

Personal information

Surname / First name

Personal Email

Personal website

Google scholar

Menghi, Claudio

cla.menghi@gmail.com

<http://claudiomenghi.github.io>

<https://scholar.google.com/citations?user=x0xSb7MAAAAJ>

Employment

Dates

October 2018 - Now

Occupation or position held

Research Associate

Name

TUNE: Testing the Untestable

Instructor

Lionel Briand

Name and address of employer

University of Luxembourg, Luxembourg, Luxembourg

Dates

April 2017 - October 2018

Occupation or position held

Postdoctoral Researcher

Name

Co4robots: Achieving Complex Collaborative Missions
via Decentralized Control and Coordination of Interacting Robots

Instructor

Patrizio Pelliccione

Name and address of employer

University of Gothenburg, Gothenburg, Sweden

Dates

November 2016 - April 2017

Occupation or position held

Postdoctoral Researcher

Name

GOF4R: Technical Aspects Concerning The Governance

Instructor

Matteo Rossi

Name and address of employer

Politecnico di Milano, Via Ponzio 34/5 20133 Milano

Dates

November 2015 - November 2016

Occupation or position held

Postdoctoral Researcher

Name

Architetture a servizi complesse per il cloud

Instructor

Baresi Luciano

Name and address of employer

Politecnico di Milano, Via Ponzio 34/5 20133 Milano

Dates

October 2005

Occupation or position held

Internship - Research and Development

Main responsibilities

Job scheduling and control on main frame, cobol programming.

Name and address of employer

Banca Popolare di Sondrio (Data centre) SOSI via Nazionale, n. 542, 23010 S. Pietro
Berbenno (SO), Italy.

Dates

June – September 2005

Occupation or position held

Internship - Network office

Main responsibilities

Network Administrator, System Administrator.

Name and address of employer

Banca Popolare di Sondrio (Data centre) SOSI via Nazionale, n. 542, 23010 S. Pietro
Berbenno (SO), Italy.

Education and training

Dates

2012 - 2015

Title of qualification awarded

Doctor of Philosophy in Computer Science and Engineering

Title of the Thesis

Dealing with Incompleteness in Automata Based Model Checking.

Name and type of organization providing education and training	Politecnico di Milano
Dates	2010 - 2012
Title of qualification awarded	Master of engineering in computer engineering
Title of the Thesis	Contextual, Requirements-Driven, Adaptive Access Control.
Principal subjects/Occupational skills covered	Computer science, electronics, automation. Thesis in collaboration with LERO (The Irish Software Engineering Research Centre) and UTRC (United Technologies Research Centre)
Name and type of organization providing education and training	Politecnico di Milano, Italy
Level in national or international classification	110/110 cum laude
Dates	2007 - 2010
Title of qualification awarded	Bachelor of engineering in computer engineering
Title of the Thesis	Modellistica, Identificazione e Controllo di una Rete Elettrica Isolata di Piccole Dimensioni (Modeling, Identification, and Control of a Small Dimension Electrical Network).
Principal subjects/Occupational skills covered	Computer science, electronics, automation. Thesis in collaboration with RSE (Ricerca Sistema Energetico) - CESI Ricerca (Centro elettrotecnico Sperimentale Italiano)
Name and type of organization providing education and training	Politecnico di Milano, Italy
Level in national or international classification	103/110
Dates	September 2001 – July 2006
Title of qualification awarded	High School Diploma: Information Systems Technician
Principal subjects/Occupational skills covered	Information technology, electronics, elaboration system, telecommunications, software and hardware development.
Name and type of organization providing education and training	Istituto Tecnico Industriale E. Mattei, via Tirano, n. 53 23100 Sondrio.
Level in national or international classification	100/100

Collaboration with Industrial Partners

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

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 Robot

RSE (<http://www.rse-web.it>) and **CESI** (<https://www.cesi.it>)
Project: Bachelor Thesis

Teaching experience

Dates	August - December 2017
Occupation or position held	Teacher Assistant
Course Name	Model-Driven Software Development
Instructor	Patrizio Pelliccione Ghezzi
Name and address of employer	University of Gothenburg, Gothenburg, Sweden
Dates	March - July 2015, March - July 2016
Occupation or position held	Teacher Assistant
Course Name	Ingegneria del Software
Instructor	Carlo Ghezzi
Name and address of employer	Politecnico di Milano, Via Ponzio 34/5 20133 Milano, Italy
Type of business or sector	Education- 16 hours
Dates	March - July 2015, March - July 2016
Occupation or position held	Teacher Assistant
Course Name	Prova Finale di Ingegneria del Software
Instructor	Carlo Ghezzi
Name and address of employer	Politecnico di Milano, Via Ponzio 34/5 20133 Milano, Italy
Type of business or sector	Education- 28 hours
Dates	March - July 2014, March - July 2016
Occupation or position held	Laboratory tutor
Course Name	Prova Finale di Ingegneria del Software
Instructor	Carlo Ghezzi
Name and address of employer	Politecnico di Milano, Via Ponzio 34/5 20133 Milano, Italy
Type of business or sector	Education- 32 hours
Dates	March - July 2013
Occupation or position held	Teacher Assistant
Course Name	Elementi di Informatica e Reti di Calcolatori
Instructor	Gianpaolo Cugola
Name and address of employer	Politecnico di Milano, Via Ponzio 34/5 20133 Milano, Italy
Type of business or sector	Education- 36 hours
Dates	March - July 2011
Occupation or position held	Laboratory tutor
Course Name	Prova Finale di Ingegneria del Software
Instructor	Carlo Ghezzi
Name and address of employer	Politecnico di Milano, Via Ponzio 34/5 20133 Milano, Italy
Type of business or sector	Education- 32 hours

Honors and Awards

2019	Distinguished Paper Award (European Software Engineering Conference and Symposium on the Foundations of Software Engineering — ESEC/FSE)
	Reviewer Recognition (certificate of acknowledges and appreciation) — Journal of Software and Systems Modeling

2012	"Borsa di studio Politecnico di Milano A.A. 2011/12 per testi all'estero" — newline Thesis Research Travel Grant Politecnico di Milano A.A. 2011/12
Professional Service	
2019-2020	Member of the FME Communications Committee http://www.fmeurope.org/communications/
Conference/Workshop Organization	
2020	Workshop on Agents and Robots for reliable Engineered Autonomy (AREA) co-located with ECAI (European Conference on Artificial Intelligence) https://area2020.github.io/
Program Committee Membership	
2020	Conference On Formal Methods In Software Engineering (FormaliSE) International Workshop on Formal Approaches for Advanced Computing Systems Software Architecture: Theory, Technology, and Applications (SA-TTA)
2019	Software Architecture: Theory, Technology, and Applications (SA-TTA) Student Research Competition (FSE) Workshop on Formal Approaches for Advanced Computing Systems (FAACS) International Workshop on Robotics Software Engineering (ROSE)
2018	International Workshop on Robotics Software Engineering (ROSE) Conference On Formal Methods In Software Engineering (FormaliSE)
Reviewer Service	
2020	ACM TOSEM Board of Distinguished Reviewers 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)
Top 5 publications	
C. Menghi , S. Nejati, L. Briand, Y. Parache <i>Approximation-Refinement Testing of Compute-Intensive Cyber-Physical Models: An Approach Based on System Identification</i> International Conference on Software Engineering, 2020	
C. Menghi , M. Bersani, M. Rossi, P. San Pietro, <i>Model Checking MITL formulae on Timed Automata: a Logic-Based Approach</i> Transactions on Computational Logic, 2020	
C. Menghi , S. Nejati, K. Gaaloul, L. Briand <i>Generating Automated and Online Test Oracles for Simulink Models with Continuous and Uncertain Behaviors</i> Foundations of Software Engineering, 2019	
C. Menghi , C. Tsigkanos, P. Pelliccione, C. Ghezzi, T Berger <i>Specification patterns for robotic missions</i> Transactions on Software Engineering, 2019	

Publications

Peer-reviewed conference
contributions

- C. Menghi**, A.M. Rizzi, A Bernasconi
Integrating Model Checking and Topological Proofs to Instrument Iterative Design
Fundamental Approaches to Software Engineering, 2020
- C. Menghi**, S. Nejati, L. Briand, Y. Parache
Approximation-Refinement Testing of Compute-Intensive Cyber-Physical Models: An Approach Based on System Identification
International Conference on Software Engineering (ICSE), 2020
- C. Menghi**, A.M. Rizzi, A Bernasconi
Integrating Model Checking and Topological Proofs to Instrument Iterative Design
Fundamental Approaches to Software Engineering (FASE), 2020
- A. Mehrnoosh, **C. Menghi**, G. Belli, M. Bersani, P. Pelliccione
Mind the gap: Robotic Mission Planning Meets Software Engineering
FormaliSE, 2020
- D. Torre, Y. Labiche, M. Genero, M. Elaasar, **C. Menghi**
UML consistency rules: a case study with open-source UML models
FormaliSE, 2020
- C. Menghi**, S. Nejati, K. Gaaloul, L. Briand
Generating Automated and Online Test Oracles for Simulink Models with Continuous and Uncertain Behaviors
Foundations of Software Engineering (FSE), 2019
- S. Nejati, K. Gaaloul, **C. Menghi**, L. Briand, S. Foster, D. Wolfe
Evaluating Model Testing and Model Checking for Finding Requirements Violations in Simulink Models
Foundations of Software Engineering (FSE), 2019
- S. García, P. Pelliccione, **C. Menghi**, T. Berger, T. Bures
High-level mission specification for multiple robots
International Conference on Software Language Engineering (SLE), 2019
- C. Menghi**, S. Garcia, P. Pelliccione, J. Tumova
Multi-Robot LTL Planning Under Uncertainty
Formal Methods (FM), 2018
- C. Menghi**, P. Spoletini, M. Chechik, C. Ghezzi
Supporting Verification-Driven Incremental Distributed Design of Components
Fundamental Approaches to Software Engineering (FASE), 2018
- S. Garcia, **C. Menghi**, P. Pelliccione, T. Berger, R. Wohlrab
An Architecture for Decentralized, Collaborative, and Autonomous Robots
International Conference on Software Architecture (ICSA), 2018
- A. Bernasconi, **C. Menghi**, P. Spoletini, L. D. Zuck, C. Ghezzi
From Model Checking to a Temporal Proof for Partial Models
Software Engineering and Formal Methods (SEFM), 2017
- C. Menghi**, P. Spoletini, C. Ghezzi
Integrating goal model analysis with iterative design
International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ), 2017

Workshops

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

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

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

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

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

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

C. Menghi, P. Spoletini, C. Ghezzi
COVER: Change-based Goal Verifier and Reasoner
International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ) Workshops, 2017

L. Pasquale, C. Ghezzi, **C. Menghi**, C. Tsigkanos, B. Nuseibeh
Topology aware adaptive security
International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS), 2014

C. Menghi
Verifying incomplete and evolving specifications
International Conference on Software Engineering (Doctoral symposium), 2014

Tools and posters

C. Menghi, C. Tsigkanos, T. Berger, P. Pelliccione
PsALM: specification of dependable robotic missions
International Conference on Software Engineering: Companion Proceedings, 2019

C. Menghi, C. Tsigkanos, T. Berger, P. Pelliccione, C. Ghezzi
Poster: Property Specification Patterns for Robotic Missions
International Conference on Software Engineering (ICSE), 2018

C. Menghi, S. Garcia, P. Pelliccione, J. Tumova
Poster: Towards Multi-Robot Applications Planning Under Uncertainty
International Conference on Software Engineering (ICSE), 2018

L. Pasquale, **C. Menghi**, M. Salehie, L. Cavallaro, I. Omoronyia, B. Nuseibeh
SecuriTAS: a tool for engineering adaptive security
International Symposium on the Foundations of Software Engineering, Tool track, 2012

C. Menghi, M. Bersani, M. Rossi, P. San Pietro,
Model Checking MITL formulae on Timed Automata: a Logic-Based Approach
Transactions on Computational Logic, 2020

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

C. Menghi, C. Tsigkanos, P. Pelliccione, C. Ghezzi, T. Berger
Specification patterns for robotic missions
Transactions on Software Engineering, 2019

C. Menghi, P. Spoletini, M. Chechik, C. Ghezzi
A verification-driven framework for iterative design of controllers
Formal Aspects of Computing, 1–44, 2019

C. Ghezzi, **C. Menghi**, A. M. Sharifloo, P. Spoletini,
On requirement verification for evolving Statecharts specifications,
Requirements Engineering, 2014

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

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

C. Menghi, S. Nejati, L. Briand
ARIsTEO (AppRoxImation-based TEst generatiOn)
SNT 200012, 2020

M. Salehie, L. Pasquale, **C. Menghi**, I. Omoronyia, B. Nuseibeh
Systems and methods for runtime adaptive security to protect variable assets
US Patent 9,330,262, 2016

Supervision of Individuals

MSc Students

2015

Anna Bernasconi, thesis: “Building deductive proofs of LTL properties for iteratively refined systems”, Politecnico di Milano, Italy, co-supervised with Carlo Ghezzi and Paola Spoletini

2018

Gabriele Belli, thesis: “Path planning of collaborative robots dealing with real maps and explicit time concerns”, Politecnico di Milano, Italy, co-supervised with Marcello Bersani, Patrizio Pelliccione, Matteo Rossi

2019

Matteo Soldo, thesis: “User-Friendly controller synthesis for multi-agent robotic applications in presence of agents with unknown with unknown behavior”, Politecnico di Milano, Italy, co-supervised with Marcello Bersani, Patrizio Pelliccione, Matteo Rossi

Invited Talks and Panel Discussions

2019

Automated Verification of Cyber-Physical Systems: From Theory to Practice
Workshop on Software Reliability for Madrid Flight on Chip
<https://flightonchip.es/workshop19/>

A Journey on a Two-Year Research Collaboration with Industry
Formal Methods for Autonomous Systems Workshop, co-located with Formal Methods

Strategy Patterns for Multi-Agent CPS
Dagstuhl Seminar - Explainable Software for Cyber-Physical Systems