Curriculum Vitae
Catia Trubiani

CONTACT INFORMATION

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EDUCATION

University of L'Aquila, Italy *April 18, 2011*
PhD in Computer Science and Applications
PhD thesis title: "Automated generation of architectural feedback from software performance analysis results", Advisor: Prof. Vittorio Cortellessa
Available online: `http://cs.gssi.it/catia.trubiani/phDthesis/PhDThesis-CatiaTrubiani.pdf`

University of L'Aquila, Italy *January 24, 2007*
Master Degree in Computer Science
Thesis title: "Design and composition of Performance models for Osi Security Architecture", Advisor: Prof. Vittorio Cortellessa
Rank: **110/110 cum laude**

University of L'Aquila, Italy *October 14, 2004*
Bachelor Degree in Computer Science
Thesis title: "Evaluation of services in Publisher/Subscriber architectures with Petri Nets",
Advisor: Prof. Francesco Lo Presti
Rank: **110/110 cum laude**

Scientific Secondary School, Teramo, Italy *July, 2001*
Liceo Scientifico "Albert Einstein"
Rank: **100/100**

EXPERIENCE

Gran Sasso Science Institute September 2019 - now
Assistant Professor Tenure Track *L'Aquila, Italy*

Coordinator: Prof. Michele Flammini, GSSI, Italy
Main activities: co-supervision of the following PhD students: Lorenzo Pagliari (XXXI cycle, Advisor: Raffaela Mirandola, Politecnico di Milano, Italy), Alessandro Balestrucci (XXXII cycle, Advisor: Rocco De Nicola, IMT Lucca, Italy), and Asma Tajuddin (XXXIII cycle, Advisor: Emilio Tuosto, GSSI, Italy); lecturer for the "Quantitative Formal Methods" and "Formal Methods at Work" courses provided to PhD students as part of their programme at GSSI.

Gran Sasso Science Institute   November 2017 - August 2019
Junior Assistant Professor   *L'Aquila, Italy*

Coordinator: Prof. Luca Aceto, GSSI and Reykjavik University, Italy and Iceland

Main activities: co-supervision of the following PhD students: Lorenzo Pagliari (XXXI cycle, Advisor: Raffaela Mirandola, Politecnico di Milano, Italy), Alessandro Balestrucci (XXXII cycle, Advisor: Rocco De Nicola, IMT Lucca, Italy), and Asma Tajuddin (XXXIII cycle, Advisor: Luca Aceto, GSSI and RU, Italy and Iceland); lecturer for the "Quantitative Formal Methods" course provided to PhD students as part of their programme at GSSI.

University of Passau   June 2018
Visiting researcher   *Passau, Germany*

Invited by Prof. Sven Apel

Main activities: collaboration on specifying system uncertainties that affect the learning of performance measurements. Duration of the visit: two weeks. Preliminary results are reported in the Proceedings of New Ideas and Emerging Results (NIER) track of International Conference on Software Engineering (ICSE 2019), authored by Catia Trubiani and Sven Apel, titled: "PLUS: Performance Learning for Uncertainty of Software".

University of Stuttgart   May 2016
Visiting researcher   *Stuttgart, Germany*

Invited by Dr. Andre van Hoorn

Main activities: collaboration on specifying performance antipatterns from the analysis of load testing and profiling data. Duration of the visit: two weeks. Results are reported in the Journal of Information & Software Technology, volume 95, March 2018, authored by Catia Trubiani, Alexander Bran, Andre van Hoorn, Alberto Avritzer, Holger Knoche, titled: "Exploiting load testing and profiling for Performance Antipattern Detection".

Johannes Kepler University   January 2016
Visiting researcher   *Linz, Austria*

Invited by Prof. Alexander Egyed, Linz, Austria

Main activities: collaboration on specifying a language managing the uncertainty for traceability links matching architectural model elements and extra-functional analysis results. Duration of the visit: two weeks. Results are reported in the Journal of Systems and Software (JSS), volume 125, March 2017, authored by Catia Trubiani, Achraf Ghabi, and Alexander Egyed, titled: "Exploiting traceability uncertainty between software architectural models and extra-functional results".

Imperial College   March 2015
Visiting researcher   *London, UK*

Invited by Dr. Giuliano Casale, London, UK

Main activities: collaboration on specifying model-driven software refactorings in cloud-based systems. Duration of the visit: two weeks. Results are reported in the Proceedings of IEEE International Conference on Cloud Computing (CLOUD 2016), authored by Daniel J. Dubois, Catia Trubiani, and Giuliano Casale, titled: "Model-Driven Application Refactoring to Minimize Deployment Costs in Preemptible Cloud Resources".

Mondragon University   May 2013
Visiting researcher   *Mondragon, Spain*

Invited by Dr. Leire Exteberria, University of Mondragon, Spain

Main activities: collaboration on specifying software and hardware features that are uncertain and contribute to affect system performance. Duration of the visit: two weeks. Results are reported in the

Proceedings of ACM Conference on Quality of Software Architectures (QoSA 2014), authored by Leire Etxeberria, Catia Trubiani, Vittorio Cortellessa, and Goiuria Sagardui, titled: "Performance-based selection of software and hardware features under parameter uncertainty".

Karlsruhe Institute of Technology 2009-2014
Visiting researcher *Karlsruhe, Germany*

Invited by Prof. Anne Koziolek, Karlsruhe Institute of Technology, Karlsruhe, Germany

Main activities: collaboration on developing research methodologies to detect and solve performance antipatterns in Palladio architectural models. Duration of the visit: more than one year. The work developed during the collaboration has been published in the Proceedings of International Conference on Performance Engineering (ICPE 2011), and it received the **BEST RESEARCH PAPER AWARD**.

Gran Sasso Science Institute April 2014 - October 2017
Post-doc researcher *L'Aquila, Italy*

Coordinator: Prof. Rocco De Nicola, IMT Lucca, Italy

Main activities: co-supervision of the following PhD students: Emilio Incerto (XXX cycle, Advisor: Mirco Tribastone, IMT Lucca, Italy), and Tan Duong (XXX cycle, Advisor: Rocco De Nicola, IMT Lucca, Italy); lecturer for the "Quantitative Formal Methods" course.

University of L'Aquila February 2011 - 2014
Research fellow *L'Aquila, Italy*

Coordinator: Prof. Vittorio Cortellessa, University of L'Aquila, Italy

Main activities: development of research methodologies applied in the context of the following European projects: (i) VISION - "Video-oriented UWB-based Intelligent Ubiquitous Sensing", i.e., ERC Starting Grant (principal investigator Dajana Cassioli); (ii) CRAFTERS - "ConstRaint and Application driven Framework for Tailoring Embedded", funded by Artemis European council.

Imperial College London June - August 2008
Visiting PhD student *London, UK*

Coordinator: Prof. Naranker Dulay, Imperial College, London, UK

Main activities: development of research methodologies to enable the trade-off analysis of performance and security quality attributes, in collaboration with a Post-doc researcher, Leonardo Mostarda. The work developed during our collaboration has been published in the Proceedings of International Symposium on Architecting Critical Systems (ISARCS 2010).

University of Rome "Tor Vergata" February - October 2007
Research fellow *Rome, Italy*

Coordinator: Prof. Stefano Salsano, University of Rome "Tor Vergata", Italy

Main activities: development of research methodologies applied to the European Project SMS - "Simple Mobile Services" belonging to FP7, 7th Framework Programme for Research and Technological Development. My activity within the project was on modeling telecommunication services for mobile devices through Unified Modeling Language (UML), automatic composition of services and generation of code. The work has been published in the Proceedings of IEEE Wireless Communications & Networking Conference (WCNC 2008).

AWARDS AND HONORS

Seal of Excellence by the European Commission 2019

Marie Sklodowska-Curie Individual Fellowship Action Seal of Excellence provided by the European Commission for the project proposal "PLUS: Performance Learning for Uncertainty of Software".

Exceptional Reviewer Award for ICSA 2018

the selection process was based on the outcomes of the Review Quality Collector tool, together with the thorough check of its inputs and outcomes by ICSA 2018 PC chairs.

Selected for participation to Think 20 Summit 2017

selected for participation as Young Global Changer (acceptance: 8%) to The Think 20 Summit in the context of the G20 Germany 2017, May 28-30, Berlin, Germany.

Outstanding Contribution in Reviewing 2016

from the Editors of the Journal of Systems and Software (JSS), Elsevier, in recognition of the contributions made to the quality of the journal.

Best Research Paper Award at ECSA 2015

for the paper titled "Exploiting Traceability Uncertainty between Software Architectural Models and Performance Analysis Results", by Catia Trubiani, Achraf Ghabi and Alexander Egyed, in the Proceedings of European Conference on Software Architecture (ECSA 2015), **conference rank: A**, rank provided by the core classification.

Selected for participation to 3rd Heidelberg Laureate Forum 2015

selected for participation as Young Researcher (acceptance: 10%) to 3rd Heidelberg Laureate Forum (HLF), August 23-28, 2015, Heidelberg, Germany. My perspective has been published in HLF Review: https://www.yumpu.com/en/document/view/55137965/hlf-review-2015, pp. 56-57.

Microsoft Azure Research Award 2014

for the project titled "DESPACE - DEtecting and Solving Performance Antipatterns in Cloud Enviroments". Microsoft Research offered to make available the Microsoft Azure Platform 12 month Research Pass to develop a prototype detecting and solving software performance antipatterns in cloud-based software systems. The results have been published in the Proceedings of IEEE International Conference on Cloud Computing (CLOUD 2016). The estimated total market value of the award is $40k USD.

Best Poster Award at CompArch 2014

the poster is related to the paper titled "Performance-based selection of software and hardware features under parameter uncertainty", by L. Etxeberria, C. Trubiani, V. Cortellessa, G. Sagardui, in the Proceedings of International Conference on Quality of Software Architecture (QoSA 2014).

Top 10 Downloaded Articles 2013

ACM SIGSOFT Software Eng. Notes reported the paper titled "Model-based performance analysis of software architectures under uncertainty", by C. Trubiani, I. Meedeniya, V. Cortellessa, A. Aleti, L. Grunske, in the Proceedings of International Conference on Quality of Software Architecture (QoSA 2013), in the list of Top 10 Downloaded Articles.

Best Research Paper Award at ICPE 2011

for the paper titled "Detection and solution of software performance antipatterns in palladio architectural models", by Catia Trubiani, Anne Koziolek, in the Proceedings of International Conference on Performance Engineering (ICPE 2011).

RESEARCH INTERESTS

My main research interests include the quantitative modelling and analysis of interacting heterogeneous distributed systems. Special interest is for the application of formal methods to software engineering problems, such as stochastic processes (in particular Markov chains) and higher-level formalisms such as process algebras and queueing networks applied to the quantitative evaluation of software systems. More recently I am investigating quality-of-service and optimisation problems applied to cyber-physical and cloud-based systems. Hereafter some technical keywords related to my research interests.

- Software Engineering: Model-based Performance Analysis, Performance-based Software Refactoring, Software Architectures, Quality Optimization.
- Formal Methods: Stochastic Processes, Stochastic Process Algebras, Queueing Networks, Stochastic Petri Nets, Probabilistic Model Checking.

DAGSTUHL SEMINARS

Composing Model-Based Analysis Tools   2019

GI-Dagstuhl Seminar 19481

organized by Francisco Duran (University of Malaga, ES), Robert Heinrich (Karlsruhe Institute of Technology, DE), Diego Perez-Palacin (Linnaeus University, Vaxjo, SE), Carolyn L. Talcott (Menlo Park, US), Steffen Zschaler (King's College London, GB).

Talk title: "Collaborative Model-based Analysis for Uncertainty Reduction and Quality-based Refactoring", report of the seminar available at: `http://dx.doi.org/10.4230/DagRep.9.11.97`

Software Performance Engineering in the DevOps World   2016

GI-Dagstuhl Seminar 16394

organized by Pooyan Jamshidi (Imperial College, UK), Philipp Leitner (Universitat Zurich, CH), Andre van Hoorn (Universitat Stuttgart, DE), and Ingo Weber (Dataa61 / NICTA - Sydney, AU).

Talk title: "SPE meets DevOps: best friends or consensual enemies?"

Quality-of-Service Attributes in Service- and Cloud-based Systems   2012

GI-Dagstuhl Seminar 12211

organized by Lars Grunske (Techische Universitat Kaiserslautern, DE), Samuel Kounev (Karlsruhe Institute of Technology, DE), and Ina Schaefer (Technische Universitat Braunschweig, DE).

Talk title: "Uncertainty in Software Performance Model Refactoring"

Model-driven quality prediction   2009

GI-Dagstuhl Seminar 09492

organized by Steffen Becker (FZI Karlsruhe, DE), Raffaela Mirandola (Politecnico di Milano, IT), and Petr Tuma (Charles University - Prague, CZ).

Talk title: "Model-Based Feedback for Software Performance Improvement"

Quantitative Software Design   2009

GI-Dagstuhl Seminar 09432

organized by Astrid Kreissig (IBM Deutschland - Boblingen, DE), Iman Poernomo (King's College - London, GB), and Ralf Reussner (Karlsruhe Institute of Technology, DE).

Talk title: "Performance and Security issues in software design"

INVITED TALKS

ECSA workshop, online due to covid-19 — 2020

International workshop on Formal Approaches for Advanced Computing Systems (FAACS), organized by Matteo Camilli and Stephanie Challita

Talk title: "Performance Learning for Uncertainty of Software Systems"

University of Tartu, Estonia — 2019

Introduction to the Workshop organized with Severine Sentilles, Barry W. Boehm, and Anne Koziolek.

Talk title: "Software Qualities and their Dependencies"

Workshop attendees: ∼30 persons

University of Passau, Germany — 2018

Research visit organized by Sven Apel.

Talk title: "Robust Software Performance Adaptation under Uncertainty"

Reykjavik University, Iceland — 2018

Research visit organized by Luca Aceto.

Talk title: "Uncertainty Propagation in Software Performance Engineering"

University of Zaragoza, Spain — 2017

Research visit organized by Jose Merseguer.

Talk title: "Software Performance Antipatterns in Real-Time Applications"

University of Copenhagen, Denmark — 2016

Invited by Elisa Yumi Nakagawa and Elena Navarro.

Panelist for the track on *Women in Software Architecture*, co-located with European Conference on Software Architecture (ECSA). Certificate of participation is available at: `http://cs.gssi.it/catia.trubiani/download/WSA_certificate_Catia.pdf`

University of Passau, Germany — 2016

Research visit organized by Sven Apel.

Talk title: "Software Performance Engineering in the DevOps World"

Charles University in Prague, Czech Republic — 2016

Research visit organized by Tomas Bures.

Talk title: "Narrowing the Uncertainty Gap between Software Models and Performance Results"

University of Stuttgart, Germany — 2016

Research visit organized by Andre van Hoorn.

Talk title: "Round-trip Software Performance Engineering focusing on Antipatterns"

Johannes Kepler University in Linz, Austria — 2016

Research visit organized by Alexander Egyed.

Talk title: "Software Performance Antipatterns to reduce Traceability Uncertainty"

Imperial College, London, UK — 2015

Research visit organized by Giuliano Casale.

Talk title: "Software Performance Antipatterns: State-of-Art, Challenges and Future Directions"

IMT Lucca, Lucca, Italy 2015

Research visit organized by Rocco De Nicola.
Talk title: "Model-based Performance Analysis under Uncertainty"

High Performance Computing, Barcelona, Spain 2014

Research visit organized by Fabrizio Gagliardi.
Talk title: "Using Software Performance Antipatterns in Cloud Computing"

Karlsruhe Institute of Technology, Germany 2013

Invited as **Keynote Speaker** for the Symposium on Software Performance by Ralf Reussner.
Talk title: "Software Performance Antipatterns Challenges: How to Get Rid of Worms Before Contaminating the Apple?"

Mondragon University, Spain, Spain 2013

Research visit organized by Leire Exteberria.
Talk title: "Model-based Performance Analysis under Uncertainty"

Carleton University, Ottawa, Canada 2013

Research visit organized by Dorina Petriu.
Talk title: "Interpreting Software Performance Analysis Results by Means of Antipatterns"

INVITED TUTORIALS

University of British Columbia, Canada 2013

Tutorial provided for the International Conference on Component-Based Software Engineering and Software Architecture (CompArch 2013), http://www.comparch2013.org/program/tutorials.html
Tutorial title: "Round-trip Software Performance Engineering"
Duration of the tutorial: 3 hours

University of Rome, Italy 2013

Tool Tutorial provided for the International Workshop on Formal Engineering approaches to Software Components and Architectures (FESCA 2013) - http://fesca.ipd.kit.edu/fesca2013
Tutorial title: "Performance antipatterns and feedback in software architectures"
Duration of the tutorial: 1 hour and 30 minutes

PROGRAM COMMITTEE

PC member for the following conferences:

- International Conference on Performance Engineering (ICPE 2021, ICPE 2019, ICPE 2018, ICPE 2017, ICPE 2015, ICPE 2014, ICPE 2013)
- International Conference on Software Architecture (ICSA 2021, ICSA 2020, ICSA 2019, ICSA 2018)
- European Conference on Software Architecture (ECSA 2021)
- International Conference on Software Analysis, Evolution and Reengineering - Tool Track (SANER-tool 2020)
- International Conference on Software Maintenance and Evolution - Tool Demo Track (ICSME-Tool-Demo 2020)
- European Conference on Software Architecture - Workshops Track (ECSA-Workshops 2019)
- International Conference on Software Engineering - Demonstrations Track (ICSE-Demo 2018)
- European Conference on Software Architecture - Posters, Tools, and Demos Track (ECSA-Demo 2018)

- Symposium on Applied Computing (SAC) - Track on Software Architecture: Theory, Technology, and Applications (SA-TTA 2020, SA-TTA 2019, SA-TTA 2018, SA-TTA 2017)
- International Workshop on Uncertainty in Modeling (UM 2020)
- International Workshop on Formal Approaches for Advanced Computing Systems (FAACS 2020)
- International Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS 2019, SEsCPS 2018)
- International Conference on the Quality of Software Architectures (QoSA 2015)
- International Conference on Computer Science and Software Engineering (CASCON 2015)
- ESEC/FSE Student Research Competition (ESEC/FSE SRC 2015)
- International Workshop On Survivable Industrial Control Systems (SICS 2019)
- International Workshop on Ensemble-based Software Engineering for Modern Computing Platforms (EnSEmble 2019)
- International Workshop on Sustainable Architecture: Global Collaboration, Requirements, Analysis (SAGRA 2018, SAGRA 2017, SAGRA 2016, SAGRA 2015)
- International Workshop on Challenges and Opportunities in Implementing Tools to Support Performance Analysis (WOSP-T 2019)
- International Conference on Performance Engineering - Vision Track (ICPE-Vision 2019)
- International Workshop on Education and Practice of Performance Engineering (WEPPE 2019)
- Women in Software Architecture (WSA 2019, WSA 2018)
- International Workshop on Architectural Knowledge for Self-adaptive Systems (AKSAS 2018)
- International Workshop on Engineering Collective Adaptive Systems (eCAS 2018)
- International Workshop on Safety & Security aSSurance for Critical Infrastructures Protection (S4CIP 2017, S4CIP 2016)
- International Workshop on Quality-Aware DevOps (QUDOS 2020, QUDOS 2018, QUDOS 2017, QUDOS 2016, QUDOS 2015)
- International Workshop on Formal Engineering approaches to Software Components and Architectures (FESCA 2017, FESCA 2016, FESCA 2015, FESCA 2014)
- European Performance Engineering Workshop (EPEW 2017)
- International Workshop on Education and Practice of Performance Engineering (WEPPE 2017)
- International Workshop on Model-Based Design for Cyber-Physical Systems (MB4CP 2015)
- International Workshop on Safety and Formal Methods (SaFoMe 2015, SaFoMe 2014)
- Doctoral Workshop on Engineering Methods in Computer Science (MEMICS 2015, MEMICS 2014)
- Doctoral Symposium at MODELS 2011

ORGANIZING COMMITTEE

Student Research Competition co-Chair   2021

International Conference on Automated Software Engineering (ASE), together with Xuan Bach D. Le (University of Melbourne, Australia)

Artifact Evaluations co-Chair   2021

International Conference on Performance Engineering (ICPE), together with Tse-Hsun (Peter) Chen (Concordia University, Montreal, Canada)

Early Career Track co-Chair   2021

International Conference on Software Architecture (ICSA), together with Philippe Kruchten (University of British Columbia, Vancouver, Canada)

Program co-Chair   2020

International Conference on Performance Engineering (ICPE), together with Alexandru Iosup (Vrije Universiteit, Amsterdam, Netherlands)

Program co-Chair   2020

Track on Gender Diversity for the European Conference on Software Architecture (ECSA), together with Javier Camara (University of York, UK)

Workshops co-Chair   2019

European Conference on Software Architecture (ECSA), together with Riccardo Scandariato (University of Gothenburg, Sweden)

Program co-Chair   2019

International Workshop on Software QUAlities and their DEpendencies (SQUADE), together with Severine Sentilles (Malardalen University, Sweden), Barry William Boehm (University of Southern California, USA), and Anne Koziolek (Karlsruhe Institute of Technology, Germany). This workshop is co-located with ACM Joint European Software Engineering Conference and Symposium on Foundations of Software Engineering (ESEC/FSE 2019).

Program co-Chair   2018

International Workshop on Software QUAlities and their DEpendencies (SQUADE), together with Severine Sentilles (Malardalen University, Sweden), Barry William Boehm (University of Southern California, USA), Xavier Franch (Polytechnic University of Catalonia, Spain), and Anne Koziolek (Karlsruhe Institute of Technology, Germany). This workshop was co-located with International Conference on Software Engineering (ICSE 2018).

Program co-Chair   2018-2015

International Workshop on Sustainable Architectures (SAGRA), together with Maria Spichkova and Heinz W. Schmidt (both affiliated with RMIT University, Australia).

Workshops co-Chair   2017

International Conference on Performance Engineering (ICPE), together with Hanspeter Mossenbock (Johannes Kepler, University of Linz, Austria)

Posters Chair   2017

International Conference on Software Architecture (ECSA)

Proceedings Chair   2016

International Conference on Performance Engineering (ICPE)

Tutorial Chair   2015

International Conference on Performance Engineering (ICPE)

Program co-Chair   2014

International Workshop on Safety and Formal Methods (SaFoMe), together with Ricardo Rodriguez (University of Zaragoza, Spain)

REVIEWING ACTIVITY

Invited as Reviewer for the following journals:

- IEEE Transactions on Software Engineering (TSE)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ToMPECS)
- Science of Computer Programming (SCP)
- Journal of Empirical Software Engineering (EMSE)
- Future Generation Computer Systems (FGCS)
- Journal of Systems and Software (JSS)
  2016: Outstanding Contribution in Reviewing from the Editors of the JSS, Elsevier, certificate available at: `http://cs.gssi.it/catia.trubiani/download/certificate-jss.pdf`
- Journal of Software and Systems Modeling (SoSyM)
- Journal of Logical and Algebraic Methods in Programming (JLAMP)
- Journal of Electrical and Computer Systems (IJECS)
- Journal of Concurrency and Computation: Practice and Experience (CCPE)
- IEEE Software

Invited as Sub-reviewer for the following conferences:

- International Conference on Software Engineering (ICSE)
- Automated Software Engineering (ASE)
- Fundamental Approaches to Software Engineering (FASE)
- European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)
- Model Driven Engineering Languages and Systems (MODELS)
- European Conference on Software Architectures (ECSA)
- International Symposium on Mathematical Foundations of Computer Science (MFCS)
- International Conference on Performance Engineering (ICPE)
- Quality of Software Architectures (QoSA)
- Symposium on Reliable Distributed Systems (SRDS)
- International Computer Software and Applications Conference (COMPSAC)
- International Wireless Communications and Mobile Computing Conference (IWCMC)
- International Workshop on Principles of Engineering Service-Oriented Systems (PESOS)
- International Workshop on Advances in Parallel and Distributed Computational Models (APDCM)

EXAMINING PHD THESES

University of Bergamo, Italy   2020

invited by Angelo Gargantini, University of Bergamo, Italy

PhD candidate: Marco Radavelli

PhD thesis title: "Application of combinatorial testing and evolutionary algorithms to repair models of configurable systems"

PhD defence: May, 2020

University of Florence, Italy   2017

invited by Enrico Vicario, University of Florence, Italy

PhD candidate: Sara Fioravanti

PhD thesis title: "Performance engineering of multi-level meta-modeling architectures"

PhD defence: July, 2018

University of Mondragon, Spain 2017

invited by Lorea Belategi, University of Mondragon, Spain

PhD candidate: Joseba Andoni Agirre Bastegieta

PhD thesis title: "A method for adapting m2m legacy transformations to changes in model logics and meta-model extensions by profiles"

PhD defence: September, 2017

INDUSTRIAL FUNDING

DANTE Labs 2018

Project title: Efficient Analysis of Genetic Data

Leaded by Dr. Andrea Riposati, CEO of DANTE Labs - https://us.dantelabs.com

Objectives: developing efficient techniques for the analysis of genetic data. DANTE Labs signed an intention to provide funding of 30k Euros for four years, total amount: 120k Euros. This funding will be used for a four years PhD scholarship at GSSI, starting from the 2019/2020 academic year.

AWARDED PROJECTS

PRIN: progetti di ricerca di rilevante interesse nazionale - bando 2017 2019

Project Title: SEDUCE - "Designing Spatially Distributed Cyber-Physical Systems under Uncertainty"

Action line: Young Researchers

Team: Mirco Tribastone (IMT Lucca, Italy), Luca Bortolussi (University of Trieste, Italy), Francesco Tiezzi (University of Camerino, Italy)

Role: Principal Investigator for the GSSI unit

Objectives: specify spatio-temporal requirements for Cyber-Physical Systems (CPS), transform requirements into probabilistic spatio-temporal logical specifications that will be the basis of efficient algorithms for the analysis, verification, and synthesis of CPS.

MIUR contribution to GSSI: 142k Euro, overall project: 656k Euro.

COST action 2018

Project title: "A network for Gravitational Waves, Geophysics and Machine Learning"

Leaded by Dr. Elena Cuoco, data scientist at European Gravitational Observatory, Pisa, Italy

Objectives: create a network of scientists from four different areas of expertise, namely GW physics, Geophysics, Computing Science and Robotics, with the goal of tackling challenges in Data Science. My role is to help in the analysis of machine learning algorithms applied to gravitational waves data.

Submitted on 5th September 2017, funded on 23th April 2018

German Federal Ministry of Education and Research 2015

Project title: diagnoseIT - "expert-guided automatic diagnosis of performance problems in enterprise applications"

Leaded by Dr. Ing. Andre van Hoorn, University of Stuttgart, Germany

Objectives: diagnoseIT provides an easy-to-use system for automated problem/symptom and root cause detection for Java enterprise applications. My role was to head the international collaboration in the context of exploiting load testing and profiling for performance antipattern detection. More details are reported here: `http://diagnoseit.github.io/contributors.html`

Funding: 743K EUR (520k EUR by the German Federal Ministry of Education and Research under Grant No. 01IS15004, the rest by NovaTec Consulting GmbH, Competence Area Application Performance Management).

Microsoft Azure Research Award 2014

Project title: DESPACE - "DEtecting and Solving Performance Antipatterns in Cloud Enviroments"

Objectives: development of a performance analyser prototype exploiting the Microsoft Azure as cloud infrastructure for data processing. The prototype aims to pro-actively identify the potential performance flaws and apply suitable refactoring actions to fix such flaws in advance.

Award: 32 small compute instances for cloud services or virtual machines (Windows or Linux), 10 TB of storage, 1 billion storage transactions, 10 shared websites, 10 shared mobile services, 100 million service bus messages, 100 GB SQL database, 2 TBs network egress/month.

Estimated market value: 40.000 USD

PARTICIPATION TO PROJECT PROPOSALS

Fondo Integrativo Speciale per la Ricerca (FISR)

Project Title: MVM (Milano Ventilatore Meccanico) - Adapt

Role: Principal Investigator for the GSSI unit

Objectives: the objective of this proposal is to equip the MVM with an adaptation engine to design, develop, and certify a safe ventilator that is powerful, yet adaptable when dealing with uncertain parameters coming from monitoring the health status of patients, and much cheaper than the on-the-market ventilators.

Submitted, waiting for notification

Horizon 2020 Programme

Project Title: CROWN-PASS - "Computing Resources Organisation for Workers Nearness monitoring and Population Assistance, Safety and Security"

Call: SC1-PHE-CORONAVIRUS-2020-2B - Medical technologies, Digital tools and Artificial Intelligence (AI) analytics to improve surveillance and care at high Technology Readiness Levels (TRL)

Role: participation to the GSSI unit

Objectives: an ecosystem of integrated IT solutions to monitor the compliance with social distancing and other anti-Covid measures for public spaces (e.g. universities, public buildings), public services (e.g. transport services), and private buildings with a social function (e.g. factories, retail stores, theatres)

Submitted, waiting for notification

Marie Sklodowska-Curie Actions Individual Fellowships

Project Title: PLUS - "Performance Learning for Uncertainty of Software"

Supervisor: Prof. Sven Apel

Host Institution: University of Passau, Germany

Objectives: the specification of a new class of performance models learning how the different uncertainties (e.g., workload, demand) underlying a software system affect its performance characteristics. The proposed models will describe how both the variable configuration options and their intrinsic uncertainty affect the performance characteristics of software systems.

Submitted but not funded, the proposal received the Seal of Excellence from the European Commission: https://cs.gssi.it/catia.trubiani/download/2019-plus-seal-of-excellence.pdf

Marie Sklodowska-Curie Innovative Training Networks

Project Title: HomEGalaxy - "High-Energy phenomena in the Milky Way Galaxy"

Leaded by University of Nova Gorica Slovenia and coordinated by Gabrijela Zahrijas

Role: Co-leader for WP3 - Machine Learning in the support of Indirect Dark Matter Searches - together with Carmelo Evoli, Post-doc Researcher in Physics at GSSI

Objectives: study astrophysics on Galactic scales through the support of machine learning techniques to efficiently analyse large amount of data.
Submitted but not funded

H2020-ICT-Research and Innovation Action (RIA)

Project Title: INFINITY - "A federated platform for things, people and communities"
Leaded by IBM Haifa Research Lab and coordinated by Benjamin Mandler
Role: leader for WP6 - IoT Model-driven analysis and management
Objectives: model-driven management of IoT applications and ecosystems through the specification of common design antipatterns exposing bad practices.
Submitted but not funded

COST action

Project Title: MARaCAS - "Modeling Analyzing and Running Collective Adaptive Systems"
Leaded by Prof. Rocco De Nicola, IMT Lucca, Italy
Objectives: establish an interdisciplinary community working on CAS research and development, to reach a common ground of understanding and to align on-going and future efforts.
Submitted but not funded

PARTICIPATION TO RESEARCH PROJECTS

European project

Funded by: ARTEMIS European Council - agreement num: 295371
Scientific Coordinator: Luigi Pomante, University of L'Aquila
Project Title: CRAFTERS - "ConstRaint and Application driven Framework for Tailoring Embedded"
Objectives: guaranteeing secure, reliable, and timely operations while managing energy consumption with minimal run-time overhead.

ERC starting grant

Funded by: FP7 ideas - agreement num: 240555
Scientific Coordinator: Dajana Cassioli, University of L'Aquila
Project Title: VISION - "Video-oriented UWB-based Intelligent Ubiquitous Sensing"
Objectives: developing an innovative infrastructure providing real-time sensing services, with particular emphasis on 3D video while assuring support for Quality of Service.

Research project of national interest

Funded by: MIUR, D.M. 1175, PRIN 2007.
Scientific Coordinator: Marco Bernardo, University of Urbino, Italy
Project Title: PACO - "Performability-Aware Computing: Logics, Models, and Languages"
Objectives: development and the integration of logics, models, and languages for the description and the analysis of performability-aware systems.

PHD STUDENTS CO-SUPERVISION

Alessandro Balestrucci   2017-2020

PhD student at GSSI, XXXII cycle, Italy
Advisor: Prof. Rocco De Nicola, IMT Lucca, Italy
PhD thesis proposal: Identification of Credulous Users on Social Networks

Lorenzo Pagliari   2016-2020

PhD student at GSSI, XXXI cycle, Italy
Advisor: Prof. Raffaela Mirandola, Politecnico di Milano, Italy
PhD thesis proposal: Performance Engineering of Cyber-Physical Systems

Emilio Incerto   2015-2018

PhD student at GSSI, XXX cycle, Italy
Advisor: Prof. Mirco Tribastone, IMT Lucca, Italy
PhD thesis: Quality Of Services Support for Self-Adaptive Systems under Uncertainties

Tan Duong   2015-2018

PhD student at GSSI, XXX cycle, Italy
Advisor: Prof. Rocco De Nicola, IMT Lucca, Italy
PhD thesis: Programming Language support for Autonomic Computing Systems

STUDENTS CO-SUPERVISION OF THESES

Niko Stadelmaier   2018-2020

MSc student at University of Stuttgart, Germany
Co-Advisor: Dusan Okanovic,, University of Stuttgart, Germany
MSc Thesis: Solving Performance Antipatterns in Golang-based Programs

Alexander Bran   2015-2016

BSc student at University of Stuttgart, Germany
Co-Advisor: Andre van Hoorn, University of Stuttgart, Germany
BSc Thesis: Detecting Performance Antipatterns in Profiler Data

STUDENTS CO-SUPERVISION OF RESEARCH PROJECTS

Andrea Biaggi   2019-2020

MSc student at University of Milano-Bicocca, IT
Co-Advisor: Francesca Arcelli Fontana, University of Milano-Bicocca, IT
Project: Automated Detection of Software Performance Antipatterns in Java-based Applications

Ioannis Stefanakos   2017-2019

PhD student at University of York, UK
Co-Advisor: Radu Calinescu, University of York, UK
Project: Software Architecture Refinement through Probabilistic Model Checking

TEACHING

Formal Methods at Work   2019-present

14 hours PhD course at Gran Sasso Science Institute, Italy
Topics: Stochastic Process Algebras, Markov Decision Processes and Model-based Testing, Timed
Automata, Queueing Networks.

Quantitative Formal Methods   2014-present

10 hours PhD course at Gran Sasso Science Institute, Italy

Topics: Stochastic Processes, Discrete-time Markov chains (DTMCs), Stochastic Petri Nets.

Software Quality Engineering   2012-present

8 hours cycle of seminars for master students course at University of L'Aquila, Italy
Topics: Stochastic Process Algebras, Reward-based Performance Analysis.

Reliable Software Systems   2016

6 hours cycle of seminars for bachelor students course at University of Stuttgart, Germany
Invited by Dr. Andre van Hoorn
Topics: Software Performance Engineering, Model-based Performance Analysis.

Software Engineering   2014

22 hours cycle of seminars for bachelor students course at University of L'Aquila, Italy
Topics: UML for modelling software systems, Design Patterns and Antipatterns.

NATIONAL INTERUNIVERSITY CONSORTIUM FOR INFORMATICS

Cybersecurity Lab.   2018

Member of the Gran Sasso Science Institute (GSSI) node. Goal: disseminate knowledge and awareness
on the issues related to information security and its impact on business systems. Contribute, together
with other actors, to develop innovative solutions for cybersecurity.

Smart Cities & Communities Lab.   2018

Member of the Gran Sasso Science Institute (GSSI) node. Goal: disseminate knowledge and awareness
on ICT technologies for the plan of Smart Cities and its impact on citizens. Contribute, together with
other actors, to develop innovative solutions for improving the quality of citizens' life.

OFFICES HELD

Post-doc fellowships in Computer Science at GSSI   2020

Member of the evaluation committee for the post-doc fellowships provided by GSSI - Computer Science,
one position is funded by the SEDUCE MIUR project.

Scholarships for the PhD in Computer Science at GSSI   2020

Member of the evaluation committee for the scholarships provided by GSSI - PhD program in Computer
Science, academic year: 2020-2021.

Speaker for International Day of Women and Girls in Science at GSSI   2020

Title talk: "Why do research in Computer Science?", talk to encourage high school students for studying
computer science and pursuing research activities.

Speaker for Joint Technology Transfer Office (JoTTO)   2019

Title talk: "Computer Science at GSSI: our expertise", talk to present our research activities and foster
industrial collaborations. Follow-up meeting with LFoundry - http://www.lfoundry.com.

Speaker for Strange Office   2019

Title talk: "Computer Science at GSSI and CyberSecurity Lab", talk to present our research activities
to Strange Office that is a co-working space for professionals and for fostering collaborations, more
details are available at the following link: https://www.strangeoffice.com.

Post-doc fellowships in Computer Science at GSSI   2019

Member of the evaluation committee for the post-doc fellowships provided by GSSI - Computer Science, one position is funded by the SEDUCE MIUR project.

Speaker for "Storie di Progetto - Storie di Successo"   2018

Event organized by Branch Abruzzo, Project Management Institute (PMI), Central Italy Chapter, stories to compare different experiences. Title talk (in Italian): "L'informatica per migliorare la vita dei cittadini: cybersecurity e smart cities".

Scholarships for the PhD in Computer Science at GSSI   2018

Member of the evaluation committee for the scholarships provided by GSSI - PhD program in Computer Science, academic year: 2018-2019.

Scholarships for Master Degrees at the University of L'Aquila   2015

Member of the evaluation committee for 20 scholarships provided by GSSI to students of Master degrees in Physics, Chemistry, Mathematics, Engineering Mathematics, Computer Engineering and Computer Science at the University of L'Aquila.

Rules for the GSSI Computer Science PhD program   2014-present

Member of the committee for the definition of rules for the PhD program in Computer Science. Main points: first year courses, admittance to the second year, final examination, and external research activities such as summer schools and visits to other research institutions. The document is publicly available at: `https://drive.google.com/file/d/1h4BqXnufNJd5yaPHYb-fZ2YFygSfhZYR/view?usp=sharing`

PARTICIPATION TO PHD SCHOOLS

Formal Methods Summer School, Bertinoro, Italy   2012

International School on Formal Methods for the Design of Software Systems: Model-Driven Engineering (Bertinoro, Italy) Speakers: Bran Selic (Malina Software Corporation), Mark van den Brand (Tech. Univ. Eindhoven), Jordi Cabot (Ecole de Mines de Nantes), Holger Giese (Univ. Potsdam), Sebastian Uchitel (Univ. Buenos Aires, Imperial College London), Dorina Petriu (Carleton Univ. Ottawa).

USI-CMU Summer School, Lugano, Switzerland   2008

Summer School on Dependable Computer Systems. Speakers: David Garlan (Carnegie Mellon University), Thomas Gross (ETHZ and Carnegie Mellon University), Fernando Pedone (University of Lugano), Mauro Pezze (University of Lugano and University of Milano-Bicocca), Bill Scherlis (Carnegie Mellon University), Natasha Sharygina (University of Lugano and Carnegie Mellon University).

GII Doctoral School, L'Aquila, Italy   2008

GII Doctoral School - Boosting Services and Information in Adaptive Networked Enterprise. Speakers: Emilio Bellini (University of Sannio), Elisabetta Di Nitto (Politecnico di Milano), Giuseppe Lipari (School of Advanced Studies St Anna), Fabio A. Schreiber (Politecnico di Milano), Letizia Tanca (Politecnico di Milano), Roberto Tedesco (Politecnico di Milano).

ATTENDED CONFERENCES

- (plan to attend) European Joint Conferences on Theory and Practice of Software (ETAPS 2021), Luxembourg

- European Conference on Software Architecture (ECSA 2020), virtual conference

- (part of the organizing committee for the virtual conference: Zoom for online sessions, and Slack — 544 registered members — for questions to authors, physical event cancelled due to covid-19) International Conference on Performance Engineering (ICPE 2020), planned to be held in Edmonton, Canada, Experience report publicly available: `https://arxiv.org/abs/2005.09085`

- European Conference on Software Architecture (ECSA 2019), France, Paris

- ACM Joint European Software Engineering Conference and Symposium on Foundations of Software Engineering (ESEC/FSE 2019), Tallinn, Estonia

- International Conference on Software Engineering (ICSE 2019), Montreal, Canada

- Facebook Testing and Verification Symposium (Facebook TAV 2018), London, UK

- European Conference on Software Architecture (ECSA 2018), Madrid, Spain

- International Conference on Performance Engineering (ICPE 2018), Berlin, Germany

- European Conference on Software Architecture (ECSA 2017), Canterbury, UK

- International Conference on Performance Engineering (ICPE 2017), L'Aquila, Italy

- International Conference on Quality of Software Architectures (QoSA 2016), Venice, Italy

- European Conference on Software Architecture (ECSA 2015), Dubrovnik/Cavtat, Croatia

- International Conference on Quality of Software Architectures (QoSA 2015), Montreal, Canada

- International Conference on Performance Engineering (ICPE 2015), Austin, Texas, USA

- International Conference on Quality of Software Architectures (QoSA 2014), Lille, France

- International Conference on Performance Engineering (ICPE 2014), Dublin, Ireland.

- European Joint Conferences on Theory and Practice of Software (ETAPS 2014), Grenoble, France

- International Conference on Quality of Software Architectures (QoSA 2013), Vancouver, Canada

- International Conference on Engineering of Complex Computer Systems (ICECCS 2012), Paris, France

- International Conference on Quality of Software Architectures (QoSA 2012), Bertinoro, Italy

- Working Conference on Software Architecture and European Conference on Software Architecture (WICSA/ECSA 2012), Helsinki, Finland

- International Conference on Performance Engineering (ICPE 2011), Karlsruhe, Germany

- International Conference on Engineering of Complex Computer Systems (ICECCS 2010), Oxford, UK

- International Symposium on Architecting Critical Systems (ISARCS 2010), Prague, Czech Republic

- International Conference on Model Driven Engineering Languages and Systems (MODELS 2010), Oslo, Norway

- Euromicro Conference on Software Engineering and Advanced Applications (EUROMICRO-SEAA 2009), Patras, Greece

- International Workshop on Software and Performance (WOSP 2008), Princeton, New Jersey, USA

PUBLICATIONS

Edited volumes

J. Nelson Amaral, Anne Koziolek, Catia Trubiani, Alexandru Iosup: Proceedings of the ACM/SPEC International Conference on Performance Engineering, ICPE 2020.

J. Nelson Amaral, Anne Koziolek, Catia Trubiani, Alexandru Iosup: Companion of the ACM/SPEC International Conference on Performance Engineering, ICPE 2020.

Henry Muccini, Paris Avgeriou, Barbora Buhnova, Javier Camara, Mauro Caporuscio, Mirco Franzago, Anne Koziolek, Patrizia Scandurra, Catia Trubiani, Danny Weyns, Uwe Zdun: Proceedings of the 14th European Conference on Software Architecture, ECSA Tracks and Workshops, L'Aquila, Italy, September 14-18, 2020.

Laurence Duchien, Anne Koziolek, Raffaela Mirandola, Elena Maria Navarro Martinez, Clement Quinton, Riccardo Scandariato, Patrizia Scandurra, Catia Trubiani, Danny Weyns: Proceedings of the 13th European Conference on Software Architecture, ECSA 2019, Paris, France, September 9-13, 2019, Companion Proceedings, ACM, 2019.

Severine Sentilles, Barry W. Boehm, Catia Trubiani, Anne Koziolek: Proceedings of the 2nd ACM SIGSOFT International Workshop on Software Qualities and Their Dependencies, SQUADE@ESEC/SIGSOFT FSE 2019, Tallinn, Estonia, 2019.

Severine Sentilles, Barry W. Boehm, Catia Trubiani, Xavier Franch, Anne Koziolek: Proceedings of the 1st International Workshop on Software Qualities and Their Dependencies, SQUADE@ICSE, Gothenburg, Sweden, 2018.

Journal articles

Paolo Arcaini, Omar Inverso, Catia Trubiani. "Automated Model-based Performance Analysis of Software Product Lines under Uncertainty", accepted for Information and Software Technology, Elsevier, to appear.

Alejandro Mazuera-Rozo, Catia Trubiani, Mario Linares-Vasquez, Gabriele Bavota. "Investigating Performance Bugs in Mobile Apps: Types, Survivability, and Their Impact on the Apps' Rating", accepted for Empirical Software Engineering, Springer, Volume 25, pp. 11644-1686, 2020.

Lorenzo Pagliari, Raffaela Mirandola, Catia Trubiani. "Engineering Cyber-Physical Systems through Performance-based Modelling and Analysis", accepted for International Journal of Software: Evolution and Process, Wiley, Volume 32, Number 1, pp. 1-24, 2020.

Fabio Antonelli, Vittorio Cortellessa, Marco Gribaudo, Riccardo Pinciroli, Kishor Trivedi, Catia Trubiani. "Parametric Uncertainty Propagation in the M/M/1 Queue", accepted for International Journal of Future Generation Computer Systems, Elsevier, Volume 102, pp. 746-761, 2020.

Severine Sentilles, Barry W. Boehm, Catia Trubiani, Xavier Franch, Anne Koziolek. "Software Qualities and their Dependencies Report on two editions of the workshop", in the ACM SIGSOFT Software Engineering Notes, Volume 45, pp 31-33, 2020.

Catia Trubiani, Pooyan Jamshidi, Juergen Cito, Weiyi Shang, Zhen Ming (Jack) Jiang, Markus Borg. "Performance Issues? Hey DevOps, mind the Uncertainty!", in the Journal of IEEE Software, Volume 36, Number 2, March - April 2019.

Catia Trubiani, Alexander Bran, Andre van Hoorn, Alberto Avritzer, Holger Knoche. "Exploiting Load Testing and Profiling for Performance Antipattern Software Refactoring", in the Journal of Information and Software Technology, Elsevier, Volume 95, pp 329-345, 2018.

Aldeida Aleti, Catia Trubiani, Andre van Hoorn, Pooyan Jamshidi. "An Efficient Method for Uncertainty Propagation in Robust Software Performance Estimation", in the Journal of Systems and Software, Elsevier, Volume 138, pp 222-235, 2018.

Rocco De Nicola, Tan Duong, Omar Inverso, Catia Trubiani. "AErlang: empowering Erlang with attribute-based communication - Extended version", in the journal Science of Computer Programming (SCP), Elsevier, Volume 168, pp 71-93, 2018.

Catia Trubiani, Achraf Ghabi, Alexander Egyed. "Exploiting Traceability Uncertainty between Software Architectural Models and Extra-Functional Results", in the Journal of Systems & Software (JSS), Elsevier, Volume 125, pp 15-34, 2017.

Mauro Caporuscio, Raffaela Mirandola, Catia Trubiani. "Building design-time and run-time knowledge for QoS-based component assembly", in the Journal of Software: Practice and Experience, Wiley, Volume 47, pp 1905-1922, 2017.

Martina De Sanctis, Catia Trubiani, Vittorio Cortellessa, Antinisca Di Marco, Mirko Flamminj. "A Model-driven Approach to Catch Performance Antipatterns in ADL Specifications", in the journal of Information and Software Technology, Elsevier, Volume 83, pp 35-54, 2017.

Catia Trubiani, Anne Koziolek, Vittorio Cortellessa, Ralf Reussner. "Guilt-based Handling of Software Performance Antipatterns in Palladio Architectural Models", in the Journal of Systems & Software (JSS), Elsevier, Volume 95, pp 141-165, 2014.

Vittorio Cortellessa, Antinisca Di Marco, Catia Trubiani. "An approach for modeling and detecting Software Performance Antipatterns based on first-order logics", in the journal of Software and Systems Modeling (SoSyM), Springer, Volume 13, pp 391-432, 2014.

Davide Arcelli, Vittorio Cortellessa, Catia Trubiani: "Experimenting the Influence of Numerical Thresholds on Model-based Detection and Refactoring of Performance Antipatterns". Electronic Communication of the European Association of Software Science and Technology (ECEASST), Volume 59, 2013.

Peer-reviewed Conference papers

Omar Inverso, Hernan Melgratti, Luca Padovani, Catia Trubiani and Emilio Tuosto. "Probabilistic Analysis of Binary Sessions", Proceedings of the International Conference on Concurrency Theory (CONCUR), 2020.

Catia Trubiani, Aldeida Aleti, Sarah Goodwin, Pooyan Jamshidi, Andre van Hoorn and Samuel Gratzl. "VisArch: Visualization of Performance-based Architectural Refactorings", Proceedings of the European Conference on Software Architectures (ECSA), 2020.

Omar Inverso, Catia Trubiani. "Parallel and Distributed Bounded Model Checking of Multi-threaded Programs", Proceedings of International Conference on Principles and Practice of Parallel Programming (PPoPP), 2020.

Radu Calinescu, Vittorio Cortellessa, Ioannis Stefanakos, Catia Trubiani. "Analysis and Refactoring of Software Systems Using Performance Antipattern Profiles", Proceedings of International Conference on Fundamental Approaches to Software Engineering (FASE), 2020.

Omar Inverso, Catia Trubiani and Emilio Tuosto. "Abstractions for Collective Adaptive Systems", Proceedings of the International Symposium on Leveraging Applications of Formal Methods, Verification and Validation: Engineering Principles (ISoLA), 2020.

Catia Trubiani, Sven Apel. "PLUS: Performance Learning for Uncertainty of Software", Proceedings of New Ideas and Emerging Results (NIER) track of International Conference on Software Engineering (ICSE), 2019, to appear, abstract available online at `https://bit.ly/2HKiALQ`.

Alessandro Balestrucci, Rocco De Nicola, Marinella Petrocchi, Catia Trubiani. "Do you really follow them? Automatic detection of credulous Twitter users", Proceedings of International Conference on Intelligent Data Engineering and Automated Learning (IDEAL), 2019.

Martina De Sanctis, Romina Spalazzese, Catia Trubiani. "QoS-based Formation of Software Architectures in the Internet of Things", Proceedings of the European Conference on Software Architectures (ECSA), 2019.

Alessandro Balestrucci, Rocco De Nicola, Omar Inverso, Catia Trubiani. "Identification of Credulous Users on Twitter", Proceedings of Social Network and Media Analysis (SONAMA), track of ACM/SIGAPP Symposium on Applied Computing (SAC), 2019.

Emilio Incerto, Mirco Tribastone, Catia Trubiani. "Combined Vertical and Horizontal Autoscaling Through Model Predictive Control", Proceedings of the International Conference on Parallel and Distributed Computing, Euro-Par 2018.

Tomas Bures, Vladimir Matena, Raffaela Mirandola, Lorenzo Pagliari, Catia Trubiani "Performance Modelling of Smart Cyber-Physical Systems", Proceedings of the International Conference on Performance Engineering, ICPE 2018.

Davide Brugali, Rafael Capilla Sevilla, Raffaela Mirandola, Catia Trubiani. "Model-based development of QoS-aware Reconfigurable Autonomous Robotic Systems", Proceedings of the IEEE International Conference on Robotic Computing, IRC 2018.

Emilio Incerto, Mirco Tribastone, Catia Trubiani. "Software Performance Self-Adaptation through Efficient Model Predictive Control", Proceedings of the IEEE/ACM International Conference on Automated Software Engineering, Technical Research Track, ASE 2017, **acceptance: 21%**.

Lorenzo Pagliari, Raffaela Mirandola, Catia Trubiani "Multi-modeling approach to performance engineering of Cyber-Physical Systems design", Proceedings of the International Conference on Engineering of Complex Computer Systems, ICECCS 2017.

Catia Trubiani and Raffaela Mirandola. "Continuous Rearchitecting of QoS Models: Collaborative Analysis for Uncertainty Reduction", Proceedings of the European Conference on Software Architecture, ECSA 2017.

Maria Spichkova, Heinz W. Schmidt, Catia Trubiani. "Role of women in Software Architecture: An attempt of a systematic literature review", Proceedings of the Women in Software Architecture Track co-located with European Conference on Software Architecture, WSA@ECSA 2017.

Paolo Arcaini and Catia Trubiani. "Collaborative Development of Feature Models and Evaluation of Performance Bounds ", Proceedings of ACM SIGAPP Symposium On Applied Computing - SATTA track, pp. 1162-1167, SAC 2017.

Rocco De Nicola, Tan Duong, Omar Inverso, Catia Trubiani. "AErlang: empowering Erlang with attribute-based communication", Proceedings of International Conference on Coordination Models and Languages, pp. 21-39, COORDINATION 2017.

Rocco De Nicola, Tan Duong, Omar Inverso, Catia Trubiani. "AErlang at Work", Proceedings of International Conference on Current Trends in Theory and Practice of Computer Science, pp. 485-497, SOFSEM 2017.

Daniel J. Dubois, Catia Trubiani, Giuliano Casale. "Model-Driven Application Refactoring to Minimize Deployment Costs in Preemptible Cloud Resources". Proceedings of IEEE International Conference on Cloud Computing, pp. 335-342, CLOUD 2016, Technical Research Track, **acceptance: 16%**.

Emilio Incerto, Mirco Tribastone, Catia Trubiani. "Symbolic performance adaptation". Proceedings of International Symposium on Software Engineering for Adaptive and Self-Managing Systems, pp. 140-150, SEAMS@ICSE 2016.

Lorenzo Pagliari, Raffaela Mirandola, Diego Perez-Palacin, Catia Trubiani. "Energy-Aware Adaptive Techniques for Information Diffusion in Ungoverned Peer-to-Peer Networks". Proceedings of International Conference on Quality of Software Architectures, pp. 96-105, QoSA 2016.

Catia Trubiani, Achraf Ghabi, Alexander Egyed. "Exploiting Traceability Uncertainty Between Software Architectural Models and Performance Analysis Results". Proceedings of European Conference on Software Architecture, pp. 305-321, ECSA 2015. **BEST RESEARCH PAPER AWARD**

Davide Arcelli, Vittorio Cortellessa, Catia Trubiani. "Performance-Based Software Model Refactoring in Fuzzy Contexts". Proceedings of International Conference on Fundamental Approaches to Software Engineering, pp. 149-164, FASE 2015.

Mauro Caporuscio, Raffaela Mirandola, Catia Trubiani. "QoS-based Feedback for Service Compositions". Proceedings of International Conference on Quality of Software Architectures, pp. 37-42, QoSA 2015.

Catia Trubiani, Anne Koziolek, Lucia Happe. "Exploiting Software Performance Engineering Techniques to Optimise the Quality of Smart Grid Environments". Proceedings of International Conference on Performance Engineering, pp. 199-202, ICPE 2015.

Catia Trubiani. "Introducing Software Performance Antipatterns in Cloud Computing Environments: Does it Help or Hurt?" Proceedings of International Conference on Performance Engineering, pp. 207-210, ICPE 2015.

Leire Etxeberria, Catia Trubiani, Vittorio Cortellessa, Goiuria Sagardui. "Performance-based selection of software and hardware features under parameter uncertainty". Proceedings of International Conference on Quality of Software Architectures, pp. 23-32, QoSA 2014.

Catia Trubiani, Antinisca Di Marco, Vittorio Cortellessa, Nariman Mani, Dorina C. Petriu. "Exploring synergies between bottleneck analysis and performance antipatterns". Proceedings of International Conference on Performance Engineering, pp. 75-86, ICPE 2014.

Antinisca Di Marco, Catia Trubiani. "A model-driven approach to broaden the detection of software performance antipatterns at runtime". Proceedings of International Workshop on Formal Engineering approaches to Software Components and Architectures, pp. 77-92, FESCA 2014.

Catia Trubiani, Indika Meedeniya, Vittorio Cortellessa, Aldeida Aleti, Lars Grunske. "Model-based performance analysis of software architectures under uncertainty". Proceedings of International Conference on Quality of Software Architectures, pp. 69-78, QoSA 2013.
Reported in the list of Top 10 Downloaded Articles by Sw. Eng. Notes

Steffen Becker, Lucia Happe, Raffaela Mirandola, Catia Trubiani. "Towards a methodology driven by relationships of quality attributes for qos-based analysis". Proceedings of International Conference on Performance Engineering, pp. 311-314, ICPE 2013.

Raffaela Mirandola, Catia Trubiani: "A Deep Investigation for QoS-based Feedback at Design Time and Runtime". Proceedings of International Conference on Engineering of Complex Computer Systems, pp. 147-156, ICECCS 2012.

Ricardo J. Rodriguez, Catia Trubiani, Jose Merseguer. "Fault-tolerant techniques and security mechanisms for model-based performance prediction of critical systems". Proceedings of International Symposium on Architecting Critical Systems, pp. 21-30, ISARCS 2012.

Davide Arcelli, Vittorio Cortellessa, Catia Trubiani. "Antipattern-based model refactoring for software performance improvement". Proceedings of International Conference on Quality of Software Architectures, pp. 33-42, QoSA 2012.

Vittorio Cortellessa, Antinisca Di Marco, Catia Trubiani. "Software Performance Antipatterns: Modeling and Analysis". Proceedings of International School on Formal Methods for the Design of Computer, Communication, and Software Systems, pp. 290-335, SFM 2012.

Vittorio Cortellessa, Martina De Sanctis, Antinisca Di Marco, Catia Trubiani: "Enabling Performance Antipatterns to Arise from an ADL-based Software Architecture". Proceedings of Working Conference on Software Architecture and European Conference on Software Architecture, pp. 310-314, WICSA/ECSA 2012.

Luca Berardinelli, Dajana Cassioli, Antinisca Di Marco, Anna Esposito, Maria Teresa Riviello, Catia Trubiani. "VISION as a Support to Cognitive Behavioural Systems. Proceedings of International Training School on Cognitive Behavioural Systems, pp. 131-143, COST 2011.

Catia Trubiani, Anne Koziolek. "Detection and solution of software performance antipatterns in palladio architectural models". Proceedings of International Conference on Performance Engineering, pp. 19-30, ICPE 2011. **BEST RESEARCH PAPER AWARD**

Vittorio Cortellessa, Anne Martens, Ralf H. Reussner, Catia Trubiani. "A Process to Effectively Identify Guilty Performance Antipatterns". Proceedings of International Conference on Fundamental Approaches to Software Engineering, pp. 368-382, FASE 2010.

Vittorio Cortellessa, Antinisca Di Marco, Catia Trubiani. "Performance Antipatterns as Logical Predicates". Proceedings of International Conference on Engineering of Complex Computer Systems, pp. 146-156, ICECCS 2010.

Vittorio Cortellessa, Catia Trubiani, Leonardo Mostarda, Naranker Dulay. "An Architectural Framework for Analyzing Tradeoffs between Software Security and Performance". Proceedings of International Symposium on Architecting Critical Systems, pp. 1-18, ISARCS 2010.

Vittorio Cortellessa, Anne Martens, Ralf H. Reussner, Catia Trubiani. "Towards the identification of "Guilty" performance antipatterns". Proceedings of WOSP/SIPEW International Conference on Performance Engineering, pp. 245-246, WOSP/SIPEW 2010.

Vittorio Cortellessa, Antinisca Di Marco, Romina Eramo, Alfonso Pierantonio, Catia Trubiani. "Approaching the Model-Driven Generation of Feedback to Remove Software Performance Flaws". Proceedings of Euromicro Conference on Software Engineering and Advanced Applications, pp. 162-169, EUROMICRO-SEAA 2009.

Giovanni Bartolomeo, Stefano Salsano, Nicola Blefari-Melazzi, Catia Trubiani. "SMILE- Simple Middleware Independent LayEr for Distributed Mobile Applications". Proceedings of IEEE Wireless Communications & Networking Conference, pp. 3039-3044, WCNC 2008.

Peer-reviewed Workshop papers

Matteo Camilli, Raffaela Mirandola, Patrizia Scandurra and Catia Trubiani. "Towards Model-based Reinforcement Learning for Testing of Uncertain Software Systems", International Workshop on Uncertainty in Modeling, UM@MODELS 2020.

Mirko D'Angelo, Lorenzo Pagliari, Mauro Caporuscio, Raffaela Mirandola and Catia Trubiani. "Towards a Continuous Model-based Engineering Process for QoS-aware Self-adaptive Systems", International Workshop on Automated and verifiable Software sYstem DEvelopment, ASYDE 2019.

Lorenzo Pagliari, Mirko D'Angelo, Mauro Caporuscio, Raffaela Mirandola, Catia Trubiani. "To What Extent Formal Methods are Applicable for Performance Analysis of Smart Cyber-Physical Systems?", International Workshop on Formal Approaches for Advanced Computing Systems, FAACS 2019.

Lorenzo Pagliari, Raffaela Mirandola, Catia Trubiani. "A Case Study to Elicit Challenges for Performance Engineering of Cyber Physical Systems". International Workshop on Software Performance Challenges co-located with Conference on Performance Engineering, pp. 217-222, WOSP-C@ICPE, ICPE Companion 2017.

Emilio Incerto, Mirco Tribastone, Catia Trubiani. "A proactive approach for runtime self-adaptation based on queueing network fluid analysis". Proceedings of International Workshop on Quality-Aware DevOps co-located with International Symposium on Foundations of Software Engineering, pp. 19-24, QUDOS@SIGSOFT FSE 2015.

Davide Arcelli, Luca Berardinelli, Catia Trubiani. "Performance Antipattern Detection through fUML Model Library". Proceedings of International Workshop on Software Performance Challenges co-located with Conference on Performance Engineering, pp. 23-28, WOSP-C@ICPE 2015.

Marco Autili, Luca Berardinelli, Davide Di Ruscio, Catia Trubiani: "Providing lightweight and adaptable service technology for information and communication (PLASTIC) in the mobile ehealth case study". Proceedings of ICSE Workshop on Principles of Engineering Service-Oriented Systems, pp. 69-70, PESOS@ICSE 2012.

Vittorio Cortellessa, Antinisca Di Marco, Romina Eramo, Alfonso Pierantonio, Catia Trubiani: "Digging into UML models to remove performance antipatterns". Proceedings of ICSE Workshop on Quantitative Stochastic Models in the Verification and Design of Software Systems, pp. 9-16, QUO-VADIS@ICSE 2010.

Catia Trubiani. "A Model-Based Framework for Software Performance Feedback". Proceedings of Models in Software Engineering - Reports and Revised Selected Papers, Doctoral Symposium, pp. 19-34, MoDELS Workshops 2010.

Vittorio Cortellessa, Catia Trubiani. "Towards a library of composable models to estimate the performance of security solutions". Proceedings of International Workshop on Software and Performance, pp. 145-156, WOSP 2008.

Book chapters

Luca Aceto, Gianlorenzo D'Angelo, Michele Flammini, Omar Inverso, Ludovico Iovino, Catia Trubiani: Building International Doctoral Schools in Computer Science in Italy, De Nicola's Way. Models, Languages, and Tools for Concurrent and Distributed Programming, pp. 7-12, 2019.

Martina De Sanctis, Antonio Bucchiarone, Catia Trubiani. "A DevOps Perspective for QoS-aware Adaptive Applications", Software Engineering Aspects of Continuous Development and New Paradigms of Software Production and Deployment (DEVOPS), 2019.

NATIONAL SCIENTIFIC QUALIFICATION

Associate Professor in Italian Universities   2018

National scientific qualification to function as Associate Professor in Italian Universities (Areas: Computer Science 01/B1 and Computer Engineering 09/H1).