VITTORIO CORTELLESSA

https://www.disim.univaq.it/VittorioCortellessa

Role: Full Professor (since March 2018)
Employer: Università degli Studi dell'Aquila, Department of Information Engineering and Computer Science, and Mathematics (DISIM)
Education: PhD in Computer Science, October 1995, Università di Roma Torvergata

MAIN POSITIONS COVERED (in reverse chronological order)

Long term (more than 6 months)

(March 2005 – February 2018)
Associate Professor - Università degli Studi dell'Aquila, Department of Computer Science

(November 2001 – February 2005)
Researcher - Università degli Studi dell'Aquila, Department of Computer Science

(January 2000 - October 2001)
Research Assistant Professor - Lane Computer Science and Electrical Engineering Department, College of Engineering and Mineral Resources, West Virginia University, Morgantown, WV (USA).

(April 2000 - October 2001)
Assegnista di Ricerca - Dipartimento di Informatica, Sistemi e Produzione, Università di Roma Torvergata.

(January 1998 - December 1999)
Post-Doc - Dipartimento di Informatica, Sistemi e Produzione, Università di Roma Torvergata.

(July 1997 - December 1997)
Post-Doc Fellow - European Space Agency (ESRIN, Frascati, Italy).

Short term (less than 6 months)

Visiting Professor - Lane Computer Science and Electrical Engineering Department, College of Engineering and Mineral Resources, West Virginia University, Morgantown, WV (USA): April - July 2012 ; April - June 2005 ; November - December 2002.

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CONFERENCE ORGANIZATION

General co-Chair

- 2nd ACM/SPEC International Conference on Performance Engineering (ICPE 2011)
- Working IEEE/IFIP Conference on Software Architecture and Component-Based Software Engineering and Software Architecture (WICSA and COMPARCH 2016)
- 8th ACM/SPEC International Conference on Performance Engineering (ICPE 2017)

Program co-Chair

- 6th ACM International Workshop on Software and Performance (WOSP 2007)
- 7th European Performance Engineering Workshop (EPEW 2010)
- 38th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2012)
- 16th International Conference on Fundamental Approaches to Software Engineering (FASE 2013)
- 7th International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2013)
- 12th ACM/SPEC International Conference on Performance Engineering (ICPE 2021)
- 20th IEEE International Conference on Software Architecture (ICSA 2023)

Program Committee Member (major conferences)

- IEEE/ACM International Conference on Software Engineering (ICSE): 2026 (NIER track), 2025 (NIER track), 2024 (NIER track), 2023 (NIER track), 2021 (Journal First Track), 2017, 2016 (Program Board), 2014 (Program Board), 2012, 2011, 2009
- IEEE/ACM International Conference on Automated Software Engineering (ASE): 2026, 2017, 2016, 2015, 2014, 2012, 2011, 2010, 2009, 2006
- Joint meeting of the European Software Engineering Conference and the ACM Symposium on the Foundations of Software Engineering (ESEC/FSE): 2023, 2021, 2019, 2013
- ACM/SPEC International Conference on Performance Engineering (ICPE): 2026, 2025, 2024, 2023, 2022, 2020, 2019, 2018, 2016, 2015, 2014, 2012
- ACM International Workshop on Software and Performance (WOSP): 2010, 2008, 2005
- ACM/IEEE International Conference on Software Architecture (ICSA): 2026, 2025, 2024, 2021, 2020, 2019, 2018, 2017
- European Conference on Software Architecture (ECSA): 2022, 2021, 2020, 2017
- International Conference on Fundamental Approaches to Software Engineering (FASE): 2020, 2015, 2014, 2010, 2008
- ACM/IEEE International Conference on Model-Driven Engineering Languages and Systems (MODELS): 2012, 2010
- IEEE International Symposium on Software Reliability Engineering (ISSRE): 2015, 2011
- European Performance Engineering Workshop (EPEW): 2016, 2011
- ACM SIGSOFT International Symposium on Architecting Critical Systems (ISARCS): 2013
- International Conference on the Quality of Software Architectures (QoSA): 2015, 2014
- European Dependable Computing Conference (EDCC): 2024, 2022, 2018, 2017
- IEEE International Symposium on High-Assurance Systems Engineering (HASE): 2004

Steering Committee Member

- ACM/SPEC International Conference on Performance Engineering (ICPE): 2011 - today
- ACM/IEEE International Conference on Software Architecture (ICSA): 2022 - 2025
- European Joint Conference on Theory and Practice of Software (ETAPS): 2011 - 2014
- ACM International Workshop on Software and Performance (WOSP): 2005 - 2010

Co-Organizer

- Third International Workshop on Software Engineering for Sensor Network Applications (SESENA 2012)
- 12th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Model-Driven Engineering (SFM 2012)

EDITORIAL BOARD MEMBER

- Empirical Software Engineering journal (Springer): 2013 - 2021
- ACM Transactions on Software Engineering and Methodology: 2014 – 2020

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PUBLICATIONS

SCOPUS : *https://www.scopus.com/authid/detail.uri?authorId=6603764364*
GOOGLE SCHOLAR *: http://scholar.google.com/citations?user=s4JPUOEAAAAJ*
DBLP *: http://dblp.uni-trier.de/pers/hd/c/Cortellessa:Vittorio*
ORCID : *https://orcid.org/0000-0002-4507-464X*

TUTORIALS AND INVITED TALKS

Tutorials

- "Performance Validation of Mobile Software Architectures", Vittorio Cortellessa, Vincenzo Grassi, Raffaela Mirandola: 1) IFIP Performance Conference, Rome (Italy), September 2002; 2) ACM International Workshop on Software and Performance, Redwood City (USA), January 2004
- "Transformations of Software Models into Performance Models", Vittorio Cortellessa, Antinisca Di Marco, Paola Inverardi: 1) Quantitative Evaluation of Systems Conference, Enschede (NED), September 2004; 2) International Conference on Software Engineering, St. Louis (USA), May 2005
- "Transformations from software models to quality models: mechanisms, approaches, technologies, tools", Vittorio Cortellessa, Antinisca Di Marco, Luca Berardinelli: ACM International Workshop on Software and Performance, Princeton (USA), June 2008

Invited Talks

- "Software Performance Antipatterns: Modeling and Analysis", 12th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Model-Driven Engineering, 18-23 June 2012, Bertinoro (Italy)
- "Optimization models for non-functional requirements validation", The 25th CREST Open Workshop: Requirements and Test Optimisation, UCL, London (UK), February 2013
- "Tradeoff analysis of software quality attributes through optimization models", 10th International Workshop on Formal Engineering approaches to Software Components and Architectures , FESCA@ETAPS, Rome (Italy), March 2013

- "Performance Antipatterns: state-of-art and future perspectives", 10th European Workshop on Performance Engineering, EPEW, Venice (Italy), September 2013
- "Performance-Driven Software Model Refactoring", 1st International Workshop on Software Refactoring, IWoR@ASE 2016, Singapore, September 2016
- "Performance-Driven Software Model Refactoring", 1st International Workshop on Testing Extra-Functional Properties and Quality Characteristics of Software Systems (ITEQS@ICST), Tokyo (Japan), May 2017
- "Challenges in automating performance tool support", Panel of WOSP-C@ICPE: Vittorio Cortellessa; Abel Gómez; Samuel Kounev; Catalina M. Lladó; Connie U. Smith; Murray Woodside, Berlin (Germany), April 2018
- "Performance-driven software model refactoring", International Summer School on Software Engineering (SIESTA), Termoli (Italy), September 2019
- "25+ years of Software Performance: From Integrated System Modelling to ML-based Analysis, What's Next?", 9th Workshop on Challenges in Performance Methods for Software Development (WOSP-C@ICPE), London (UK), May 2024
- "25+ years of Software Performance: From Integrated System Modelling to ML-based Analysis, What's Next?", 1st International Workshop on Systems and Methods for Sustainable Large-Scale AI (GreenSys@EuroSys), Rotterdam (NL), April 2025
- "Software Performance Engineering (1995-2025): from monolithic models to AI-based runtime analysis", #4Dev@Microsoft, Roma (Italy), October 2025

AWARDS

- 10-Years Most Influential Paper Award at ACM/IEEE International Conference on Software Architecture (ICSA 2017)
  Title : "A Modeling Approach to Analyze the Impact of Error Propagation on Reliability of Component-Based Systems" @ CBSE 2007
  Authors : Vittorio Cortellessa, Vincenzo Grassi
- 10-Years Most Influential Regular Paper Award (Journal of Software and System Modeling), presented at ACM/IEEE 27th International Conference on Model Driven Engineering Languages and Systems (MODELS 2024)
  Title : "An approach for modeling and detecting software performance antipatterns based on first-order logics"
  Authors : Vittorio Cortellessa, Antinisca Di Marco, Catia Trubiani

- Best Paper Award at 1st Conference on Simulation Modeling and Applications (CSMA 1998)
  Title : "An Analysis of the Efficiency of Optimistically Synchronized Parallel Simulators"
  Authors : Vittorio Cortellessa, Francesco Quaglia
- ACM Best Paper Award at 14th IEEE/ACM Workshop on Parallel and Distributed Simulation (PADS 2000)
  Title : "Grain sensitive event scheduling in time warp parallel discrete event simulation"
  Authors : Francesco Quaglia, Vittorio Cortellessa
- EASST Best Paper Award at 13th European Joint Conferences on Theory and Practice of Software (ETAPS 2010)
  Title : "Performance Modeling and Analysis of Context-Aware Mobile Software Systems"
  Authors : Luca Berardinelli, Vittorio Cortellessa, Antinisca Di Marco
- Best Paper Award at 19th European Performance Engineering Workshop (EPEW 2023)
  Title : "Performance of Genetic Algorithms in the Context of Software Model Refactoring"

Authors : Vittorio Cortellessa, Daniele Di Pompeo, Michele Tucci
- Best Paper Award (Industrial Track) at IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2024)
Title : "RADig-X: a Tool for Regressions Analysis of User Digital Experience"
Authors : Federico Di Menna, Vittorio Cortellessa, Maurizio Lucianelli, Luca Sardo, Luca Traini

- ACM Best Poster Award at 8th Component-Based Software Engineering and Software Architecture Conference (COMPARCH 2014)
Title : "Performance-based Selection of Software and Hardware Features under Parameter Uncertainty"
Authors : Leire Exteberria, Catia Trubiani, Vittorio Cortellessa, Goiuria Sagardui

- IEEE/ACM Distinguished Reviewer Award at 31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016)

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RESPONSIBILITY OF RESEARCH PROJECTS

Principal Investigator

- "Bayesian framework for reliability prediction of component based software", funded by NASA IV&V Facility (Fairmont, WV, USA): 1/4/2000 – 28/2/2001
- "Verification and validation of UML dynamic specifications", funded by NASA IV&V Facility (Fairmont, WV, USA): 1/10/2000 - 30/9/2001
- "Global Software Project (GSP V3.0)", funded by Siemens Corporate Research (Princeton, USA): 1/10/2007 - 30/9/2008
- "Dynamic Positioning System Architecture", funded by Chemtech Servicos de Engenharia e Software Ltda. (Rio de Janeiro, Brazil): 1/10/2009 - 30/9/2010
- "Consistent evolution of software artifacts and non-functional models", funded by European Office for Aerospace Research and Development (EOARD - Air Force), Award for Grant/Coperative Agreement no.FA-8655-11-1-3055: 1/10/2011 - 30/09/2014
- "RECHARGE: monitoRing, dEtection, and CHaracterization of performAnce ReGrEssions", PRIN: Progetti di Ricerca di Rilevante Interesse Nazionale – Bando 2022 PNRR (1/12/2023 – 28/2/2026)
- "MATTERS: Modeling and Analyzing Tradeoffs beTween cybERsecurity and other quality attributes in cyber-physical Systems", PNRR SERICS (SEcurity and RIghts In the CyberSpace), Bando a Cascata per Università, Spoke 8

Research Unit Responsible

- "Progettazione e validazione delle prestazioni in sistemi mobili", funded by MIUR, Progetto Giovani Ricercatori: 1/01/1999- 31/12/1999
- "Performability-Aware Computing: Logics, Models, and Languages (PaCO)", PRIN funded by MIUR , D.M. 1175 del 18/09/2007 (PRIN 2007): 22/9/2008 - 21/9/2010

- "MegaModelling at Runtime - scalable model-based framework for continuous development and runtime validation of complex systems (MegaM@Rt2)", Programme/Call: H2020-ECSEL-2016-1-RIA-two-stage: 1/4/2017 – 31/3/2020
- "MEDITATE: towards Model-based gEneration anD optImizaTion of Advanced driver assistance systems Testing scEnarios in co-simulation", PRIN: Progetti di Ricerca di Rilevante Interesse Nazionale – Bando 2022 (4/2/2025 – 3/2/2027)

TECHNOLOGICAL TRANSFER

- Responsible for Dipartimento di Informatica dell'Università dell'Aquila, as subcontractor of Thales Italia (Chieti), in the context of the MIUR-funded project entitled: "Reti di sensori e architetture distribuite di controllo e comunicazione wireless: un progetto di prevalente ricerca industriale per il riorientamento e la riqualifica professionale della struttura di ricerca di Thales Italia SpA in Chieti" (2012-2015)
- Responsible for Dipartimento di Informatica dell'Università dell'Aquila, as subcontractor of Thales Italia (Chieti), in the context of the European Defense Agency (EDA)-funded project entitled: "TACTICal Service oriented architecture" (2012-2016)
- Responsible of the project "ERMES: Envisioning Railway systems through Model-driven Engineering approacheS", funded under a Grant Agreement between University of L'Aquila and Rete Ferroviaria Italiana (2018-2025)
- Responsible of the project "Monitoraggio di parametri relativi alla Quality of Experience (QoE) in contesti di live streaming", funded under a Grant Agreement between University of L'Aquila and Autorità per le Garanzie nelle Comunicazioni (2024-2025)
- Responsible of WP in the EMERGE Navigation project "Connected, geo-localized and cybersecure vehicles", funded by EU/MISE/Regione Abruzzo (2019-2024)

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SUPERVISION/EVALUATION OF PHD STUDENTS AND CANDIDATES

Advisor of PhD Students

1. Pasqualina Potena (Università "G. D'Annunzio" di Chieti-Pescara, 2004-2008) – PhD Dissertation: "Decision Supporting Models for Component-Based and Service-Oriented Software Development"
2. Carlo Rosa (Università dell'Aquila, 2005-2010) - PhD Dissertation: "Cross-layer Protocols in MANETs"
3. Luca Berardinelli (Università dell'Aquila, 2007-2011) – PhD Dissertation: "Non-Functional Modeling and Analysis of Context-Aware Software Systems"
4. Catia Trubiani (Università dell'Aquila, 2007-2011) – PhD Dissertation: "Automated generation of architectural feedback from software performance analysis results"
5. Davide Arcelli (Università dell'Aquila, 2011-2015) – PhD Dissertation: "Model-based Software Refactoring Driven by Performance Analysis"
6. Daniele Di Pompeo (Università dell'Aquila, 2015-2019) - PhD Dissertation: "Automated Software Refactoring driven by non-functional properties"
7. Luca Traini (Università dell'Aquila, 2017-2021) - PhD Dissertation: " Performance Engineering in Agile/DevOps Development Processes"

8. Michele Tucci (Università dell'Aquila, 2017-2021) - PhD Dissertation: "Advanced model-driven techniques to improve non-functional properties of software systems"
9. Tiziano Lombardi (Università dell'Aquila, 2018-2022) - PhD Dissertation: "Railways modeling ecosystem for holistic design of computer-based interlocking systems"
10. Muhammad Imran (Università dell'Aquila, 2022-2026) - PhD Dissertation: "On Automating Performance Problems Detection in Software Systems through Empirical Analysis"
11. Federico Di Menna (Università dell'Aquila, 2022-ongoing)

International PhD Committee Member – Final Exam

- Genaina Nunes Rodrigues, University College London (UK), Advisor : David Rosenblum (2008)
- Jing Xu, Carleton University (Canada), Advisor : Murray Woodside (2008)
- Egor Bondarev, Technical University of Eindhoven (Netherlands), Advisor : Michel Chaudron (2009)
- Lorea Belategui Olascoaga, Mondragon Unibertsitatea (Spain), Advisor : Goiuria Sargadui (2012)
- Diego Perez Palacin, Universidad de Zaragoza (Spain), Advisor : Jose Merseguer (2012)
- Dorin B. Petriu, Carleton University (Canada), Advisor : Murray Woodside (2014)
- Yasmeen Rafiq, University of York (UK), Advisor : Radu Calinescu (2015)
- Mehrdad Saadatmand, Malardalen University (Sweden), Advisor : Michael Sjodin (2015)
- Shadi Ghaith, University College Dublin (Ireland), Advisor : John Murphy (2015)
- Teerat Pitakrat, Universitat Stuttgart (Germany), Advisor: Andre van Hoorn (2018)
- Sergiy Kolesnikov, Universitat Passau (Germany), Advisor: Sven Apel (2019)
- Tanwir Amad, University of Helsinki (Finland), Advisor: Dragos Truscan (2020 - only review)
- Jevgenija Pantiuchina, Università della Svizzera Italiana (Swiss), Advisor: Gabriele Bavota (2021)
- Joel Scheuner, Göteborgs Universitet (Sweden), Advisor: Philipp Leitner (2022)

PhD thesis external reviewer

- Sergio di Meglio, Università di Napoli "Federico II", Advisor: Sergio Di Martino (2025)

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EVALUATION OF RESEARCH PROJECTS/LABS

- Research proposal reviewer for the Netherland Organization for Scientific Research (NWO), Jacquard Research Programme (2009)
- Research proposal reviewer for the Natural Science and Engineering Research Council of Canada, Discovery Grants program (2010)
- Member of the visiting committee (Agence d'evaluation de la recherche et de l'enseignment superieur (AERES)) for the evaluation of research activities at Laboratoire d'Informatique de Nantes Atlantique (LINA – UMR 6241) (2010)

- Research proposal reviewer for the Information and Communication Technology Call, Vienna Science and Technology Fund (WWTF), Austria (2012)
- Research proposal reviewer for the Swiss National Science Foundation (2013)
- Member of review panel of the Swedish Research Council for the call in Natural and Engineering Sciences (NT-Q), Sweden (2024)

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OTHER RESEARCH EVALUATION COMMITTEES

Member of Committee for the Admission to National PhD programs

- Informatica ed Applicazioni presso l'Università dell'Aquila - XIX ciclo (2003)
- Informatica ed Applicazioni presso l'Università dell'Aquila - XXIV ciclo (2008) - *chair*
- Ingegneria e Scienze dell'Informazione presso l'Università dell'Aquila - XXXII ciclo (2016)

Member of National Committee for PhD Title Assignment

- Dottorato in Scienze presso l'Università "G. D'Annunzio" di Chieti-Pescara (2008)
- Dottorato in Informatica presso l'Università di Roma Torvergata (2009)
- Dottorato in Informatica ed Ingegneria dell'Automazione presso l'Università di Roma Torvergata (2010)
- Dottorato in Ingegneria dell'Informazione presso il Politecnico di Milano (2012)
- Dottorato in Ingegneria e Scienze dell'Informazione presso l'Università dell'Aquila (2017) - *chair*

Member of PhD Board

- Informatica ed Applicazioni (Università dell'Aquila) - from XIX to XXVII cycle (2003–2012)
- Ingegneria e Scienze dell'Informazione (Università dell'Aquila) - from XXVIII cycle to today (2012-today)

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TEACHING

Regular courses at Università dell'Aquila

- Operating Systems (undergrads, 6 credits) : since 2001-2002 up today
- Advanced Software Engineering (grad. stud., 6 credits) : since 2004 -2005 up today
- Advanced Verification and Validation (grad. stud., 3 credits) : since 2016-2017 up today
- Software Engineering Project (grad. stud., 3 credits) : 2010-2011
- Foundations of Computer Science (undergrads at Economics, 3 credits) : 2003-2004
- Software Engineering I (undergrads, 6 credits) : 2001-2002

Thesis Supervisor

- About 60 Bachelor Degree and 35 Master Degree theses supervised (in Computer Science, Computer Engineering, Mathematics) at Università dell'Aquila (2002-today)
- 3 Master theses (in Computer Science) co-supervised at West Virginia University (2000-2001)

Adjunct Lecturer @ West Virginia University (USA)

- Formal Methods in Software Engineering (CS376) : Fall Semester 2000

Re-qualifying industry employee courses

- "Model-Driven Engineering" at Thales Italy (Chieti) in the context of a MIUR-funded project entitled: "Reti di sensori e architetture distribuite di controllo e comunicazione wireless: un progetto di prevalente ricerca industriale per il riorientamento e la riqualifica professionale della struttura di ricerca di Thales Italia SpA in Chieti" (2012-2015)

- "UML" at Ericsson Italy (Roma) in the context of a peer-to-peer agreement for the re-qualification of Ericsson researchers (2008)

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OTHER COMMITTEES

- Member of the selection committee of a Senior Lecturer (full time - permanent employment) at School of Innovation, Design and Engineering of Malardalen University (Sweden, 2015)
- Member of confirmation committee in their role of Associate Professors (Italy, 2008-09)
- Chair of Committee for the selection of a Computer Engineer at Azienda Regionale per la Tutela dell'Ambiente (ARTA) dell' Abruzzo (Italy, 2007-08)

UNIVERSITY OF L'AQUILA - SERVICES

- Member of the Scientific Committee of the DEWS Excellence Center (2005-2011)
- Chair of PhD School in ICT (2017-2024)
- Member of the Scientific Committee of the EX-EMERGE Excellence Center (2018 - 2024)
- Vicedirector of Department of Information Engineering and Computer Science, and Mathematics (2024-2025)
- Member of Academic Senate (October 2025 - today)