni. On multi-language abstraction: Towards a static analysis of multi-language programs. FORMAL METHODS IN SYSTEM DESIGN. https://dx.doi.org/10.1007/s10703-022-00405-8

[J20] R. Giacobazzi, I. Mastroeni and E. Perantoni. 1. Adversies in Abstract Interpretation: Accommodating Robustness by Abstract Interpretation. ACM Trans. On Prog. Lang and Sys. (TOPLAS). 46(2): 5:1–5:31. https://doi.org/10.1145/3649309.

[J21] I. Mastroeni. Abstract domain adequacy - Weakening completeness towards static analysis precision. International Journal on Software Tools for Technology Transfer. https://doi.org/10.1007/s10009-024-00774-x

• Papers on International Conferences

[C1] R. Giacobazzi and I. Mastroeni[**]. *A characterization of symmetric semantics by domain complementation*. In Proc. of the 2nd Intern. Conf. on Principle and Practice of Declarative Programming (PPDP'00), pages 115-126, ACM press. Montreal, Canada, September 20-22, 2000.

[C2] I. Mastroeni, *Numerical power analysis*. In Proc. of the Symp. on Program as Data Object (PADO2), LNCS 2053, pages 117-137. Springer Verlag. Aarhus, Denmark, May 21-23, 2001.

[C3] R. Giacobazzi and I. Mastroeni[**]. *Compositionality in the puzzle of semantics*. In Proc. of the ACM SIGPLAN Symp. on Partial Evaluation and Semantics-Based Program Manipulation (PEPM'02), pages 87-97. Portland, Oregon, USA, January 14-15, 2002.

[C4] R. Giacobazzi and I. Mastroeni[**]. *Domain Compression for Complete Abstractions*. In Proc. of the 4th Intern. Conf. on Verification, Model Checking and Abstract Interpretation (VMCAI'03), LNCS 2575, pages 146-160, Springer-Verlag. New York University, New York, January 9-11, 2003.

[C5] R. Giacobazzi and I. Mastroeni[**]. *Abstract Non-Interference: Parameterizing Non-interference by Abstract Interpretation*. In Proc. of the 31st Annual ACM SIGPLAN-SIGACT Symp. on Principles of Programming Languages (POPL'04), pages 186-197. Venice, Italy, January 14-16, 2004. **CITATIONS: 101 (Scopus, 83 self-excluded), 181 (Google scholar). METRICS: (2004) SJR 2,5, IF 3,29; H-index 55.**

[C6] R. Giacobazzi and I. Mastroeni[*]. *Proving Abstract Non-interference*. In Proc. of the Annual Conf. on Computer Science Logic (CSL'04), LNCS 3210, pages 280-294, Springer-Verlag. Karpacz, Poland, September 20-24, 2004.

[C7] R. Giacobazzi and I. Mastroeni[*]. *Adjoining Declassification and Attack Models by Abstract Interpretation*. In Proc. of the European Symp. on Programming (ESOP'05), LNCS 3444, pages 295-310, Springer-Verlag. Edinburgh, UK, April 4-8, 2005. **CITATIONS: 16 (Scopus, 8 self-excluded), 27 (Google scholar).**

[C8] S. Hunt and I. Mastroeni[*]. *The PER model of Abstract Non-Interference*. In Proc. of the 12th Intern. Static Analysis Symp. (SAS '05). LNCS 3672, pages 171-185, Springer-Verlag. September 7-9, 2005. London, UK.

[C9] R. Giacobazzi and I. Mastroeni[*]. *Generalized abstract Non-Interference for Automata*. In Proc. of the 3rd Intern. Workshop "Mathematical Methods, Models and Architectures for Computer Networks Security" (MMM-ACNS-05). LNCS 3685, pages 221-234, Springer-Verlag. September 24-28, 2005, St. Petersburg, Russia.

[C10] R. Giacobazzi and I. Mastroeni[*]. *Timed Abstract Non-Interference*. In Proc. of the Intern. Conf. on Formal Modeling and Analysis of Timed Systems (FORMATS'05). LNCS 3829, pages 289-303, Springer-Verlag. September 26-28, 2005, Uppsala, Sweden.

[C11] I. Mastroeni. *On the Rôle of Abstract Non-Interference in language-based security*. In Proc. of the 3rd Asian Symp. on Programming Languages and Systems (APLAS'05). LNCS 3780, pages 418-433, Springer-Verlag. November 3-5, 2005 Tsukuba, Japan. **CITATIONS: 11 (Scopus, 4 self-excluded), 18 (Google scholar)**

[C12] A. Banerjee, R. Giacobazzi and I. Mastroeni[*]. *What you lose is what you leak: Information Leakage in Declassification Policies*. In Proc. of the 23rd Conf. on the Mathematical Foundations of Programming Semantics (MFPS'07). ENTCS. Tulane University New Orleans, LA USA April 11 - April 14, 2007. **CITATIONS: 13 (Scopus, 4 self-excluded), 23 (Google scholar).**

[C13] I. Mastroeni. *Deriving Bisimulations by Simplifying Partitions*. In Proc. of the 9th Intern. Conf. on Verification, Model Checking and Abstract Interpretation (VMCAI'08). LNCS 4905, pages 157-171, Springer-Verlag. January 7 - 9, 2008. San Francisco, CA, USA.

[C14] I. Mastroeni[**] and D. Zanardini. D*ata dependencies and program slicing: From syntax to abstract semantics.* In Proc. of the ACM SIGPLAN 2008 Symp. on Partial Evaluation and Program Manipulation (PEPM '08). Pages 125-134. January 7 - 8, 2008, San Francisco, CA, USA. **CITATIONS: 21 (Scopus, 14 self-excluded), 33 (Google scholar)**

[C15] R. Giacobazzi and I. Mastroeni[**]. *Transforming Abstract Interpretations by Abstract Interpretation New Challenges in Language-based Security*. Invited paper in Proc. of the 15th Intern. Static Analysis Symp. (SAS '08). LNCS 5079, pages 1 - 17. Springer. Valencia, Spain. July 16-18, 2008. **CITATIONS: 12 (Scopus, 7 self-excluded), 19 (Google scholar)**

[C16] M. Balliu and I Mastroeni[**]. *A weakest precondition approach to active attacks analysis*. In Proc. of the ACM SIGPLAN Programming Languages and Analysis for Security (PLAS '09). Pages 59-71. Dublin, Ireland. June 15, 2009.

[C17] I. Mastroeni[**] and D. Nikolic. *Abstract Program Slicing: From theory towards an implementation*. In Proc. of the 12th Intern. Conf. on Formal Engineering Methods (ICFEM'10). LNCS 6447, pages 452 - 467. Springer. Nov 16 - 19, 2010, Shanghai, China.

[C18] R. Giacobazzi, N. Jones and I. Mastroeni[**]. *Obfuscation by Partial Evaluation of Distorted Interpretation*. In Proc. of the ACM SIGPLAN 2012 Symp. on Partial Evaluation and Program Manipulation (PEPM '12). Pages 63 - 72. ACM press. Philadelphia, Pennsylvania, USA, January 23-24, 2012. **CITATIONS: 16 (Scopus, 11 self-excluded), 26 (Google scholar)**

[C19] R. Giacobazzi, I. Mastroeni[**] and D. Nikolic. *Strong Preservation by Model Deformation*. In Proc. of the 6th IEEE Intern. Symp. on Theoretical Aspects of Software

Engineering Conference (TASE '12). Pages 33 - 40. IEEE Computer Society Press. Beijing, China, 4-6 July 2012.

[C20] R. Giacobazzi, I. Mastroeni[**]. *Making abstract interpretation incomplete - Modeling the potency of obfuscation*. In Proc. of the 19th Intern. Static Analysis Symp. (SAS '12). LNCS 7460, pages 129 - 145. Springer LNCS. Deauville, France, 11-13 September 2012.

[C21] M. Dalla Preda, I. Mastroeni[**], R. Giacobazzi. *Formal Framework for Property-driven Obfuscations*. In Proc. of the 19th Intern. Symp. on Fundamentals of Computer Theory, FCT 2013, LNCS 8070 pages 133 - 144. Liverpool, UK. August 19 -21, 2013.

[C22] I. Mastroeni. *Abstract interpretation-based approaches to Security - A survey on Abstract non-Interference and its challenging application*. In Proc. of Semantics, Abstract Interpretation, and Reasoning about Programs: EPTCS 129 - Festschrift for Dave Schmidt 2013, pages 41 - 65. September 19 - 20, 2013.

[C23] M. Dalla Preda, I. Mastroeni[**], R. Giacobazzi. *Analyzing Program Dependencies for Malware Detection*. In Proc. of 3rd ACM SIGPLAN Program Protection and Reverse Engineering Workshop. PPREW 2014. January 25, 2014.

[C24] M. Dalla Preda, R. Giacobazzi, A. Lakhotia and I Mastroeni[**]. *Abstract Symbolic Automata - Mixed syntactic/semantic similarity analysis of executables*. In Proc. of the 42nd Annual ACM SIGPLAN- SIGACT Symp. on Principles of Programming Languages (POPL'14). pages 324 - 341. Mumbai, India. January 2015. **METRICS: (2014) SJR 1,1, IF 1,78; H-index 55.**

[C25] F. Bellini, R. Chiodi and I. Mastroeni**. *MIME: A Formal Approach to (Android) Emulation Malware Analysis (Short paper)*. In 8th International Symposium on Foundation & Practice of Security (FPS'15). Springer. Clermont-Ferrand, France, 26-28 October 2015.

[C26] M. Dalla Preda, R. Giacobazzi and I Mastroeni[**]. *Completeness in approximate transduction*. In 23rd InternationalStatic Analysis Symposium (SAS'16). Springer. Edinburgh , 8-10 September 2016.

[C27] R. Sartea, M. Dalla Preda, A. Farinelli, R. Giacobazzi and I Mastroeni[***]. *Active Android Malware Analysis: An approach based on stochastic Games*. In Software Security, Protection and Reverse Engineering Workshop (SS-PPREW'16). ACM. Los Angeles, California. December 2016.

[C28] I. Mastroeni** and M. Pasqua. *Hyperhierarchy of Semantics - A Formal Framework for Hyperproperties Verification*. In 24th InternationalStatic Analysis Symposium (SAS'17), pages232-252. Springer 2017.

[C29] M. Pasqua and I. Mastroeni***. *On topologies for (hyper)properties*. In 18th Italian Conference on Theoretical Computer Science (ICTCS'17). THEUR Workshop proceedings 1949, pages 140-161. 2017.

[C30] S. Buro and I. Mastroeni**. *Abstract Code Injection: A semantic Approach based on Abstract Non-Interference*. In 19th International Conf. On Verification, Model Checking and Abstract Interpretation (VMCAI'18). Springer LNCS 10747, pages 113-137. 2018.

[C31] I. Mastroeni** and M. Pasqua. *Verifying Bounded Subset-Closed Hyperproperties.* Accepted for publication in 25th InternationalStatic Analysis Symposium (SAS'18).

[C32] I. Mastroeni and M. Pasqua. *Statically Analyzing Information Flows - An Abstract Interpretation-based Hyperanalysis for Non-Interference*. In Proceedings ACM 34th Symposium on Applied Computing - Software and Verification Track (SAC - SVT '19). Volume Part F147772, 2019, Pages 2215-2223.

[C33] V. Arceri, M. Olliaro, A. Cortesi and I. Mastroeni. *Completeness of Abstract Domains for String Analysis of JavaScript Programs*. In proceedings of 16th International Colloquium on Theoretical Aspects of Computing (ICTAC '19) Springer LNCS 11884, Pages 255-272. 2019

[C34] S. Buro and I. Mastroeni. *On the Multi-Language Construction*. In proceedings of 28th European Symposium on Programming, (ESOP '19), ETAPS 2019. Springer LNCS 11423, Pages 293-321. 2019.

[C35] V. Arceri and I. Mastroeni. *An Automata-based Abstract Semantics for String Manipulation Languages*. In proceedings of 7th International Workshop on Verification and Program Transformation, VPT 2019. Electronic Proceedings in Theoretical Computer Science, EPTCS, Volume 299, 20 August 2019, Pages 19-33.

[C36] S. Buro and I. Mastroeni. *On the semantic equivalence of language syntax formalisms*. In proceedings of 20th Italian Conference on Theoretical Computer Science, (ICTCS '19). CEUR Workshop Proceedings Volume 2504. Pages 34-51. 2019

[C37] V. Arceri and I. Mastroeni. *A Sound Abstract Interpreter for Dynamic Code*. To appear in Proceedings ACM 35th Symposium n Applied Computing - Software and Verification Track (SAC - SVT '20). 2020.

[C38] S. Buro, R. L. Crole and I. Mastroeni. *On Multi-language Abstraction*. In Proceedings of the Static Analysis Symposium (SAS'20). November 18-20, 2020, pp. 310-332. 2020.

[C39] S. Buro, R. L. Crole and I. Mastroeni. *Equational logic and categorical semantics for multi-languages*. In Proceedings of the International Symp. On Mathematical Foundations of Computer Science (MFCS'20). June 2-5, 2020, pp. 1-17. 2020.

[C40] I. Mastroeni and V. Arceri. *Improving Dynamic Code Analysis by Code Abstraction*. In Proceedings of Verification and program transformation (VPT'20). Virtual - Luxemburg 27 March 2021 through 28 March 2021, pp. 17-32, 2021.

[C41] I. Mastroeni and M. Pasqua. *Verifying Opacity by Abstract Interpretation*. In Proceedings of ACM 37th Symposium on Applied Computing - Software and Verification Track (SAC - SVT '22). Virtual Conference April 25 - April 29, 2022, pp. 1808-1817, 2022.

[C42] V. Arceri, I. Mastroeni, E. Zaffanella. *Decoupling the Ascending and Descending Phases in Abstract Interpretation*. APLAS 2022: 25-44

[C43] R. Giacobazzi, I. Mastroeni. *Property-Driven Code Obfuscations Reinterpreting Jones-Optimality in Abstract Interpretation*. SAS 2022: 247-271

[C44] I. Mastroeni, M. Pasqua. *Domain Precision in Galois Connection-Less Abstract Interpretation*. SAS 2023: 434-459

[C45] R. Giacobazzi, I. Mastroeni, E. Perantoni. *How Fitting is Your Abstract Domain?* SAS 2023: 286-309

[C46] N. Assolini, A. Di Pierro, I. Mastroeni. *Static Analysis of Quantum Programs.* SAS 2024:1-25.

[C47] N. Assolini, A. Di Pierro, I. Mastroeni: Abstracting Entanglement. NSAD 2024: 34-41.

[C48] N. Assolini, A. Di Pierro, I. Mastroeni: A Static Analysis of Entanglement. VMCAI (2) 2025: 50-71

[C49] I. Mastroeni: Abstract Local Completeness - A Local Form of Abstract Non-interference. VMCAI (2) 2025: 3-25

• Papers on International Workshops and other form of publication

[O1] R. Giacobazzi and I. Mastroeni[**]. *Designing semantics by domain complementation*. Joint conference on Declarative programming 2000 (AGP'00). La Habana, Cuba, December 4-6, 2000.

[O2] S. Genaim, R. Giacobazzi and I. Mastroeni[**]. *Modeling Information Flow Dependencies with Boolean Functions*. 2004 IFIP WG 1.7, ACM SIGPLAN and GI FoMSESS Workshop on Issues in the Theory of Security (WITS'04). Barcelona, Spain, April, 2004.

[O3] I. Mastroeni and R. Rossato. *Weakening Abstract non-Interference on Databases (Abstract).* Workshop on Current and Emerging Research Issues in Computer Security (CERICS'06). Royal Holloway, University of London, July 2006.

[O4] M. Dalla Preda and I. Mastroeni. *Chasing infections by unveiling program dependencies*. In Proc. of the 1st Workshop in Interferences and Dependencies (ID'13). Rome, Italy, 21 January 2013.

[O5] M. Dalla Preda and I Mastroeni[**]. *Infections as Abstract Symbolic Finite Automata: Forma Model and Applications.* In 1st International Workshop on Software PROtection (SPRO'15). IEEE. Firenze, Italia. May 19, 2015.

[O6] I. Mastroeni** and D. Zanardini. *Abstract Program Slicing: an Abstract Interpretation-based approach to Program Slicing*. CoRR abs/1605.05104 (2016)

[O7] V. Arceri, M. Dalla Preda, R. Giacobazzi and I. Mastroeni. *SEA: String Executability Analysis by Abstract Interpretation*. CoRR abs/1702.02406 (2017)

[O8] R. Giacobazzi, A. Lovato and I. Mastroeni. *ARCTIC: A Static Analyzer for COBOL-85 Programs.* In the 9th Workshop on Tools for Automatic Program Analysis (TAPAS 2018).

[O9] V. Arceri and I. Mastroeni. *An Automata-based Abstract Semantics for String Manipulation Languages*. CoRR abs/1808.07827 (2018).

• Technical reports and papers submitted for publication

[T1] R. Giacobazzi and I. Mastroeni[**]. *Abstract Non-Interference*. Technical Report RR 60/2008. Department of Computer science, University of Verona, May 2008.

[T2] I. Mastroeni[*] and A. Banerjee. *Modeling Declassification Policies using Abstract Domain Completeness*. Technical Report RR 61/2008. Department of Computer science, University of Verona, May 2008.

[T3] R. Giacobazzi and I. Mastroeni[*]. *A Proof System for Abstract Non-Interference*. Technical Report RR 62/2008. Department of Computer science, University of Verona, May 2008.

[T4] R. Giacobazzi and I. Mastroeni[*]. Adjoining classified and unclassified information by Abstract Interpretation. Technical Report RR 63/2008. Department of Computer science, University of Verona, May 2008.

[T5] I. Mastroeni[*] and R. Giacobazzi. An Abstract Interpretation-based Model for Safety Semantics. Technical Report RR 72/2009. Department of Computer science, University of Verona, May 2009.

[T6] I. Mastroeni[*] and R. Giacobazzi. *Weakening residuation in adjoining closures*. Technical Report RR 95/2015. Department of Computer science, University of Verona, August 2015.

[T7] F. Bellini, R. Chiodi and I. Mastroeni. *MIME: A Formal Approach for Multiple Investigation in (Android) Malware Emulation Analysis*. Technical Report RR 97/2015. Department of Computer science, University of Verona, August 2015.

[T8] S. Buro and I. Mastroeni. *KArMA - A Knowledge-Aided Monitoring Approach for SQL Injection Attacks*. Technical Report RR 102/2017. Department of Computer science, University of Verona, April 2017.

[T10] M. Campion, I. Mastroeni, M. Pasqua, C. Urban. Abstract Lipschitz Continuity. 2025. ffhal-04935306

• Other publications

[L1] I. Mastroeni[**] and C. Priami. *Semantica operazionale: Strumenti e Applicazioni (Linguaggi Imperativi e Funzionali)*, CEDAM, ISBN 88-13-22138-X, 1999, Padova.

[E1] R. Giacobazzi, J. Berdine, I. Mastroeni[**] (Eds.): Verification, Model Checking, and Abstract Interpretation, 14th International Conference, VMCAI 2013, Rome, Italy, January 20-22, 2013. Proceedings. Lecture Notes in Computer Science 7737, Springer 2013, ISBN 978-3-642-35872-2.

[E2] I. Mastroeni (Ed.): Preface Symbolic and Numerical Abstract Domains, 6th International Workshop (NSAD 2016). Elect. Notes in Theor. Comp. Science 331: 1-2 (2017) Edinburgh, United Kingdom.

[E3] Arie Gurfinkel, Isabella Mastroeni, Antoine Miné, Peter Müller, and Anna Becchi (Eds): Theoretical Advances and Emerging Applications in Abstract Interpretation - Report from Dagstuhl Seminar 23281. Dagsthul Reports, Vol. 13, Issue 7, pp. 66–95 (2024).
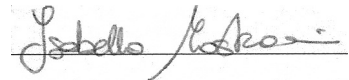
• Publication analysis (Updated February 2025)

- 21 riviste internazionali, 49 congressi internazionali (3 con ISSN)

- H-index: 15 (Scopus), 19 (Google Scholar)

- Citazioni totali: 740 (Scopus), 1270 (Google Scholar)

The undersigned Isabella Mastroeni, born in Legnago August 29th, 1977, living in Legnago, Via Padana Inf. Est 24B, Fiscal Code MSTSLL77M69E512T, states that everything that is declared in this document is the truth, by artt. 46 e 47 of D.P.R. 445/2000.

Verona, 18th February 2025

Isabella Mastroeni