

# Claudio Menghi

## Curriculum Vitae

✉ [claudio.menghi@unibg.it](mailto:claudio.menghi@unibg.it)  
🌐 <http://claudiomenghi.github.io>

### Employment

- 10/2024 - Now **Associate Professor**  
Institution: University of Bergamo  
Address: Via A. Einstein, 2 24044 Dalmine, Italy
- 01/2023 - 09/2024 **Assistant Professor (RTDB)**  
Institution: University of Bergamo  
Address: Via A. Einstein, 2 24044 Dalmine, Italy
- 03/2023 - Now **Adjunct Professor**  
Institution: McMaster University  
Address: 1280 Main St W, Hamilton, ON L8S 4L8, Canada
- 11/2021 - 31/2022 **Assistant Professor**  
Institution: McMaster University  
Address: 1280 Main St W, Hamilton, ON L8S 4L8, Canada
- 10/2018 - 10/2021 **Research Associate**  
*Project: TUNE - Testing the Untestable*  
Supervisor: Prof. Lionel C. Briand  
Institution: University of Luxembourg  
Address: 2 Av. de l'Universite, 4365 Esch-sur-Alzette, Luxembourg
- 04/2017 - 09/2018 **Postdoctoral Researcher**  
*Project: Co4robots - Achieving Complex Collaborative Missions via Decentralized Control and Coordination of Interacting Robots*  
Supervisor: Prof. Patrizio Pelliccione  
Institution: Chalmers | University of Gothenburg  
Address: 405 30 Gothenburg, Sweden
- 12/2016 - 04/2017 **Postdoctoral Researcher**  
*Project: GOF4R - Technical Aspects Concerning The Governance*  
Supervisor: Prof. Matteo Rossi  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 11/2015 - 11/2016 **Postdoctoral Researcher**  
*Project: Architetture a servizi complesse per il cloud*  
Supervisor: Prof. Luciano Baresi  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 10/2005 - 10/2005 **Internship - Research and Development**  
Institution: Banca Popolare di Sondrio  
Address: Piazza Garibaldi Giuseppe, 16, 23100 Sondrio SO, Italy
- 06/2015 - 09/2005 **Internship - Network office**  
Institution: Banca Popolare di Sondrio  
Address: Piazza Garibaldi Giuseppe, 16, 23100 Sondrio SO, Italy

Date: 04 February 2025

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## Professional Qualifications

- 06/2022 - 06/2032 **Scientific qualification for the functions of second-level professor (Abilitazione Scientifica Nazionale - 01/B1 INFORMATICA)**  
*FASCIA: II*  
(art. 16, comma 1, Legge 240/10)
- 06/2022 - 06/2032 **Scientific qualification for the functions of second-level professor (Abilitazione Scientifica Nazionale - 09/H1 SISTEMI DI ELABORAZIONE DELLE INFORMAZIONI)**  
*FASCIA: II*  
(art. 16, comma 1, Legge 240/10)

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## Education and Training

- 11/2012 - 10/2015 **Doctor of Philosophy in Computer Science and Engineering (with merit)**  
*Thesis: Dealing with Incompleteness in Automata Based Model Checking*  
Supervisors: Prof. Carlo Ghezzi, Prof. Paola Spoletini  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 02/2010 - 10/2012 **Master of Engineering in Computer Engineering (110/110 cum laude)**  
*Thesis: Contextual, Requirements-Driven, Adaptive Access Control*  
Supervisors: Prof. Carlo Ghezzi, Prof. Bashar Nuseibeh, Dr. Liliana Pasquale, Dr. Luca Cavallaro, Dr. Mazeiar Salehie, Dr. Raian Ali  
In collaboration with LERO (The Irish Software Engineering Research Centre) and UTRC (United Technologies Research Centre)  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 09/2006 - 02/2010 **Bachelor of Engineering in Computer Engineering (103/110)**  
*Thesis: Modellistica, Identificazione e Controllo di una Rete Elettrica Isolata di Piccole Dimensioni - Modeling, Identification, and Control of a Small Electrical Network*  
Supervisor: Prof. Sergio Bittanti  
In collaboration with RSE (Ricerca Sistema Energetico) - CESI Ricerca (Centro elettrotecnico Sperimentale Italiano)  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 09/2001 - 07/2006 **High School Diploma: Information Systems Technician (100/100)**  
Institution: Istituto Tecnico Industriale E. Mattei, Sondrio  
Address: Via Tirano, 53, 23100 Sondrio SO, Italy

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## Additional Education

- 09/2013 **LASER Summer School on Software Engineering**  
*Software for the Cloud and Big Data*  
September 8-14, 2013 - Elba Island, Italy
- 07/2014 - 08/2014 **Summer School Marktoberdorf**  
*Dependable Software Systems Engineering*  
July 29 to August 10, 2014 - Marktoberdorf, Germany

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## Collaboration with Industrial Partners

- 10/2018 - 10/2021 **LuxSpace (<https://luxspace.lu/>) and QRA Corp (<https://qracorp.com/>)**  
*Project: TUNE - Testing the Untestable*

- 04/2017 - 10/2018 **BOSCH** (<https://www.bosch.com/>) and **PAL Robotics** (<http://pal-robotics.com/>)  
*Project: Co4robots - Achieving Complex Collaborative Missions via Decentralized Control and Coordination of Interacting Robots*
- 10/2011 - 06/2012 **United Technologies Research Centre (UTRC) and The Irish Software Engineering Research Centre (LERO)**  
*Project: Master Thesis*
- 11/2008 - 02/2010 **RSE** (<http://www.rse-web.it>) and **CESI Ricerca** (<https://www.cesi.it>)  
*Project: Bachelor Thesis*

## Teaching Experience

- 09/2024 - 12/2024 **Teacher**  
**PROGRAMMAZIONE AVANZATA - 38090-MOD2**  
 Università degli studi di Bergamo  
 Crediti: 6 CFU  
 Teaching (32), Exercises (16)
- 01/2024 - 06/2024 **Teacher**  
**PROGRAMMAZIONE AD OGGETTI - 218517**  
 Università degli studi di Bergamo  
 Crediti: 6 CFU  
 Teaching (32), Exercises (32), Tutoring (12)
- 09/2023 - 12/2023 **Teacher**  
**PROGRAMMAZIONE AVANZATA - 38090-MOD2**  
 Università degli studi di Bergamo  
 Crediti: 6 CFU  
 Teaching (32), Exercises (16)
- 01/2023 - 06/2023 **Teacher**  
**PROGRAMMAZIONE AD OGGETTI - 218517**  
 Università degli studi di Bergamo  
 Crediti: 6 CFU  
 Teaching (32), Exercises (32)
- 09/2022 - 12/2022 **Teacher**  
**MECHTRON 3K04 & SFWRENG 3K04 - Software Development**  
 McMaster University  
 4 units (A unit is roughly equivalent to one lecture-hour per week for one term or two hours of laboratories or seminars per week for one term)  
 Three lectures, one lab (three hours); first term;  
 Course taking during the Fall term (62 days)
- 01/2022 - 04/2022 **Teacher**  
**SFWRENG 3MD3 - Safe Software-Intensive Medical Devices**  
 McMaster University  
 3 units (A unit is roughly equivalent to one lecture-hour per week for one term or two hours of laboratories or seminars per week for one term)  
 Three lectures, one lab (two hours); one term  
 Course taking during the Winter term (62 days)
- 08/2017 - 12/2017 **Teaching Assistant**  
**Model-Driven Software Development**  
 Prof. Patrizio Pelliccione  
 Chalmers | University of Gothenburg  
 Address: 405 30 Gothenburg, Sweden

- 03/2016 - 07/2016 **Teaching Assistant (40 hours)**  
*Ingegneria del Software e Prova Finale (Ingegneria del Software)*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2016 - 07/2016 **Laboratory Responsible/Teaching Assistant (32 hours)**  
*Prova Finale di Ingegneria del Software*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2015 - 07/2015 **Teaching Assistant (28 hours)**  
*Ingegneria del Software*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2015 - 07/2015 **Teaching Assistant (16 hours)**  
*Prova Finale di Ingegneria del Software*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2014 - 07/2014 **Laboratory Responsible/Teaching Assistant (32 hours)**  
*Prova Finale di Ingegneria del Software*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2013 - 07/2013 **Teaching Assistant (36 hours)**  
*Elementi di Informatica e Reti di Calcolatori*  
Prof. Gianpaolo Cugola  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy
- 03/2011 - 07/2011 **Laboratory Tutor (32 hours)**  
*Prova Finale di Ingegneria del Software*  
Prof. Carlo Ghezzi  
Politecnico di Milano, Milano, Italy  
Address: Piazza Leonardo da Vinci, 32 20133 Milano, Italy

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## Teaching Training

- 08/2021 - 09/2021 **Instructional Skills Workshop**  
*Offered through the Paul R. MacPherson Institute for Leadership, Innovation and Excellence in Teaching*  
McMaster University
- 2021 **Formal Methods Teaching Workshop and Tutorial (FMTea)**  
*Co-located with FM (International Symposium on Formal Methods)*  
<https://fmtea.github.io/>

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## Honors and Awards

- 2024 **IEEE Computer Society TCSE Synergy Award**  
*Awards a Research Center or Institute for outstanding contributions that stand as an exemplar in the software engineering community of an effective partnership between industry and universities.*  
As a member of the McMaster Center for Software Certification (McSCert, Canada)

- 2024 **Reviewer Recognition**  
*Certificate of acknowledges*  
 Journal of Software and Systems Modeling
- 2023 **ISSS Scientific Achievement Award**  
*The Scientific Achievement Award is presented to an individual or group that has made significant contributions to the advancement of system safety through research and development programs.*  
 For the Assurance Case Argument for the Machine Protection System (MPS) of the CERN Large Hadron Collider (LHC)  
 International System Safety Society
- ACM TOSEM Distinguished Reviewer**
- Best Reviewer Award**  
*IEEE/ACM Journal of Software and Systems Modeling (SoSyM)*  
 This award recognizes your effort as one of the "Top 3% of SoSyM Reviewers"
- 2022 **Distinguished Reviewer Award**  
*IEEE/ACM International Conference on Automated Software Engineering (ASE 2022)*
- 2021 **Outstanding Paper Award**  
*PuRSUE - From Specification of Robotic Environments to Synthesis of Controllers, M. Bersani, C. Menghi, P. Pelliccione, M. Rossi, Formal Aspects of Computing (FAOC), 2020*  
 Selected as an outstanding paper from the high quality partner journals and presented in the journal-first track of the FM 2021
- Reviewer Recognition**  
*Certificate of acknowledges*  
 Journal of Software and Systems Modeling
- Reviewer Recognition**  
*Certificate of Reviewing*  
 Information and Software Technology
- 2020 **Reviewer Recognition**  
*Certificate of acknowledges and appreciation*  
 Journal of Software and Systems Modeling
- 2019 **ACM SIGSOFT Distinguished Paper Award**  
*Claudio Menghi, Shiva Nejati, Khoulood Gaaloul, and Lionel Briand*  
 Generating Automated and Online Test Oracles for Simulink Models with Continuous and Uncertain Behaviors  
 European Software Engineering Conference and Symposium on the Foundations of Software Engineering — ESEC/FSE
- 2019 **Reviewer Recognition**  
*Certificate of acknowledges and appreciation*  
 Journal of Software and Systems Modeling
- 2014 **ACM Grant CAPS - for SIGSOFT Grants/ICSE 14**  
*Expense reimbursement*  
 US Dollars: 1,200
- 2012 **Borsa di studio per tesi all'estero 2011-2012 (Thesis Scholarship)**  
*Politecnico di Milano*  
 Euro: 2,500
- 2010 **Selected for a Double Degree Programme — Offer Declined**  
*Norwegian University of Science and Technology (NTNU), Trondheim, Norway and Politecnico di Milano, Milano, Italy*  
 Declined for Personal Reasons

2008 **Borsa di Studio Anno 2008 (Scholarship)**  
*Comunità Montana Valtellina di Sondrio*  
Euro: 1,000

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## Memberships

- 07/2021 - Now **ACM Transactions on Autonomous and Adaptive Systems (TAAS)**  
*Board of Distinguished Reviewers*
- 04/2020 - Now **ACM Transactions on Software Engineering and Methodology (TOSEM)**  
*Board of Distinguished Reviewers*
- 07/2021 - Now **ACM Transactions on Autonomous and Adaptive Systems (TAAS)**  
*Board of Distinguished Reviewers*
- 2018 - Now **Institute of Electrical and Electronics Engineers (IEEE)**
- 2019 - Now **Association for Computing Machinery (ACM)**
- 2019 - Now **Formal Methods Europe (FME)**
- 2019 - Now **Member of the FME Communications Committee**  
<http://www.fmeurope.org/communications/>

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## Service

### **Committee Member**

31/03/2023 - *Master Degree Evaluation Committee*  
31/03/2023 - *Test Online CISIA to Enter University*  
22/12/2023 - *Master Degree Evaluation Committee*  
27/03/2024 - *Master Degree Evaluation Committee*

- 25/05/2023 **Member of the Dissertation Defence Jury**  
*Defence by Dr. Livia LESTINGI*  
Dissertation Title: Model-Driven Development of Formally Verified Human-Robot Interactions  
Institution: Politecnico di Milano  
Address: Piazza Leonardo da Vinci, 32, Milano, Italy
- 15/10/2021 **Vice-chair Dissertation Defence Jury**  
*Defence by Dr. Khouloud GAALLOUL*  
Dissertation Title: Verification of Design Models of Cyber-Physical Systems Specified in Simulink  
Institution: University of Luxembourg  
Address: 2 Av. de l'Universite, 4365 Esch-sur-Alzette, Luxembourg
- 2015 **Student Volunteer**  
*Foundations of Software Engineering Conference (ESEC/FSE)*
- 2014 **Student Volunteer**  
*International Conference on Software Engineering (ICSE)*
- 2013 **Student Volunteer**  
*International Requirements Engineering Conference (RE)*

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## Conference/Workshop Organization

- 2021 **Formal Methods Teaching Workshop and Tutorial (FMTea)**  
*Co-located with FM (24th International Symposium on Formal Methods)*  
<https://fmtea.github.io/>

- 2020 **Workshop on Agents and Robots for reliable Engineered Autonomy (AREA)**  
*Co-located with ECAI (European Conference on Artificial Intelligence)*  
<https://area2020.github.io/>

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## Editorial Activities

- 09/2020 - 03/2021 **Guest Editor**  
*Special Issue "Agents and Robots for Reliable Engineered Autonomy"*  
Journal of Sensor and Actuator Networks  
[https://www.mdpi.com/journal/jsan/special\\_issues/REA](https://www.mdpi.com/journal/jsan/special_issues/REA)

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## Research Projects and Grants

- 2024 **Mitacs Globalink Research Award - for research in Canada**  
*Project: Design by Contract Approach to Support Software Updates of CPS*  
Students: AURORA ZANENGA and MARCO BISCEGLIA  
Home academic supervisor: Claudio Menghi  
Host academic supervisor: Marsha Chechik  
Funding: CAD 12,000.00 CAD - 6,000.00 CAD per student
- 2023 **Alliance Grant**  
*Project: Safety Assurance for Automotive Over the Air Updates: Unit-Level Modeling, Testing and Analysis*  
Principal Investigator: Prof. Chechik Marsha  
Collaborator: Prof. Menghi Claudio  
Funding: Not Available
- 2022 **Mitacs Discovery Grants Program**  
*Project: Automated Support for Cyber-Physical Systems Design: from Theory to Practice*  
Principal Investigator: Claudio Menghi  
Funding: 125,000 CAD (25,000 CAD a year for five years)
- 2022 **Mitacs DGEGR - Discovery Launch Supplement**  
*Project: Automated Support for Cyber-Physical Systems Design: from Theory to Practice*  
Principal Investigator: Claudio Menghi  
Funding: CAD 12,500
- 2021 **Startup Research Grant for Newly Recruited Faculty**  
*Principal Investigator*  
McMaster University  
Total Funding - **Confidential**

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## PC Membership

- 2024 *Formal Methods (FM),  
Rigorous state-based methods (ABZ),  
International Conference on Software Engineering - Demo Track (ICSE - Demo),  
International Conference on Model Driven Engineering Languages and Systems (MODELS)  
IEEE/ACM International Conference on Automated Software Engineering (ASE).  
ACM International Conference on the Foundations of Software Engineering (FSE) — Poster  
ACM International Conference on the Foundations of Software Engineering (FSE) — Ideas,  
Visions and Reflections*

- 2023 *Formal Methods (FM)*,  
*Dependability and Trustworthiness of Safety-Critical Systems with Machine Learned Components (SE4SafeML)*,  
*Workshop on Formal Methods for Autonomous Systems (FMAS)*,  
*Conference On Formal Methods In Software Engineering (FormalISE)*,  
*IEEE International Conference on Software Testing (ICST)*,  
*IEEE International Symposium on Software Reliability Engineering (ISSRE)*,  
*Workshop on Robotics Software Engineering (RoSE)*
- 2022 *International Conference on Software Engineering and Formal Methods (SEFM)*  
*International Conference on Automated Software Engineering (ASE)*  
*International Conference on Software Engineering - NIER (ICSE-NIER)*  
*Software Engineering for Adaptive and Self-Managing Systems (SEAMS) – Doctoral track*  
*Second Workshop on Agents and Robots for reliable Engineered Autonomy (AREA)*  
*European Conference on Software Architecture (ECSA) Post-Proceedings*  
*International Workshop on Advanced DevOps, Analysis Tools and Reengineering Practices for AI-based, Cyber-physical, and Distributed Systems (ADEVOPS4IoT SYS)* *Workshop on Formal Approaches for Advanced Computing Systems (FAACS)*  
*Workshop on Formal Methods for Autonomous Systems (FMAS)*
- 2021 *Software Engineering and Formal Methods (SEFM)*  
*International Conference on Automated Software Engineering (ASE) - Breaking Results*  
*International Conference on Automated Software Engineering (ASE) - Tool Demonstrations*  
*MODELS - Student Research Competition*  
*Workshop on Formal Methods for Autonomous Systems (FMAS)*  
*Quality and Reliability Assessment for Robotics Software Architecture and Components (QRARSAC)*  
*Quality and Reliability Assessment for Robotics Software Architecture and Components (IROS)*  
*International Symposium on Software Reliability Engineering Workshops (ISSREW) - GAUSS 2021*  
*Workshop on Formal Approaches for Advanced Computing Systems (FAACS)*  
*Software Architecture: Theory, Technology, and Applications (SA-TTA)*
- 2020 *Conference On Formal Methods In Software Engineering (FormalISE)*  
*Workshop on Formal Methods for Autonomous Systems (FMAS)*  
*Workshop on Formal Approaches for Advanced Computing Systems* *Workshop on Formal Approaches for Advanced Computing Systems (FAACS)*  
*Software Architecture: Theory, Technology, and Applications (SA-TTA)*
- 2019 *Foundations of Software Engineering (ESEC/FSE) - Student Research Competition*  
*Workshop on Robotics Software Engineering (ROSE)*  
*Workshop on Formal Approaches for Advanced Computing Systems (FAACS)*  
*Software Architecture: Theory, Technology, and Applications (SA-TTA)*
- 2018 *Conference On Formal Methods In Software Engineering (FormalISE)*  
*International Workshop on Robotics Software Engineering (ROSE)*

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## Reviewer Service

- 2025 *IEEE International Conference on Robotics and Automation (ICRA)*
- 2024 *Transactions on Software Engineering and Methodology (TOSEM)*  
*IEEE Transactions on Software Engineering (TSE)*  
*Software and Systems Modeling (SoSyM)*  
*Software: Practice and Experience (SPE).*



- 2023 *Transactions on Software Engineering and Methodology (TOSEM)*  
*IEEE Transactions on Software Engineering (TSE)*  
*Software and Systems Modeling (SoSyM)*  
*Software: Practice and Experience (SPE).*
- 2022 *IEEE Transactions on Software Engineering (TSE)*  
*IEEE Transactions on Autonomous and Adaptive Systems (TAAS)*  
*ACM Transactions on Embedded Computing Systems*  
*IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*  
*IEEE Transactions on Robotics*
- 2021 *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*  
*IEEE Transactions on Autonomous and Adaptive Systems (TAAS)*  
*IEEE Transactions on Software Engineering (TSE)*  
*ACM Transactions on Embedded Computing Systems*  
*Software and Systems Modeling (SOSYM)*  
*Journal of Software: Evolution and Process (J. Softw.: Evol. Process)*  
*IET Software*  
*International Journal on Software Tools for Technology Transfer (STTT)*
- 2020 *Software and Systems Modeling (SOSYM)*  
*IEEE Software*  
*IEEE Transactions on Reliability*  
*IEEE Robotics and Automation Letters*  
*Journal of Systems and Software (JSS)*  
*Transactions on Services Computing*  
*Software: Practice and Experience*
- 2019 *Software and Systems Modeling (SOSYM)*  
*Transactions on Software Engineering and Methodology (TOSEM)*  
*IET Software*  
*Journal of Systems and Software (JSS)*  
*Journal of Software: Practice and Experience*
- 2017 *Transactions on Autonomous and Adaptive Systems (TAAS)*
- 2014 *Science of Computer Programming*

## Supervision of Individuals

### PhD Students

- 05/2022-04/2026 **Federico Formica**  
 McMaster University, Canada
- 10/2018-09/2021 **Khouloud Gaaloul**  
*Ph.D. Thesis "Verification of Design Models of Cyber-physical Systems Specified in Simulink"*  
**Excellent Thesis Award from the Doctoral School in Science and Engineering (DSSE)**  
**of the University of Luxembourg**  
 Co-supervised with Shiva Nejati  
 University of Luxembourg, Luxembourg
- 10/2019-09/2021 **Chaima Boufaied**  
*Ph.D. Thesis "Specification and Model-driven Trace Checking of Complex Temporal Properties"*  
 Co-supervised with Domenico Bianculli  
 University of Luxembourg, Luxembourg

01/2017-10/2018 **Sergio García Gonzalo**  
*Ph.D. Thesis "Service Robotics Software Engineering"*  
Co-supervised with Patrizio Pelliccione, Thorsten Berger  
Chalmers | University of Gothenburg, Sweden

### Master Students

10/2023-12/2024 **Aurora Francesca Zanenga**  
*Master Thesis "A Design-by-Contract Approach to Support Software Updates of Cyber-Physical System"*  
Co-supervised with Prof. Marsha Chechik and Dr. Mehrnoosh Askarpour  
University of Bergamo, Italy

10/2023-12/2024 **Marco Nunzio Bisceglia**  
*Master Thesis "A Design-by-Contract Approach to Support Software Updates of Cyber-Physical System"*  
Co-supervised with Prof. Marsha Chechik and Dr. Mehrnoosh Askarpour  
University of Bergamo, Italy

09/2022-08/2024 **Fanping Jiang**  
McMaster University, Canada

10/2019-12/2020 **Enrico Viganò**  
*Master Thesis "SMT-based Trace Checking of CPS Properties"*  
Co-supervised with Domenico Bianculli, Lionel C. Briand, Matteo Rossi  
Politecnico di Milano, Italy

03/2018-04/2019 **Matteo Soldo**  
*Master Thesis: "User-Friendly controller synthesis for multi-agent robotic applications in presence of agents with unknown with unknown behavior"*  
Co-supervised with Marcello Bersani, Patrizio Pelliccione, Matteo Rossi  
Politecnico di Milano, Italy

07/2017-10/2018 **Master Gabriele Belli**  
*Master Thesis: "Path planning of collaborative robots dealing with real maps and explicit time concerns"*  
Co-supervised with Marcello Bersani, Patrizio Pelliccione, Matteo Rossi  
Politecnico di Milano, Italy

10/2014-07/2015 **Anna Bernasconi**  
*Master Thesis: "Building deductive proofs of LTL properties for iteratively refined systems"*  
Co-supervised with Carlo Ghezzi and Paola Spoletini  
Politecnico di Milano, Italy

### Undergraduate Students

04/2024-12/2024 **Michael Marzella**  
*Master Thesis "Test Case Generation for Simulink Models: An Experience with a Case Study from the E-Bike Domain"*  
Co-supervised with Andrea Bombarda and Marcello Minervini  
University of Bergamo, Italy

### Summer Students

05/2022-08/2022 **Fanping Jiang**  
Summer Student  
McMaster University, Canada

05/2022-08/2022 **Tony Fan**  
Summer Student  
McMaster University, Canada

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## Publications

### Peer-reviewed Conferences

- C1 **AI-Supported Eliminative Argumentation: Practical Experience Generating Defeaters to Increase Confidence in Assurance Cases**  
*T. Viger, L. Murphy, S. Diemert, C. Menghi, J. Joyce, A. Di Sandro, M. Chechik*  
International Symposium on Software Reliability Engineering (ISSRE), 2024
- C2 **Test Case Generation for Drivability Requirements of an Automotive Cruise Controller: An Experience with an Industrial Simulator**  
*F. Formica, N. Petrunti, L. Bruck, V. Pantelic, M. Lawford, C. Menghi*  
Foundations of Software Engineering (ESEC/FSE) – Industry Tack, 2023
- C3 **Assurance Case Arguments in the Large – CERN LHC Machine Protection System**  
*L. Millet, S. Diemert, C. Rees, T. Viger, M. Chechik, C. Menghi, J. Joyce*  
International Conference on Computer Safety, Reliability and Security (SafeComp), 2023
- C4 **Trace-Checking CPS Properties: Bridging the Cyber-Physical Gap**  
*C. Menghi, E. Viganò, D. Bianculli, L. Briand*  
International Conference on Software Engineering (ICSE), 2021
- C5 **Approximation-Refinement Testing of Compute-Intensive Cyber-Physical Models: An Approach Based on System Identification**  
*C. Menghi, S. Nejati, L. Briand, Y. Parache*  
International Conference on Software Engineering (ICSE), 2020
- C6 **Mining Assumptions for Software Components using Machine Learning**  
*K. Gaaloul, C. Menghi, S. Nejati, L. Briand, D. Wolfe*  
Foundations of Software Engineering (ESEC/FSE), 2020
- C7 **Trace-Checking Signal-based Temporal Properties: A Model-Driven Approach**  
*C. Boufaied, C. Menghi, D. Bianculli, L. Briand, Y. Parache*  
International Conference on Automated Software Engineering (ASE), 2020
- C8 **Integrating Model Checking and Topological Proofs to Instrument Iterative Design**  
*C. Menghi, A.M. Rizzi, A. Bernasconi*  
Fundamental Approaches to Software Engineering (FASE), 2020
- C9 **Mind the gap: Robotic Mission Planning Meets Software Engineering**  
*A. Mehrnoosh, C. Menghi, G. Belli, M. Bersani, P. Pelliccione*  
FormaliSE, 2020
- C10 **UML consistency rules: a case study with open-source UML models**  
*D. Torre, Y. Labiche, M. Genero, M. Elaasar, C. Menghi*  
FormaliSE, 2020
- C11 **Generating Automated and Online Test Oracles for Simulink Models with Continuous and Uncertain Behaviors**  
*C. Menghi, S. Nejati, K. Gaaloul, L. Briand*  
Foundations of Software Engineering (FSE), 2019
- C12 **Evaluating Model Testing and Model Checking for Finding Requirements Violations in Simulink Models**  
*S. Nejati, K. Gaaloul, C. Menghi, L. Briand, S. Foster, D. Wolfe*  
Foundations of Software Engineering (FSE), 2019

- C13 **High-level mission specification for multiple robots**  
*S. García, P. Pelliccione, C. Menghi, T. Berger, T. Bures*  
 International Conference on Software Language Engineering (SLE), 2019
- C14 **Multi-Robot LTL Planning Under Uncertainty**  
*C. Menghi, S. Garcia, P. Pelliccione, J. Tumova*  
 Formal Methods (FM), 2018
- C15 **Supporting Verification-Driven Incremental Distributed Design of Components**  
*C. Menghi, P. Spoletini, M. Chechik, C. Ghezzi*  
 Fundamental Approaches to Software Engineering (FASE), 2018
- C16 **An Architecture for Decentralized, Collaborative, and Autonomous Robots**  
*S. Garcia, C. Menghi, P. Pelliccione, T. Berger, R. Wohlrab*  
 International Conference on Software Architecture (ICSA), 2018
- C17 **From Model Checking to a Temporal Proof for Partial Models**  
*A. Bernasconi, C. Menghi, P. Spoletini, L. D. Zuck, C. Ghezzi*  
 Software Engineering and Formal Methods (SEFM), 2017
- C18 **Integrating goal model analysis with iterative design**  
*C. Menghi, P. Spoletini, C. Ghezzi*  
 International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ), 2017
- C19 **Dealing with Incompleteness in Automata-Based Model Checking**  
*C. Menghi, P. Spoletini, C. Ghezzi*  
 Formal Methods (FM), 2016
- C20 **Engineering topology aware adaptive security: Preventing requirements violations at runtime**  
*C. Tsiganos, L. Pasquale, C. Menghi, C. Ghezzi, B. Nuseibeh*  
 International Requirements Engineering Conference (RE), 2014
- C21 **On requirements verification for model refinements**  
*C. Ghezzi, C. Menghi, A. M. Sharifloo, P. Spoletini*  
 Requirements Engineering Conference (RE), 2013

### Journals

- J1 **Completeness and Consistency of Tabular Requirements: an SMT-Based Verification Approach**  
*C. Menghi, E. Balai, D. Valovcin, C. Stickse, A. Rajhans*  
 IEEE Transactions on Software Engineering (TSE), 2024
- J2 **The ARCH-COMP Friendly Verification Competition for Continuous and Hybrid Systems**  
*A. Abate, M. Althoff, L. Bu, G. Ernst, G. Frehse, L. Geretti, T. T Johnson, C. Menghi, S. Mitsch, S. Schupp, S. Soudjani*  
 International TOOLympics Challenge, 2024
- J3 **Simulation-based Testing of Simulink Models with Test Sequence and Test Assessment Blocks**  
*F. Formica, T. Fan, A. Rajhans, V. Pantelic, M. Lawford, C. Menghi*  
 IEEE Transactions on Software Engineering (TSE), 2023
- J4 **Search-based Software Testing Driven by Automatically Generated and Manually Defined Fitness Functions**  
*F. Formica, T. Fan, C. Menghi*  
 Transactions on Software Engineering and Methodology (TOSEM), 2023
- J5 **Trace Diagnostics for Signal-based Temporal Properties**  
*C. Boufaied, C. Menghi, D. Bianculli, L. C. Briand*  
 IEEE Transactions on Software Engineering (TSE), 2023

- J6 **Reflections on surrogate-assisted search-based testing: A taxonomy and two replication studies based on industrial ADAS and Simulink models**  
*S. Nejati, L. Sorokin, D. Safin, F. Formica, M. M. Mahboob, C. Menghi*  
Information and Software Technology (Inf. Softw. Technol), 107286, 2023, Elsevier
- J7 **The ForeMoSt Approach To Building Valid Model-Based Safety Arguments**  
*T Viger, L Murphy, A Di Sandro, C Menghi, R Shahin, M Chechik*  
Software and Systems Modeling, 2022
- J8 **Combining Genetic Programming and Model Checking to Generate Environment Assumptions**  
*Gaaloul, K.; Menghi, C.; Nejati, S.; Briand, L.; Parache, Y. I.*  
IEEE Transactions on Software Engineering, 2021
- J9 **TOrPEDO: Witnessing Model Correctness with Topological Proofs**  
*Menghi, C.; Rizzi, A. M.; Bernasconi, A.; Spoletini, P.*  
Formal Aspects of Computing (FAOC), 2021
- J10 **A Survey on the Design Space of End-User-Oriented Languages for Specifying Robotic Missions**  
*S. Dragule, T. Berger, C. Menghi, Patrizio Pelliccione*  
Journal of Software and Systems Modeling (SoSyM), 2021
- J11 **Agents and Robots for Reliable Engineered Autonomy: A Perspective from the Organisers of AREA 2020**  
*Cardoso, R. C.; Ferrando, A.; Briola, D.; Menghi, C.; Ahlbrecht, T.*  
Journal of Sensor and Actuator Networks, 2021
- J12 **Model Checking MITL formulae on Timed Automata: a Logic-Based Approach**  
*C. Menghi, M. Bersani, M. Rossi, P. San Pietro*  
Transactions on Computational Logic (TOCL), 2020
- J13 **PuRSUE - From Specification of Robotic Environments to Synthesis of Controllers**  
*M. Bersani, C. Menghi, P. Pelliccione, M. Rossi*  
Formal Aspects of Computing (FAOC), 2020
- J14 **Specification Patterns for Robotic Missions**  
*C. Menghi, C Tsigkanos, P Pelliccione, C Ghezzi, T Berger*  
Transactions on Software Engineering (TSE), 2019
- J15 **A Verification-driven Framework for Iterative Design of Controllers**  
*C. Menghi, P. Spoletini, M. Chechik, C. Ghezzi*  
Formal Aspects of Computing (FAOC), 2019
- J16 **Software Engineering for Smart Cyber-Physical Systems (SEsCPS 2018) - Workshop Report**  
*Bures, T.; Weyns, D.; Schmerl, B.; Fitzgerald, J.; Aniculaesei, A.; Berger, C.; Cambeiro, J.; Carlson, J.; Chowdhury, S. A.; Daun, M.; Li, N.; Markthaler, M.; Menghi, C.; Penzenstadler, B.; Pettit, A.*  
ACM SIGSOFT Software Engineering Notes. 44(4): 11–13.
- J17 **On Requirement Verification for Evolving Statecharts Specifications**  
*C. Ghezzi, C. Menghi, A. M. Sharifloo, P. Spoletini*  
Requirements Engineering (REJ), 2014

### Books/Book Chapters

- B1 **Software Architectures for AI Systems: State of Practice and Challenges**  
*I. Gorton, F. Khomh, V. Lenarduzzi, C. Menghi, D. Roman*  
Software Architecture: Research Roadmaps from the Community, 2023

- B2 **Towards agile verification**  
*C. Ghezzi, A.M. Sharifloo, C. Menghi*  
 Perspectives on the future of software engineering, 2013
- B3 **A Control-Theoretic Approach to Self-adaptive Systems and an Application to Cloud-Based Software**  
*C. Ghezzi, G. P. Gibilisco, C. Menghi, M. Migliarina*  
 LASER Summer School on Software Engineering, 2013

### Workshop Papers

- WS1 **Supporting Change Impact Assessment with LLMs**  
*T. Viger, L. Murphy, S. Diemert, C. Menghi, M. Chechik*  
 International Workshop on Assurance for Software-intensive Systems (ASSURE), 2024
- WS2 **ARCH-COMP 2024 Category Report: Falsification**  
*T. Khandait, F. Formica, P. Arcaini, S. Chotaliya, G. Fainekos, A. Hekal, A. Kundu, Ethan Lew, Michele Loreti, C. Menghi, L. Nenzi, G. Pedrielli, J. Peltomäki, I. Porres, R. Ray, V. Soloviev, E. Visconti, M. Waga, and Z. Zhang*  
 International Workshop on Applied Verification of Continuous and Hybrid Systems. 2024
- WS3 **ARCH-COMP 2023 Category Report: Falsification**  
*C. Menghi, P. Arcaini, W. Baptista, G. Ernst, G. Fainekos, F. Formica, Sauvik Gon, T. Khandait, A. Kundu, G. Pedrielli, J. Peltomäki, I. Porres, R. Ray, M. Waga, Z. Zhang*  
 International Workshop on Applied Verification of Continuous and Hybrid Systems. 2023
- WS4 **The ARCH-COMP Friendly Verification Competition for Continuous and Hybrid Systems**  
*A. Abate, M. Althoff, L. Bu, G. Ernst, G. Frehse, L. Geretti, T. T Johnson, C. Menghi, S. Mitsch, S. Schupp, and S. Soudjani*  
 TOOLympics Challenge 2023, Springer, 2024
- WS5 **Two Simulink Models with Requirements for a Simple Controller of a Pacemaker Device**  
*M. Ayesha, N. Mehan, E. Dhanraj, A. El-Rahwan, S. E. Opalka, T. Fan, A. Hamilton, A. M. Jacob, R. A. Sundarajan, B. Widjaja, C. Menghi*  
 International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH22), 2022
- WS6 **ARCH-COMP 2021 Category Report: Falsification**  
*G. Ernst, P. Arcaini, I. Bennani, A. Chandratre, A. Donzé, G. Fainekos, G. Frehse, K. Gaaloul, J. Inoue, T. Khandait, L. Mathesen, C. Menghi, G. Pedrielli, M. Pouzet, M. Waga<sup>10</sup>, S. Yaghoubi, Y. Yamagata, Z. Zhang*  
 EPIc Series in Computing, 2021
- WS7 **ARCH-COMP 2020 Category Report: Falsification**  
*G. Ernst, P. Arcaini, I. Bennani, A. Donze, G. Fainekos, G. Frehse, L. Mathesen, C. Menghi, G. Pedrielli, M. Pouzet, S. Yaghoubi, Y. Yamagata, Z. Zhang*  
 EPIc Series in Computing, 2020
- WS8 **On Explainability and its Characterization**  
*D. Bohlender, F. J. Chiyah Garcia, M. Köhl, C. Menghi, A. Wortmann* *On Explainability and its Characterization*  
 Explainable Software for Cyber-Physical Systems (ES4CPS), 2019
- WS9 **Strategy Patterns for Multi-Agent CPS**  
*C. Menghi*  
 Explainable Software for Cyber-Physical Systems (ES4CPS), 2019
- WS10 **MAPmAKER: performing multi-robot LTL planning under uncertainty**  
*S. García, C. Menghi, P. Pelliccione*  
 International Workshop on Robotics Software Engineering, 2019

- WS11 **Keeping Intelligence under Control**  
*Mallozzi, P.; Pelliccione, P.; Menghi, C.*  
 International Workshop on Software Engineering for Cognitive Services (SE4COG), 2018
- WS12 **COVER: Change-based Goal Verifier and Reasoner**  
*C. Menghi, P. Spoletini, C. Ghezzi*  
 International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ) Workshops, 2017
- WS13 **Topology aware adaptive security**  
*L. Pasquale, C. Ghezzi, C. Menghi, C. Tsigkanos, B. Nuseibeh*  
 International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS), 2014
- WS14 **Verifying incomplete and evolving specifications**  
*C. Menghi*  
 International Conference on Software Engineering (Doctoral symposium), 2014

### [Tools/Posters/Artifacts](#)

- DM1 **ATheNA-S: a Testing Tool for Simulink Models Driven by Software Requirements and Domain Expertise**  
*F. Formica, M.M. Mahboob, M. Askarpour, C. Menghi*  
 ACM International Conference on the Foundations of Software Engineering (FSE) — Demonstrations track, 2024
- DM2 **Supporting Assurance Case Development Using Generative AI**  
*T. Viger, L. Murphy, S. Diemert, C. Menghi, A. Di Sandro, M. Chechik*  
 International Conference on Computer Safety, Reliability and Security (SafeComp) - Position Paper, 2023
- DM3 **Assurance Case Development as Data: A Manifesto**  
*C. Menghi, T. Viger, A. Di Sandro, C. Rees, J. Joyce, M. Chechik*  
 International Conference on Software Engineering: New Ideas and Emerging Results (ICSE-NIER), 2023
- DM4 **ATheNA-S: a Testing Tool for Simulink Models Driven by Software Requirements and Domain Expertise**  
*F. Formica, M.M. Mahboob, M. Askarpour, C. Menghi*  
 ACM International Conference on the Foundations of Software Engineering (FSE), 2024
- DM5 **ThEodorE: a Trace Checker for CPS Properties**  
*Menghi, C.; Viganò, E.; Bianculli, D.; Briand, L.*  
 International Conference on Software Engineering (ICSE): Companion Proceedings, 2021
- DM6 **RoboMAX: Robotic Mission Adaptation eXemplars**  
*M. Askarpour, C. Tsigkanos, C. Menghi, R. Calinescu, P. Pelliccione, S. García, R. Caldas, T. J. von Oertzen, M. Wimmer, L. Berardinelli, M. Rossi, M. M. Bersani, Gabriel S. Rodrigues*  
 Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS), 2021
- DM7 **PROMISE: high-level mission specification for multiple robots**  
*Garcia, S.; Pelliccione, P.; Menghi, C.; Berger, T.; Bures, T.*  
 International Conference on Software Engineering (ICSE): Companion Proceedings, 2020
- DM8 **PsALM: specification of dependable robotic missions**  
*C. Menghi, C. Tsigkanos, T. Berger, P. Pelliccione*  
 International Conference on Software Engineering (ICSE): Companion Proceedings, 2019

- DM9 **Poster: Property Specification Patterns for Robotic Missions**  
*C. Menghi, C. Tsigkanos, T. Berger, P. Pelliccione, C. Ghezzi*  
 International Conference on Software Engineering (ICSE): Companion Proceedings, 2018
- DM10 **Poster: Towards Multi-Robot Applications Planning Under Uncertainty**  
*C. Menghi, S. Garcia, P. Pelliccione, J. Tumova*  
 International Conference on Software Engineering (ICSE): Companion Proceedings, 2018
- DM11 **SecuriTAS: a tool for engineering adaptive security**  
*L. Pasquale, C. Menghi, M. Salehie, L. Cavallaro, I. Omoronyia, B. Nuseibeh*  
 International Symposium on the Foundations of Software Engineering, Tool track (FSE), 2012

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## Patents/Software Disclosure

- 2021 **ARIsTEO (AppRoxImation-based TEst generatiOn)**  
*C. Menghi, S. Nejati, L. Briand*  
 Software Invention Disclosure ref. SNT200012
- SOCRaTEs: (Simulink Oracles for CPS RequirementTs with uncErtainty)**  
*C. Menghi, S. Nejati, K. Gaaloul, L. Briand*  
 Software Invention Disclosure ref. SNT200049
- SB-TemPsy**  
*C. Boufaied, C. Menghi, D. Bianculli, L. Briand*  
 Software Invention Disclosure ref. SNT200032
- ThEodorE**  
*C. Menghi, E. Viganò, D. Bianculli, L. Briand*  
 Software Invention Disclosure ref. SNT200032
- 2020 **EPIcuRus (assumPtIon geneRation approach for CPS)**  
*K. Gaaloul, C. Menghi, S. Nejati, L. Briand*  
 Software Invention Disclosure ref. SNT200023
- 2016 **Systems and methods for runtime adaptive security to protect variable assets**  
*M. Salehie, L. Pasquale, C. Menghi, I. Omoronyia, B. Nuseibeh*  
 US Patent 9,330,262

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## Presentations

### Keynotes

- 21/02/2024 **Simulation-Based Testing for Robotic Missions: Novel Solutions, Reflections, and Lessons Learned**  
*International Summer School on Robotic Mission Engineering (RoME)*  
<https://lesunb.github.io/RoME/>
- 11/10/2019 **A Journey on a Two-Year Research Collaboration with Industry**  
*Formal Methods for Autonomous Systems Workshop*  
 co-located with Formal Methods (FM)  
<https://fmasworkshop.github.io/FMAS2019/>

### Invited University and Research Institute Presentations

- 07/06/2024 **Panel: AI and Education**  
*MathWorks Research Summit*



- 05/10/2023 **How to define if, when, and how a system works? Reflections and experiences between industry and academia "It Works Really Well!": Verification in Theory and Practice**[https://robotistry.org/vaswg/IROS23\\_Workshop/](https://robotistry.org/vaswg/IROS23_Workshop/)
- 04/09/2023 **Humans versus Machines: The Battle for Supporting Cyber-Physical Systems Design***Robotics Software Engineering 2023*<https://rsemeeting.github.io/rse2023/program/>
- 10/07/2023 **Witnessing model correctness**  
*Tel Aviv University, Israel*CMU-TAU International Summer School on Formal Specifications and Analysis for Software Engineers (SPECS)<https://cmu-tau-specs.github.io/program/index.html>
- 09/07/2023 **Robotic mission specification patterns**  
*Tel Aviv University, Israel*CMU-TAU International Summer School on Formal Specifications and Analysis for Software Engineers (SPECS)<https://cmu-tau-specs.github.io/program/index.html>
- 04/07/2023 **The Independence Day of Witnessing the Correctness of Systems: From Topological Proofs and Beyond**  
*Webinar organized by BCS FACS (Formal Aspects of Computing Science) specialist group*
- 31/01/2023 **Back to the Drawing Board: Designing Automated Techniques to Support Cyber-Physical Systems Design**  
*University of Bergamo*
- 12/02/2022 **Verification and Validation: Past Research and Future Plans**  
*University of Toronto*
- 11/03/2021 **Verification and Validation: from Theory to Practice and Back Again**  
*McMaster University*
- 29/11/2019 **Automated Verification of Cyber-Physical Systems: From Theory to Practice**  
*Invited talk*  
Workshop on Software Reliability for Madrid Flight on Chip  
<https://flightonchip.es/workshop19/>
- 08/01/2019 **Strategy Patterns for Multi-Agent CPS**  
*Dagstuhl Seminar - Explainable Software for Cyber-Physical Systems*  
<https://thomas-vogel.github.io/ES4CPS/>
- 17/09/2015 **LTL verification of incomplete models**  
*University of Toronto*  
Bahen Center, Room 3248 (through 3245) 40 St. George St
- 08/04/2015 **LTL verification of incomplete models**  
*Workshop on "Engineering Adaptive Systems"*Politecnico di Milano, Imperial College London, Peking University and University of Buenos Aires  
Bra, Italy

### Academic Conference Presentations

- 15/07/2013-19/07/2013 **On requirements verification for model refinements**  
*C. Ghezzi, C. Menghi, A.M. Sharifloo, P. Spoletini*  
21st IEEE International Requirements Engineering Conference (RE)  
Rio de Janeiro-RJ, Brazil
- 31/05/2014-07/06/2014 **Verifying incomplete and evolving specifications**  
*C. Menghi*  
Companion Proceedings of the 36th International Conference on Software Engineering (ICSE)  
Hyderabad, India
- 09/11/2016-11/11/2016 **Dealing with Incompleteness in Automata-Based Model Checking**  
*C. Menghi, P. Spoletini, C. Ghezzi*  
Formal Methods - 21st International Symposium (FM)  
Limassol, Cyprus

- 27/02/2017- **COVER: Change-based Goal Verifier and Reasoner**  
 27/02/2017 *C. Menghi and P. Spoletini and C. Ghezzi*  
 Joint Proceedings of REFSQ-2017 Workshops, Doctoral Symposium, Research Method Track, and Poster Track co-located with the 22nd International Conference on Requirements Engineering: Foundation for Software Quality (REFSQ)  
 Essen, Germany
- 27/02/2017- **Integrating Goal Model Analysis with Iterative Design**  
 02/03/2017 *C. Menghi and P. Spoletini and C. Ghezzi*  
 Requirements Engineering: Foundation for Software Quality - 23rd International Working Conference (REFSQ)  
 Essen, Germany
- 04/09/2017- **From Model Checking to a Temporal Proof for Partial Models**  
 08/09/2017 *A. Bernasconi and C. Menghi and P. Spoletini and L. D. Zuck and C. Ghezzi*  
 Software Engineering and Formal Methods - 15th International Conference (SEFM)  
 Trento, Italy
- 14/04/2018- **Supporting Verification-Driven Incremental Distributed Design of Components**  
 20/04/2018 *C. Menghi and P. Spoletini and M. Chechik and C. Ghezzi*  
 Fundamental Approaches to Software Engineering, 21st International Conference (FASE), Held as Part of the European Joint Conferences on Theory and Practice of Software (ETAPS)  
 Thessaloniki, Greece
- 27/05/2018- **Property specification patterns for robotic missions**  
 03/06/2018 *C. Menghi and C. Tsigkanos and T. Berger and P. Pelliccione and C. Ghezzi*  
 Proceedings of the 40th International Conference on Software Engineering: Companion Proceedings (ICSE)  
 Gothenburg, Sweden
- 27/05/2018- **Towards multi-robot applications planning under uncertainty**  
 03/06/2018 *C. Menghi and S. Garcia and P. Pelliccione and J. Tumova*  
 Proceedings of the 40th International Conference on Software Engineering: Companion Proceedings (ICSE)  
 Gothenburg, Sweden
- 15/07/2018- **Multi-robot LTL Planning Under Uncertainty**  
 17/07/2018 *C. Menghi and S. Garcia and P. Pelliccione and J. Tumova*  
 Formal Methods - 22nd International Symposium (FM), Held as Part of the Federated Logic Conference (FloC)  
 Oxford, UK
- 25/05/2019- **PsALM: specification of dependable robotic missions**  
 31/05/2019 *C. Menghi and C. Tsigkanos and T. Berger and P. Pelliccione*  
 Proceedings of the 41st International Conference on Software Engineering: Companion Proceedings (ICSE)  
 Montreal, QC, Canada
- 26/08/2019- **Generating automated and online test oracles for Simulink models with continuous and uncertain behaviors**  
 30/08/2019 *C. Menghi and S. Nejati and K. Gaaloul and L. C. Briand*  
 Proceedings of the ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)  
 Tallinn, Estonia
- 25/04/2020- **Integrating Topological Proofs with Model Checking to Instrument Iterative Design**  
 30/04/2020 *C. Menghi and A. M. Rizzi and A. Bernasconi*  
 Fundamental Approaches to Software Engineering - 23rd International Conference (FASE), Held as Part of the European Joint Conferences on Theory and Practice of Software (ETAPS)  
 - PRESENTED AT FASE 2021  
 Dublin, Ireland

- 27/06/2020- **Approximation-refinement testing of compute-intensive cyber-physical models: an approach based on system identification**  
 19/07/2020 *C. Menghi, S. Nejati, L. C. Briand, Y. I. Parache*  
 International Conference on Software Engineering (ICSE)  
 Seoul, South Korea
- 22/05/2021- **Trace-Checking CPS Properties: Bridging the Cyber-Physical Gap**  
 30/05/2021 *C. Menghi and E. Viganò and D. Bianculli and L. C. Briand*  
 43rd IEEE/ACM International Conference on Software Engineering (ICSE)  
 Madrid, Spain

## Research Activity within Research Groups with (inter)National Collaborations

- 01/11/2012- **Research within the DEpendable Evolvable Pervasive Software Engineering (DEEP-SE) research group (Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano).**  
 31/03/2017  
 Positions:
- PhD (01/11/2012 - 31/10/2015):  
 Project: ERC-AG - ERC Advanced Grant, Self-Managing Situated Computing (SM-SCOM) Grant agreement ID: 227977, <https://cordis.europa.eu/project/id/227977>
  - Assegno di Ricerca Architetture a servizi complesse per il cloud (16/11/2015 - 15/11/2016)
  - Assegno di Ricerca GOF4R - Technical Aspects Concerning The Governance (16/12/2016 - 31/03/2017).
- Collaborations and Results:
1. University of Toronto - publications C12, J8;
  2. The Irish Software Engineering Research Centre (Lero) - publications C17, WS8, US Patent 9,330,262;
  3. University of Illinois Chicago - publication C14.
- 1/04/2017- **Research within the Software Engineering Group, Department of Computer Science and Engineering, Chalmers | University of Gothenburg, Sweden**  
 30/09/2018  
 Position:
- Postdoctoral Researcher  
 Project: Co4Robots (Achieving Complex Collaborative Missions via Decentralized Control and Coordination of Interacting Robots)  
 Consortium: KTH (Sweden), BOSCH (Germany), FORTH (Greece), UGOT (Sweden), NTUA (Greece), PAL (Spain)
- Collaborations and Results:
1. KTH Sweden - publication C11;
  2. Charles University in Prague, Czechia - publication C10;
  3. TU Vienna, Politecnico di Milano - publications J7, J6
- 01/10/2018- **Research within the Software Verification and Validation Lab (SVV) group, University of Luxembourg, Luxembourg.**  
 30/09/2021  
 Position:
- Research Associate  
 Project: ERC-ADG-2015 - ERC Advanced Grant, Testing the Untestable: Model Testing of Complex Software-Intensive Systems (TUNE)  
 Grant agreement ID: 694277.  
<https://cordis.europa.eu/project/id/694277>
- Collaborations and Results:
1. Politecnico di Milano - publications J2, J5;
  2. Canadian software company (QRACorp) - publications C9, C3;
  3. Multiple international institutes - publication DM2, C6, C7.

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## Participation in Research Projects

- 22/01/2024 - now **SUSTAINABLE MOBILITY CENTER (CENTRO NAZIONALE PER LA MOBILITÀ SOSTENIBILE) - CNMS**  
*University of Bergamo*  
Role: Participant
- 01/05/2024 - now **SMIMI – SECURITY IN MODERN INFORMATION MANAGEMENT INFRASTRUCTURES - CNMS**  
*University of Bergamo*  
Role: Participant
- 2023 - now **Safety Assurance for Automotive Over the Air Updates: Unit-Level Modeling, Testing and Analysis**  
*Alliance Grant*  
Principal Investigator: Prof. Chechik Marsha  
Role: Collaborator
- 10/2018 - 10/2021 **TUNE: Testing the Untestable**  
*University of Luxembourg*  
Funded by the European Research Council under the ERC Advanced Grant programme.  
Role: Technical Contributor (PI: Lionel Briand)
- 04/2017 - 09/2018 **Co4robots - Achieving Complex Collaborative Missions via Decentralized Control and Coordination of Interacting Robots**  
*Chalmers | University of Gothenburg*  
Funded by the European Research Council under the H2020 programme.  
Role: Technical Contributor (PI: Patrizio Pelliccione)
- 11/2012 - 10/2015 **Self-Managing Situated Computing (SMSCOM)**  
*Politecnico di Milano*  
Funded by the European Research Council under the ERC Advanced Grant programme.  
Role: Technical Contributor (PI: Carlo Ghezzi)