Claudio Menghi

Curriculum Vitae

✉ claudio.menghi@unibg.it
🖥 http://claudiomenghi.github.io

Employment

01/2023 - Now **Assistant Professor**
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

Date: 13/03/2022
Signature:

06/2015 - 09/2005   **Internship - Network office**
Institution: Banca Popolare di Sondrio
Address: Piazza Garibaldi Giuseppe, 16, 23100 Sondrio SO, Italy

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 INFORMAZION)**
FASCIA: II
(art. 16, comma 1, Legge 240/10)

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
Supervisor: Prof. Carlo Ghezzi
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

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

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

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 Fall 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

Date: 13/03/2022
Signature:

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

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/

Honors and Awards

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

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

2020   **Reviewer Recognition**
Certificate of acknowledges and appreciation
Journal of Software and Systems Modeling

2019   **ACM SIGSOFT Distinguished Paper Award**
Claudio Menghi, Shiva Nejati, Khouloud 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

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

Service

2019 - Now **Member of the FME Communications Committee**
http://www.fmeurope.org/communications/

15/10/2021 **Vice-chair Dissertation Defence Jury**
Defence by Ms. Khouloud GAALOUL
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)

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/

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

PC Membership

2023   *Formal Methods (FM)*

2022   *International Conference on Software Engineering and Formal Methods (SEFM)*
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 (ADE-VOPS4IoTSYS) Workshop on Formal Approaches for Advanced Computing Systems (FAACS)
Workshop on Formal Methods for Autonomous Systems (FMAS)

2021   *Software Engineering and Formal Methods (SEFM)*
Automated Software Engineering (ASE) - Breaking Results
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)

Reviewer Service

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

| 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

Date: 13/03/2022
Signature:

Summer Students

05/2022-08/2022	**Fanping Jiang** Summer Student McMaster University, Canada
05/2022-08/2022	**Tony Fan** Summer Student McMaster University, Canada
05/2022-08/2022	**Mohammad Mahdi Mahboob** Summer Student McMaster University, Canada

Publications

Peer-reviewed Conferences

C1 **Trace-Checking CPS Properties: Bridging the Cyber-Physical Gap**
C. Menghi, E. Viganò, D. Bianculli, L. Briand
International Conference on Software Engineering (ICSE), 2021

C2 **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

C3 **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

C4 **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

C5 **Integrating Model Checking and Topological Proofs to Instrument Iterative Design**
C. Menghi, A.M. Rizzi, A Bernasconi
Fundamental Approaches to Software Engineering (FASE), 2020

C6 **Mind the gap: Robotic Mission Planning Meets Software Engineering**
A. Mehrnoosh, C. Menghi, G. Belli, M. Bersani, P. Pelliccione
FormaliSE, 2020

C7 **UML consistency rules: a case study with open-source UML models**
D. Torre, Y. Labiche, M. Genero, M. Elaasar, C. Menghi
FormaliSE, 2020

C8 **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

C9 **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

C10 **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

C11 **Multi-Robot LTL Planning Under Uncertainty**
C. Menghi, S. Garcia, P. Pelliccione, J. Tumova
Formal Methods (FM), 2018

C12 **Supporting Verification-Driven Incremental Distributed Design of Components**
C. Menghi, P. Spoletini, M.Chechik, C. Ghezzi
Fundamental Approaches to Software Engineering (FASE), 2018

C13 **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

C14 **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

C15 **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

C16 **Dealing with Incompleteness in Automata-Based Model Checking**
C. Menghi, P. Spoletini, C. Ghezzi
Formal Methods (FM), 2016

C17 **Engineering topology aware adaptive security: Preventing requirements violations at runtime**
C. Tsigkanos, L. Pasquale, C. Menghi, C. Ghezzi, B. Nuseibeh
International Requirements Engineering Conference (RE), 2014

C18 **On requirements verification for model refinements**
C. Ghezzi, C. Menghi, A. M. Sharifloo, P. Spoletini
Requirements Engineering Conference (RE), 2013

Journals

J1 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

J2 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

J3 TOrPEDO: Witnessing Model Correctness with Topological Proofs
Menghi, C.; Rizzi, A. M.; Bernasconi, A.; Spoletini, P.
Formal Aspects of Computing (FAOC), 2021

J4 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

J5 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

J6 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

J7 PuRSUE - From Specification of Robotic Environments to Synthesis of Controllers
M. Bersani, C. Menghi, P. Pelliccione, M. Rossi
Formal Aspects of Computing (FAOC), 2020

J8 Specification Patterns for Robotic Missions
C. Menghi, C Tsigkanos, P Pelliccione, C Ghezzi, T Berger
Transactions on Software Engineering (TSE), 2019

J9 A Verification-driven Framework for Iterative Design of Controllers
C. Menghi, P. Spoletini, M. Chechik, C. Ghezzi
Formal Aspects of Computing (FAOC), 2019

J10 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.

J11 **On Requirement Verification for Evolving Statecharts Specifications**
C. Ghezzi, C. Menghi, A. M. Sharifloo, P. Spoletini
Requirements Engineering (REJ), 2014

Books/Book Chapters

BC1 **Towards agile verification**
C. Ghezzi, A.M. Sharifloo, C. Menghi
Perspectives on the future of software engineering, 2013

BC2 **A Control-Theoretic Approach to Self-adaptive Systems and an Application to Cloud- Based Software**
C. Ghezzi, G. P. Gibilisco, C. Menghi, M. Miglierina
LASER Summer School on Software Engineering, 2013

Workshop Papers

WS1 **Two Simulink Models with Requirements for a Simple Controller of a Pacemaker Device**
M. Ayesh, N. Mehan, E. Dhanraj, A. El-Rahwan, S. E. Opalka, T. Fan, A. Hamilton, A. M. Jacob, R. A. Sundarrajan, B. Widjaja, C. Menghi
International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH22), 2022

WS2 **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. Waga10, S. Yaghoubi, Y. Yamagata, Z. Zhang
EPiC Series in Computing, 2021

WS3 **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

WS4 **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

WS5 **Strategy Patterns for Multi-Agent CPS**
C. Menghi
Explainable Software for Cyber-Physical Systems (ES4CPS), 2019

WS6 **MAPmAKER: performing multi-robot LTL planning under uncertainty**
S. García, C. Menghi, P. Pelliccione
International Workshop on Robotics Software Engineering, 2019

WS7 **Keeping Intelligence under Control**
Mallozzi, P.; Pelliccione, P.; Menghi, C.
International Workshop on Software Engineering for Cognitive Services (SE4COG), 2018

WS8 **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

WS9 **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

WS10 **Verifying incomplete and evolving specifications**

C. Menghi

International Conference on Software Engineering (Doctoral symposium), 2014

Tools/Posters/Artifacts

DM1 **ThEodorE: a Trace Checker for CPS Properties**

Menghi, C.; Viganò, E.; Bianculli, D.; Briand, L.

International Conference on Software Engineering (ICSE): Companion Proceedings, 2021

DM2 **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

DM3 **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

DM4 **PsALM: specification of dependable robotic missions**

C. Menghi, C. Tsigkanos, T. Berger, P. Pelliccione

International Conference on Software Engineering (ICSE): Companion Proceedings, 2019

DM5 **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

DM6 **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

DM7 **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

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 RequiremenTs 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

Research Activity within Research Groups with (inter)National Collaborations

01/11/2012- **Research within the DEpendable Evolvable Pervasive Software Engi-**
31/03/2017 **neering (DEEP-SE) research group (Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano).**
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- 30/09/2018	**Research within the Software Engineering Group, Department of Computer Science and Engineering, Chalmers | University of Gothemburg, Sweden** 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- 30/09/2021	**Research within the Software Verification and Validation Lab (SVV) group, University of Luxembourg, Luxembourg.** 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 institues - publication DM2, C6, C7.

Participation in Research Projects

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)