Curriculum Vitae

Personal information:

Marco Gribaudo,
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Current status: Associated Professor in Computer Engineering

Summary

I am an Associate Professor at Politecnico di Milano. On 11/09/2019, I obtained my Italian habilitation to become Full Professor, for the SSD INF/01 (01-B1, Computer Science), and on 14/04/2021 the one for the SSD ING-INF/05 (09-H1, Computer Engineering). After the head of the Performance Evaluation group at Politecnico di Milano, Prof. Giuseppe Serazzi, retired in 2013, I am in charge of the "Analytical techniques and Tools for performance evaluation and optimization" activity of the System Architecture research line of the "Dipartimenti di Elenttronica, Informazione e Bioingegneria" of the Politecnico of Milano.

I got my degree in Computer Science, from the University of Turin in 1997 (MS) and 2001 (Ph.D.). I have been an assistant professor (researcher) in Computer Science from 1/11/2001 until 13/7/2015: first at the University of Turin from 1/11/2001 to 28/2/2010, and from 1/3/2010 to 13/7/2015 at the Politecnico of Milan. On 14/7/2015 I was promoted to the Associed Professor position at Politecnico of Milan. To better integrate with my current department, on 1/9/2021 I changed my SSD from Computer Science (INF-01) to Computer Engineering (ING-INF/05).

My research interests are split into two main and totally different lines: Performance Evaluation and Virtual and Augmented reality. The former focuses on the performance evaluation of parallel and distributed computing systems and communication networks using advanced modeling techniques such as Markovian Agents, mean field approximations, fluid models, multi-formalism models and multi-class queuing networks. To ease my goals, I support the development of software tools to define, analyze and evaluate performance models. My research in low cost applications of Virtual and Augmented Reality application mainly focuses on learning application. In particular, it focuses on medical applications to both support training and assisting minimally invasive robotic surgery operations.

I am author of books, journal papers and international conference papers – all indexed on the main scientific web resources. I presented 8 invited talks (including one keynote speech), 4 tutorials and won three best-paper awards. I served scientific committees for international conferences, reviewer for international journal, and Ph.D. candidates' evaluation boards. I was the principal scientific investigator of an industrial project, worth 322k Euro. I have been in charge for 21 years of university courses on different subjects, both at the BS and at MS level. Lectures have been given both in Italian and English. I have tutored more than 250 theses, both at the BS and MS level. I have been co-advisor of three Ph.D. students, and I have been the main advisor of one Ph.D. student.

Studies

MS in **Computer Science** on 25/3/1997, from the University of Turin – Italy, with a score of 110/110, plus laude, honorific mention, and publication. The subject of the Thesis was "*Queuing Network with Blocking: qualitative and quantitative analysis techniques*". The advisors were Prof. Gianfranco Balbo and Prof. Matteo Sereno (from the University of Turin) and Prof. Carla Simone (from the University of Milan).

Ph.D. in **Computer Science** on 15/2/2002, from the University of Turin, with the dissertation of the Ph.D. thesis: *"Hybrid formalism for performance evaluation"*. The advisors were Prof. Gianfranco Balbo and Matteo Sereno (From the University of Turin).

Research activities

On 1/11/2001, I obtained the position of Assistant Professor (Researcher) in Computer Science from the faculty of "Scienze dealla Formazione" (Arts and Teaching Faculty) of the University of Turin (Italy) after a public competition won in September 2001. In November 2005 the position has been confirmed, becoming a Senior Researcher.

On 1/3/2010, I moved to the Department of "Elettronica, Informazione e Bioingegneria" of the Politecnico of Milano, as an Assistant Professor (Researcher).

On 13/07/2015 I become Associate Professor the Department of "Elettronica, Informazione e Bioingegneria" of the Politecnico of Milano, and on 1/09/2021 I changed my SSD to ING-INF/05 to better integrate in the department.

The main topics of my ongoing research activity are:

Performance analysis of advanced computing infrastructures including Data Lakes, Big Data applications, cloud environments and multi-core systems: application of performance evaluation techniques, ranging from multi-class queuing networks to mean field analyses, to study the performance of complex, hexa-scale systems. After performing accurate measurement on the real systems, they are used to validate the proposed models. In particular I focus on determining the optimal number of nodes in Big Data applications, defining intelligent load balancing strategies to optimize the utilization in IaaS cloud infrastructures, and I study the efficiency of multi-core processors to execute multi-threaded workloads.

Virtual and Augmented Reality for learning: study of low-cost solutions to visualize and enhance vision of 3D generated images, with complex human interaction patterns. Applications have been investigated in advanced training, rescue operations, fashion industry, and minimal invasive surgery. In particular, current research focuses on simulation of laparoscopy and echography using low cost VR head mount display based solutions.

Enhanced surgical operation: tracking of human organs, and matching 3D models obtained from CT images to video live stream of the ongoing operation, with the goal of helping the surgeon in search, operate and later reconstruct the area. In particular, current research focuses on the prostate, kidney and lungs. This research line also focuses on the simulation of the deflation of the lung to match the operation state of the organ with the one of the CT scan.

Markovian Agents and Mean Field Analysis: both Markovian Agents and mean field analysis are analytical solution techniques that can be used to study systems characterized by a number of entities that tends to the infinity. The former considers objects (agents) spread over a space that communicate using messages, while the latter considers objects that interact in way dependent on the total state of the system. Both techniques share a common mathematical foundation, and can be successfully employed to approximate systems composed by a large number of interacting objects, such us sensor networks, or for simulating the physical properties of the materials.

Tools for performance evaluation: I work on the definition of the SIMTHEsys framework for the rapid prototyping of multi-formalism models. This allows defining both the syntax and the semantics of elements that a modeler can use to describe a system. I also support the development of the Software Tool "*DrawNET*" - a framework to support the composition of performance evaluation models and formalisms. In particular, I worked on a new object oriented methodology to develop models in multi-formalism, multi-solution environment. These methodologies have been supported by the development of a generic graphical user interface (GUI), an abstract data definition language (DDL), and a set of access libraries, written in Java language, and based on XML technology.

Analysis of Computer Networks: I focus on the study of mobile telephone networks, "Peer-to-Peer" (P2P) systems, sensors and ad-hoc networks. Several analytical techniques (mainly based on fluid and hybrid performance evaluation models) have been developed and applied to various kinds of communication networks. In particular they have been used to study mobile phone networks (GPRS), the TCP/IP protocol and web services. Peer-to-Peer systems have been studied for what concern the ability to locate a particular resource, and the time required to download it. Most recent studies concern the development of spatial fluid models to optimize the energy consumption in sensor networks, and the study of efficient broadcast protocols in vehicular networks.

Fluid and Hybrid Performance Evaluation Models: study of numerical and analytical techniques to evaluate the performance of complex systems, using performance models described by mixed continuous and discrete components. In particular, I started by extending the formalism of the Fluid Stochastic Petri Nets introduced by Trivedi and Kulkarni, adding new features and studying new solution techniques to compute both transient and steady state performance indices. Other investigations considered the efficient solution of Hybrid Bounded Fluid Models of the first and second order.

Topics of my past research activity, that are currently only partially investigated, include:

Energy optimization of computing infrastructures: study of the energy consumption of large-scale datacenters. My goal is to analyze the power consumption of the components of a single node (i.e. CPU, storage, network) under different workloads, and how they change due to the effects of virtualization and of the introduction in a cloud infrastructure. In particular I focus on the definition of workload distribution optimization techniques, and on the study of their performances using Multi-Class Queuing Networks and Petri Networks. *Results on these topics have been accepted to international conferences that are not indexed yet.*

Queuing network with blocking: study of solution technique for finite capacity queuing systems. In particular I developed special solution algorithms based on the translation of a queuing network with blocking into a Generalized Stochastic Petri Nets

E-learning: study and development of a platform to create virtual reality based, e-learning shared applications based on low-cost technologies. In particular, simple and common web technologies (like Javascript and PhP) have been integrated with Virtual Reality applications (such as Adobe Atmosphere in the beginning then Unreal Technology), to recreate a Virtual Reality environment in which implement cooperative exercise to support the other common learning activities. Particular interest has been focused in Edutainment and serious gaming.

Performance evaluation of Multimedia systems: applications to the study of multimedia production systems, focusing on cinema and television productions. Analysis of the integrated content development systems, taking into account economical factors, and using classical performance evaluation techniques such as Petri Nets and probabilistic models

National and International cooperation:

I have visited several universities and I have been involved in many international cooperation. The most important are: the **Technical University of Budapest** (*Hungary*), the Department of Robotics of the **Technical University of Berlin** (*Germany*), the **University "Federico Secondo"** in **Naples** (*Italy*), the Laboratory for Foundations of Computer Science of the **University of Edinburgh**, the **Arizona State University** (Tempe – Az, USA), and the **University of Twente** (Enschede, The Netherlands). I have also given a seminar on optimization of computing infrastructure at **CERN** (Geneve, Switzerland). In October 2017 and May 2018 I have visited the **People Friendship University of Moscow**, where I gave three courses: "Performance Modelling with Queuing Networks" (10 hours) and "Fundamental Laws of Dependability" (10 hours), "Modelling with Mean Field and Markovian Agents Techniques" (10 hours).

Projects and grants:

I have coordinated the following projects:

Industrial project with the Consultant, Systems Integration e Application Management Company **Reply S.P.A**. The project was initially planned to last 6 month, but it was later exteneded to a total of 18 months. In this project, I was the coordinator and the principal investigator. The budget of the project was 322K Euro, with which I was able to support 6 post-doc positions during three years, and several other research associates to create high-performance open-source multi-platform game development libraries.

Project "DrawNET", a self-funded and coordinated research project, for the creation of a tool for the design and solution of models of complex systems. That project took advantage of several resources funded from other research projects that used the tool (PRIN, DePauDe, Crutial)

I am currently the principal investigator of the **WG5 – Infrastructure component**, of the **Health Big Data** project, founded by the Italian Ministry of Economy and Finance, involving 51 IRCCS and coordinated by the Ministry of Health. The project started in 2019, and has a 10 year development.

I took part to the following projects:

EU-Brasil BigSea project - working on fluid models of parallel computation paradigms, and supporting a P.h.D. of my group.

Antarex EU Project - working on fluid models of HPC systems, and supporting a P.h.D. of my group.

Italian project "WiSe DeMon : Affidabilità e qualità del servizio in sistemi di monitoraggio basati su *Wireless Sensor Networks per applicazioni critiche*" (Relibaility and service quality in critical application monitoring systems based on Wireless Sensor Networks), Italian ministry **PRIN**, years 2007-2008.

Italian Project ENEA-DI "*Metodi, strumenti e modelli probabilistici per l'analisi della dependability e della survivability di sistemi digitali basati su reti di telecomunicazione*" (Methods, tools and probabilistic models for the survivability and dependability analysis of communication network based digital systems), year 2004.

Italian project "*Performance Evaluation of Complex Systems: Techniques, Methodologies and Tools (Perf)*", from **MIUR-FIRB**, years 2002-2005.

Italian project "*Planet-IP (Planning IP networks)*", from the Italian ministry **MURST**, years 2001-2002.

Italian project ENEA-DISTA "*Modelli e strumenti per l'analisi di affidabilità, sicurezza di funzionamento e prestazioni di sistemi elettronici programmabili complessi ad alta criticità con particolare riferimento al sistema di controllo della turbina a gas dell'impianto di cogenerazione ICARO*" (Models and tools for the reliability, operational safety, and performance analysis of complex critical system, focusing on the gas turbine ICARO), years 2000-2001

Committees:

Two committees for the selection of a candidate applying to an assistant professor positions at the University of Catania.

One committee for the selection of a candidate applying to an RTD-A (junior temporary researcher) position at the Universtiy of Torino.

About 15 PhD national defense committees at the University of Torino, Politecnico of Torino, University of Bologna, University of Messina, University of Venezia.

Three international Ph.D. committee at the **Imperial College** – London, UK, at **UTC - Compigne University of Technology**, Sorbonne Universties, France, and at **University of Twente**, Enschede, The Netherlands.

Chair positions in international conferences

I have worked as **program chair** for the *International Conference on Quantitative Evaluation of SysTems* (QEST 2020), that took place in Vienna, Austria on August 31st-September 3rd, 2020.

I have been **general chair** and main organizer of the *European Performance Engineering Workshop* (EPEW 2019), that took place in my institution, Politecnico di Milano, Italy, November 28th-29th, 2019 (co-located with PASM 2019 – International Workshop on Practical Applications of Stochastic Modelling).

I have been **general chair** of the *International Conference on Analytical and Stochastic Modelling Techniques and Applications* (ASMTA 2019), that took place in Moskow, Russia on October 23th-25th, 2019.

I have been **program chair** of the *European Conference on Modelling and Simulation* (ECMS 2019), June 11th-14th, 2019. Caserta, Italy.

I have organized *InfQ 2018*, the main meeting event for the Performance Evaluation community in Italy, in November 23rd, 2018, in the facilities of Politecnico di Milano.

I have been **technical program chair** of the *EAI International Conference on Performance Evaluation Methodologies and Tools* (ValueTools 2015). December 14–16, 2015. Berlin, Germany

I have been **general chair** of *International Conference on Analytical and Stochastic Modelling Techniques and Applications* (ASMTA 2015), that took place in Varna, Bulgaria on May 26th-29th, 2015 (co-located with ECMS 2015 – European Conference on Modelling and Simulation).

I have been **co-chair** of the first two editions of the *Workshop on Research and Use of Multiformalism Modeling Methods* (WRUMMM). The first edition was co-located with QEST 2012 (International Conference on Quantitative Evaluation of SysTems), September 17-20, 2012 – London, UK. The second edition was co-located with ECMS 2014 (European Conference on Modelling and Simulation), May 27-30, Brescia, Italy.

I had the **tool chair** position on the *International Conference on Quantitative Evaluation of SysTems* (QEST), which took place in Budapest, Hungary, on September 13th-16th, 2009.

Program Committees in international conferences

Quantitative Evaluation of SysTems (QEST)
- 2022: September 12-16, Paris, Warsav, Poland
- 2021: August 23-27, Paris, France (on-line only)
- 2020: August 31-September 3, Vienna, Austria (on-line only)
- 2019: September 10-12, Glasgow, UK

Queuing Theory with Network Applications (QTNA)
- 2019: August 27-29, Ghent, Belgium

International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA)
- 2021: December 13-14, Tsukuba, Japan (on-line only)
- 2019: October 21-25, Moskow, Russia
- 2017: June 10-12, Newcastle upon Tyne, UK
- 2016: August 24-26, Cardiff, UK
- 2014: June 30-July 2, Budapest, Hungary
- 2013: July 8-10, Ghent, Belgium
- 2012: June 4-6, Grenoble, France
- 2011: June 20-22, Venice, Italy
- 2010: June 14-16, Cardiff, UK
- 2009: June 9-12, Madrid, Spain
- 2008: June 4-6, Nicosia, Cyprus.

International Conference on Performance Evaluation Methodologies and Tools (ValueTools)
- 2019: March 13-15, Palma, Spain
- 2017: December 5-7, Venice, Italy
- 2016: October 25-28, Taormina, Italy
- 2014: December, 9-11, Bratislava, Slovakia
- 2013: December, 10-12, Torino, Italy
- 2011: May 16-20, Cachan, France
- 2009: October 20-22, Pisa, Italy
- 2008: October 20-24, Athens, Greece.

International Workshop on Practical Applications of Stochastic Modelling (PASM)
- 2017: September 9, Berlin, Germany
- 2016: April 5, Munster, Germany
- 2014: May 13, Newcastle, UK
- 2013: September 17, London, UK
- 2011: March 17, Karlsruhe, Germany
- 2009: September 24, London, UK
- 2008: September 23, Palma de Mallorca, Spain

International Conference on Simulation Tools and Techniques (SimuTools)
- 2014: March 17-19, Lisbon, Portugal
- 2013: March 5-6, Cannes, France
- 2012: March 19-23, Desenzano, Italy

- 2011: March 21-25, Barcelona, Spain

International Conference on High Performance Computing and Communications
- 2014: August 20-22, Paris, France

International Symposium on Modelling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS)
- 2012: August 7-9, Washington
- 2011: July 25-27, Singapore
- 2010: August 17-19, Miami (FL), USA
- 2009: September 21-23, London UK

European Performance Engineering Workshop (EPEW)
- 2022: September 21-23, Alicante, Spain
- 2021: December 9-10, Tsukuba, Japan (on-line only)
- 2011: October 12-13, Borrowdale, UK
- 2009: July 9-10, London, UK

Dependable Control of Discrete System (DCDS)
- 2011: June 15-18, Saarbrucken, Germany
- 2009: June 10-12, Bari, Italy

International Workshop on Ambient Intelligence, Media, and Sensing (AIMS)
- 2007: April 20th, 2007, Istanbul, Turkey

Invited Papers and Keynote speeches

2/8/2016: M. Gribaudo, "Markovian Agents and Mean-Field modeling of modern datacenter infrastructures and workloads", CERN, (Geneve, Switzerland)

14/12/2014: M. Gribaudo, "Discrete Time Markovian Agents" Dagstuhl seminar on "Collective Adaptive Systems: Qualitative and Quantitative Modelling and Analysis" (Dagstuhl, Germany)

16/1/2014: M. Gribaudo, M. Iacono, "Multiformalism to support software rejuvenation modeling" Dagstuhl seminar on "Randomized Timed and Hybrid Models for Critical Infrastructures" (Dagstuhl, Germany)

8/3/2010: M. Gribaudo, "Mean field analysis" ROCKS meeting, Nijmegen, The Netherlands.

10/7/2009: M. Gribaudo, "*Analysis of Large Systems with Mean Field and Markovian Agents*".
Presented to *European Performance Evaluation Workshop (EPEW 09)*, London, UK.
Keynote speech.

4/9/2005: M. Gribaudo, "*The Technology Used in the "European DIStance TRaining Interactive and Collaborative Tools for the Civil Protection*" (e-DISTRICT CiPro), Leonardo da Vinci European Project". Presented to *Third Medical Emergency Medicine Congress (MEMC3)*, Nice, France.

20/1/2004: R. Gaeta, M. Gribaudo, D. Manini, M. Sereno, "*An analytical modelling technique for*

computing transfer time distributions in peer-to-peer networks". Presented to the "*Workshop Interno Progetto FIRB (Tango)*", Madonna di Campiglio, Italy.

20/12/2001: M. Ajmone Marsan, M. Gribaudo, M. Meo, and M. Sereno. "*Performance Analysis of Data Services over GPRS*". Presented to *International Conference On High Performance Computing*, Hyderabad, India.

Awards

Best paper award: P. Pizzolla, M. Gribaudo, F. Porpiglia, E. Vezzetti, M.G. Violante, S. Moos, *"Enhancing Spatial Navigation in Robot-Assisted Surgery: an Application"*. International Conference on Design Tools and Methods in Industrial Engineering (ADM 2019). *Modena, Italy, September 10th, 2019*.

Best paper award: M. Gribaudo, M. Iacono, D. Manini, *"Performance Evaluation Of Massively Distributed Microservices Based Applications"*. European Conference on Modelling and Simulation (ECMS 2017). *Budapest, Hungary, May 24th, 2017*.

Best paper award: D. Manini, M. Gribaudo, *"Modelling Search, Availability, and Parallel Download in P2P File Sharing Applications with Fluid Model"*. *14th International Conference on Advanced Computing and Communication ADCOM 2006, Mangalore, India, December 20th, 2001.*

On 24/11/1997, my MS thesis has been awarded with a medal as the "best thesis of the year 1996/1997".

Tutorials in international conferences

10/4/2018: M. Gribaudo, "*Modelling with Markovian Agents*", in International Conference on Performance Engineering (ICPE 2018), Berlin, Germany, April 10, 2018.

10/12/2013: D. Cerotti, M. Gribaudo, P. Piazzolla and G. Serazzi," *Performance optimization with JMT: Java Modelling Tools*", in Quantitative Evaluation of Systems (ValueTOOLS 2013), Turin, Italy, December 10, 2013. *See [**Error! Reference source not found.**].*

17/9/2012: A. Bobbio, D. Cerotti and M. Gribaudo, "*Markovian Agents models*", in Quantitative Evaluation of Systems (QEST 2012), London, UK, September 17, 2012.

19/9/2005: M. Gribaudo and M. Telek,"*Fluid Models in Performance Analysis*", in Quantitative Evaluation of Systems (QEST 2005), Turin, Italy, September 19, 2005.

Conference Talks

I have given the following talks in these international and national venues:

13-14/12/2021: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2019), Tsukuba, Japan *(on-line event)*. Presented *"Hybrid simulation of moving agents systems applied to energy management in IoT edge computing surveillance systems"*.

23-27/8/2021: Quantitative Evaluation of Systems (QEST21), Paris, France *(on-line event)*. Presented *"Simulation of n-dimensional second-order fluid models with different absorbing, reflecting and mixed barriers"*.

27-30/1/2020: Annual Reliability and Maintainability Symposium (RAMS 2020), Palm Spring, USA (on-line event). Presented *"Assessing self-adapting routing algorithm in an industrial IoT environment"*.

28/11/2019: International Workshop on Practical Applications of Stochastic Modelling (PASM 2019), Milano, Italy. *Presented "On Evaluating the Safety of Crowds in Enclosed Spaces by Markovian Agents"*.

23-25/10/2019: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2019), Moskow, Russia. Presented *"Map-Reduce Process Algebra: a formalism to describe Directed Acyclic Graph task-based jobs in parallel environments"*.

14-15/10/2019: Information Sciences and Systems (ISCIS 2019), Paris, France. *Presented "Performance-driven Analysis for an Adaptive Car Navigation Service on HPC Systems"*.

11-14/6/2019: European Conference on Modelling and Simulation (ECMS 2019), Caserta, Italy. *Presented "Reducing sickness and enhancing virtual reality simulation on mobile devices by tracking the body rotation.*

25-26/4/2019: Computer Vision Conference (CVC 2019), Las Vegas, NV, Usa. Presented *"Non-linear-Optimization Using SQP for 3D Deformable Prostate Model Pose Estimation in Minimally Invasive Surgery"*.

23-25/7/2018: Queueing Theory with Network Applications (QTNA 2018), Tsukuba, Japan. *Presented "Modelling large timescale and small timescale service variability"*.

22-25/5/2018: European Conference on Modelling and Simulation (ECMS 2018), Whilelshaven, Germany. *Presented "Anchor placement in indoor object tracking systems for virtual reality simulations"*.

11-13/4/2018: International Conference on Performance Engineering (ICPE 2018), Berlin, Germany. *Presented "Performance Prediction of Cloud-Based Big Data Application"*.

5-7/12/2017: International Conference on Performance Evaluation Methodologies and Tools (ValueTools 2018), Venice, Italy. *Presented "Scalable analytical model of the reliability of multicore*

systems-on-chip by interacting Markovian agents" and "Modeling and evaluating performances of complex edge computing based systems: a firefighting support system case study".

9/9/2017: International Workshop on Practical Applications of Stochastic Modelling (PASM 2018), Berlin, Germany. *Presented "Epistemic Uncertainty Propagation in Power Models" and "Performance evaluation of replication policies in microservice based architectures".*

10-12/7/2017: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2017), Newcastle-upon-Tyne, UK. Presented: *"Modeling multiclass task-based applications on heterogeneous distributed environments".*

23-26/6/2017: European Conference on Modelling and Simulation (ECMS 2017), Budapest, Hungary. *Presented "A low-cost distributed iot-based augmented reality interactive simulator for team training" and "Performance evaluation of massively distributed microservices based applications".*

16-19/5/2017 - International Workshop on Energy-Efficient Data Centres (ED2C 2017) and ACM eEnergy 2017, Hong Kong. *Presented "Improving energy efficiency for transactional workloads in cloud environments".*

24-26/8/2016: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2016), Cardiff, UK. *Presented "Fluid approximation of pool depletion systems".*

31/5-3/6/2016: European Conference on Modelling and Simulation (ECMS 2016), Regensburg, Germany. *Presented "Three layers network influence on cloud data center performances" and "vMannequin: A fashion store concept design tool".*

4-5/4/2016: International Workshop on Practical Applications of Stochastic Modelling (PASM 2016) and Conference on Measurement, Modeling, and Evaluation of Computer and Communication Systems (MMB 2016), Munster, Germany. *Presented "Stochastic analysis of energy consumption in pool depletion systems".*

9-10/12/2015: Conference of the Italian Chapter of AIS (ITAIS 2015). *Presented "Power consumption analysis of replicated virtual applications in heterogeneous architectures" and "Modeling replication and erasure coding in large scale distributed storage systems based on CEPH".*

22-24/9/2015: Information Sciences and Systems (ISCIS 2015), London, UK. *Presented "Modeling Power Consumption in Multicore CPUs with Multithreading and Frequency Scaling".*

25-30/5/2015: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2015) and European Conference on Modelling and Simulation (ECMS 2015), Albena (Varna), Bulgaria. *Presented "A simulation based approach for rhe evaluation of outcome driven innovation models".*

20-22/8/2014: European Conference on Queuing Theory (ECQT 2014), Ghent, Belgium. *Presented "Energy consumption in systems with multi-class workloads".*

30/6-2/7/2014: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2014), Budapest, Hungary. *Presented "Throughput maximization with multiclass workloads and resource constraints" and "Markovian agents population models to study cancer evolution"*.

27-30/5/2014: European Conference on Modelling and Simulation (ECMS 2014), Brescia, Italy. *Presented "Workload characterization of multithreaded applications on multicore architectures"*.

10-12/12/2013: International Conference on Performance Evaluation Methodologies and Tools (ValueTools 2013), Torino, Italy. *Presented "Modeling apache hive based applications in big data architectures" and "Performance optimization with JMT: Java modelling tools"*.

16-17/9/2013: European Performance Engineering Workshop (EPEW 2013), Venezia, Italy. *Presented "End-to-end performance of multi-core systems in cloud environments"*.

8-10/7/2013: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2013), Gent, Belgium. *Presented "Studying mobile internet technologies with agent based mean-field models"*.

27-30/5/2013: European Conference on Modelling and Simulation (ECMS 2013), Alesund, Norway. *Presented "A performance modeling language for big data architectures"*.

17-20/9/2012: Quantitative Evaluation of Systems (QEST12), London, UK. *Presented "Flexible CPU provisioning in clouds: A new source of performance unpredictability"*.

4-6/6/2012: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2012), Grenoble, France. *Presented "Consolidation and replication of VMs matching performance objectives"*.

12-13/10/2011: European Performance Engineering Workshop (EPEW 2011), Borrowdale, UK. *Presented "A tool suite for modelling spatial interdependencies of distributed systems with Markovian agents"*.

20-22/6/2011: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2011), Venice, Italy. *Presented "Performability modeling of exceptions-aware systems in multiformalism tools"*.

17-19/8/2010: International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2010), Miami, Fl (USA). *Presented "Element based semantics in multi formalism performance models"*.

14-16/6/2010: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2010), Cardiff, UK. *Presented "Performance evaluation of media segmentation heuristics using non-markovian multi-class arrival processes"*.

9–12/6/2009: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2009) and European Conference on Modelling and Simulation (ECMS 2009), Madrid, Spain. *Presented "Stochastic modelling of poll based multimedia productions".*

23–27/3/2009: European joint conferences on Theory And Practice of Software (ETAPS2009), York, UK. *Presented "ITPN-Perfbound: A performance bound tool for interval time petri nets".*

23–25/9/2008: International Workshop on Practical Applications of Stochastic Modelling (PASM 2008) and European Performance Engineering Workshop (EPEW 2008), Palma de Mallorca, Spain. *Presented "Performance Analysis of the ARIA Adaptive Media Processing Workflows using Colored Petri Nets".*

4–6/6/2008: International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA 2008) and European Conference on Modelling and Simulation (ECMS 2008), Nicosia, Cyprus. *Presented "An analytical study of the resource diffusion in non-homogeneous P2P networks".*

17–21/3/2008: IEEE International Workshop on Sensor Networks and Systems for Pervasive Computing (PerSeNS 2008), Kowloon, Hong Kong. *Presented "Analysis of on-off policies in sensor networks using interacting Markovian Agents".*

11–14/9/2006 Quantitative Evaluation of Systems (QEST06), Riverside (CA), USA. *Presented "Performance analysis of Delay Tolerant Networks with model checking techniques".*

27-29/3/2006: Conference on Measurement, Modeling, and Evaluation of Computer and Communication Systems (MMB 2006), Nurnberg, Germania. *Presented "Fixed-point approximations for TCP behavior in networks of routers implementing heterogeneous queue management policies".*

28/6-1/7/2005: International Conference on Dependable Systems and Networks (DSN2005), Yokohama, Japan. *Presented "A spatial fluid-based framework to analyze large-scale wireless sensor networks".*

24–26/6/2004: International Conference on Dependable Systems and Networks (DSN2004), Flornce, Italy. *Presented "An efficient algorithm for the transient analysis of a class of deterministic stochastic petri nets".*

2–5/9/2001: International Workshop on Petri Nets and Perform Models 2003, PNPM'03, Urbana, IL, USA, and Sixth International Workshop on Performability Modeling of Computer and Communication Systems (PMCCS 5), Monticello, IL, USA. *Presented "Stationary analysis of FSPNs with mutually dependent discrete and continuous parts".*

24–26/6/2002: International Conference on Dependable Systems and Networks (DSN2002), Washington, DC, USA. *Presented "DrawNet++: A flexible framework for building dependability models".*

21–23/4/2002: International Conference on Modelling Tools and Techniques for Computer and Communication System Performance Evaluation, London, UK. *Presented "DrawNET++: Model objects to support performance analysis and simulation of systems"*.

11–16/9/2001: International Workshop on Petri Nets and Perform Models 2001, PNPM'01, Aachen, Germania, and Fifth International Workshop on Performability Modeling of Computer and Communication Systems (PMCCS 5), Erlangen, Germany. *Presented "Numerical Analysis of Bounded Fluid Models using Matrix Exponentiation"*.

25–28/6/2001: International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'01), Las Vegas, NE, (USA). *Presented "A multipardigm simulation framework"*. 29/8-1/9/2000: International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2000), San Francisco, Ca (USA). *Presented "Simulation of Fluid Stochastic Petri Nets"*.

6–10/9/1999: Multi-Workshop on Formal Methods in Performance Evaluation and Application, Saragoza, Spain. *Presented "Modeling software systems with rejuvenation, restoration and checkpointing through fluid stochastic Petri nets" and "Fluid stochastic Petri nets: An extended formalism to include non-Markovian models"*.

Citations and indices:

1823 citations from 1231 documents, H-index = 23 and 190 works indexed on Scopus, with 156 co-authors and spanning over 32 topics, as September 1st, 2022

Publications:

I am author of 54 international journal publications, 116 international conference publications, 10 book chapters, 8 editorial contributions, and 2 books. Most of my works are indexed on Scopus, Web Of Science and/or DBLP, and they can be downloaded from *IEEExplore*, *ACM digital library*, *SpringerLink*, *Science Direct* or other reputable on-line repositories.

My current list of publications is included in the appendix of this document.

Editorial board

I am part of the Editorial Board of the JOURNAL OF HIGH SPEED NETWORKS [1992-] 0926-6801, from January 2018.

Teaching Activities

My teaching activity includes experiences both at the University and at the industry.

University Courses

I have been the main lecturer in Introductory Computer Science, Computer Graphics, and Performance Evaluation. The following table summarizes my teaching activity at the University level.

Year	Course (Ita.)	Course (Eng.)	Level	Hours	Students
2021-2022	*[Course given in English]*	Performance Evaluation and Applications	MS	50	~80
2021-2022	*Tecniche della rappresentazione – M1*	Representation techniques (for the fashion industry) – M1	BS	40	~45
2021-2022	*Tecniche della rappresentazione – M2*	Representation techniques (for the fashion industry) – M2	BS	40	~45
2021-2022	*[Course given in English]*	Digital Interactive Technologies for Physical Interfaces	MS	30	~50
2021-2022	*[Course given in English]*	Computer Graphics	MS	50	~200
2020-2021	*[Course given in English]*	Computer Systems Performance Evaluation	MS	50	~100
2020-2021	*Tecniche della rappresentazione – M1*	Representation techniques (for the fashion industry) – M1	BS	40	~45
2020-2021	*Tecniche della rappresentazione – M2*	Representation techniques (for the fashion industry) – M2	BS	40	~45
2020-2021	*[Course given in English]*	Digital Interactive Technologies for Physical Interfaces	MS	30	~50
2020-2021	*[Course given in English]*	Computer Graphics	MS	50	~200
2019-2020	*[Course given in English]*	Computer Systems Performance Evaluation	MS	50	~100
2019-2020	*Tecniche della rappresentazione*	Representation techniques (for the fashion industry)	BS	40	~45
2019-2020	*[Course given in English]*	Digital Interactive Technologies for Physical Interfaces	MS	30	~50
2019-2020	*[Course given in English]*	Computer Graphics	MS	50	~200
2018-2019	*[Course given in English]*	Computer Systems Performance Evaluation	MS	50	~75
2018-2019	*[Course given in English]*	Performance Evaluation of Computer Systems	MS	50	~35
2018-2019	*Tecniche della rappresentazione*	Representation techniques (for the fashion industry)	BS	40	~45
2018-2019	*[Course given in English]*	Digital Interactive Technologies for Physical Interfaces	MS	30	~50
2018-2019	*[Course given in English]*	Computer Graphics	MS	50	~200
2017-2018	*[Course given in English]*	Computer Systems Performance Evaluation	MS	50	~75
2017-2018	*[Course given in English]*	Performance Evaluation of Computer Systems	MS	50	~35
2017-2018	Tecniche della	Representation techniques (for	BS	40	~45

	rappresentazione	the fashion industry)			
2017-2018	*[Course given in English]*	Computer Graphics	MS	50	~240
2016-2017	*[Course given in English]*	Performance Evaluation of Computer Systems	MS	50	~15
2016-2017	*[Course given in English]*	Computing Infrastructures	MS	50	~180
2016-2017	*[Course given in English]*	Computer Graphics	MS	50	~80
2015-2016	*[Course given in English]*	Performance Evaluation of Computer Systems	MS	50	~75
2015-2016	*[Course given in English]*	Computing Infrastructures	MS	50	~180
2015-2016	*[Course given in English]*	Computer Graphics	MS	50	~80
2014-2015	*[Course given in English]*	Performance Evaluation of Computer Systems	MS	50	~75
2014-2015	*[Course given in English]*	Computing Infrastructures	MS	50	~180
2014-2015	*[Course given in English]*	Computer Graphics	MS	50	~80
2013-2014	*[Course given in English]*	Enterprise Digital Infrastructures	MS	50	~180
2013-2014	*[Course given in English]*	Computer Graphics	MS	50	~80
2012-2013	*[Course given in English]*	Computer Systems	BS	50	~25
2012-2013	*[Course given in English]*	Computer Graphics	MS	50	~80
2011-2012	Informatica (Civ)	Basic Compute Science	BS	117	~120
2011-2012	*[Course given in English]*	Computer Systems	BS	50	~25
2011-2012	*[Course given in English]*	Computer Graphics	MS	50	~80
2010-2011	Informatica (Civ)	Basic Compute Science	BS	117	~120
2010-2011	*[Course given in English]*	Computer Systems	BS	50	~25
2009-2010	Informatica Grafica per le arti	Computer Graphics for Arts	BS	54	~150
2009-2010	Informatica + Laboratorio	Basic Computer Science	BS	24	~45
2009-2010	Sistemi Multimediali	Multimedia Systems	MS	48	~25
2008-2009	Informatica Grafica per le arti	Computer Graphics for Arts	BS	60	~150
2008-2009	Informatica + Laboratorio	Basic Computer Science	BS	24	~45
2007-2008	Informatica Grafica per le arti	Computer Graphics for Arts	BS	60	~150
2006-2007	Informatica Grafica per le arti	Computer Graphics for Arts	BS	60	~150
2005-2006	Informatica Grafica	Computer Graphics	BS	60	~150
2005-2006	Informatica Grafica II	Intermediate Computer Graphics	MS	60	~25
2005-2005	Informatica + Laboratorio	Basic Computer Science	BS	24	~45
2004-2005	Informatica Grafica	Computer Graphics	BS	60	~150
2004-2005	Informatica Grafica II	Intermediate Computer Graphics	MS	60	~25
2003-2004	Informatica Grafica	Computer Graphics	BS	60	~150
2003-2004	Informatica + Laboratorio	Basic Computer Science	BS	24	~45
2002-2003	Informatica Grafica	Computer Graphics	BS	60	~150
2002-2003	Informatica + Laboratorio	Basic Computer Science	BS	24	~45
2001-2002	Informatica Grafica	Computer Graphics	BS	60	~150
2001-2002	Informatica + Laboratorio	Basic Computer Science	BS	24	~45

Thesis

I have followed about 250 students, between bachelor and master degree.

P.h.D students

I have been co-advisor for three PhD students: Davide Cerotti (2007-2010), Pietro Piazzolla (2007-2010) and Enrico Barbierato (2010-2013). The all have been post-docs at the Politecnico of Milano in my group. Currently Davide Cerotti is a Junior Researcher (RTD-A) at the "Università del Piemonte Orientale – Vercelli", Pietro Piazzolla is a Junior Researcher (RTD-A) at the "Politecnico di Torino" and Enricto Barbierato is a Junior Researcher (RTD-A) at the"Università Cattoloica del Sacro Cuore –

Brescia". I have been the main advisor of Riccardo Pinciroli, PhD student at the Politecnico of Milano. Riccardo Pinciroli is now a Post-Doc at the GSSI – L'Aquila.

I have been Member of the scientific program board of the international P.h.D. in "Cyber Physical Systems", cycle 33 and 34, years 2017-2018 and 2018-2019 for the University of Messina (Italy).

Advanced professional courses

I have given more than thirty courses in various professional curriculums on the following topics: Web programming, computer graphics and animation, Cloud Computing, Enterprise Computing Infrastructure, Performance Evaluation and Dependability.

Technical knowledge and other related activities

Programming languages:
General Purpose Languages: *C*, *C++*, *Java*, *Basic (Visual Basic)*, *Ada*, *Lisp*, *Assembler*, *Pascal*, *Fortran*. Web Languages: *PHP*, *Javascript*. Multimedia Languages: *Actionscript*, *Ling*. 3D Graphics Languages: *MEL*, *HLSL*, *Cg*, *GLSL*. Mathematical Languages: *Mathematica*, *Matlab*, *Octave*

Technologies and Data Bases:
Web Technologies: *HTML, XML, SVG, VRML, X3D, Collada*. Database: *SQL, MySQL, Access*. Rendering Engines and Virtual Reality Technologies: *Open GL, Microsoft DirectX, Torque, Unreal*. *Technology, Ogre, Adobe Atmosphere, ViewPoint, Balxxun, Mental Ray, JME. BigData technologies: Hadoop, Hive, Cassandra, Mongo DB, H-Base. Virtualization and Cloud technologies: OpenStack, VirtualBox, VMware*

Operating Systems:
Microsoft Windows, Linux, Solaris, MacOS. Advanced knowledge on administration of networks, firewalls and on configuration and integration of services.

Applications
Office Automation: *Microsoft Office, LaTeX*. 2D Graphics: *Corel Draw, Adobe Flash, Adobe PhotoShop, Jasc Paint Shop Pro, GIMP, Tgif, Xfig*. 3D Graphics: *Maya, 3D Studio, Lightwave, Blender, Bryce, Poser, Motion Builder*. Compositing and Video Editing: *Discreet Combustion, Adobe Premiere, Adobe After Effect*. Multimedia and Web production: *Macromedia Director, Macromedia Dreamweaver*. Digital Audio: *Sony Sound Forge, Steinberg Cubase*

Advanced 3D Graphics Knowledge: *Vicon* **Motion Capture** technology and the *IQ* data acquisition software

Hardware Technical Skills
Assembly and expansion of Personal Computers. Installation and configuration of Computer Networks. Programming of micro-controllers and Arduino experiences. Programming FPGAs in Verilog.

Tracking experience using inertial measurement units and indoor ultra-wide-band positioning systems.

Expert skill
Appointed as a "verificatore" for the Italian Institution "TAR del Lazio", in the cause of appeal 9332/2018 from the DEIB department of Politecnico di Milano.

Milano,
September 1st, 2022   Marco Gribaudo.

Appendix – List of publications

Here follows the list of my publications as reported by Scopus on September 1ˢᵗ , 2022.

2022

- *[2022]* **Conference Paper**. *Campanile L., Iacono M., Gribaudo M., Marulli F., Mastroianni M.:" A DSL-based modeling approach for energy harvesting IoT/WSN". In Proceedings - European Council for Modelling and Simulation, ECMS, Vol. 36, Issue 1, Pg. 317-323, DOI: 10.7148/2022-0317. Proceedings of 36th International ECMS Conference on Modelling and Simulation, ECMS 2019. 30 May 2022 through 3 June 2022. Pub: European Council for Modelling and Simulation*
- [2022] **Article**. Bobbio A., Campanile L., Gribaudo M., Iacono M., Marulli F., Mastroianni M.:" *A cyber warfare perspective on risks related to health IoT devices and contact tracing*".In *Neural Computing and Applications*, DOI: 10.1007/s00521-021-06720-1 .Pub: *Springer Science and Business Media Deutschland GmbH*, Article in Press

2021

- [2021] **Article**. Barbierato E., Campanile L., Gribaudo M., Iacono M., Mastroianni M., Nacchia S.:" *Performance evaluation for the design of a hybrid cloud based distance synchronous and asynchronous learning architecture*".In *Simulation Modelling Practice and Theory*, Vol. 109, DOI: 10.1016/j.simpat.2021.102303 .Pub: *Elsevier B.V.*
- [2021] **Article**. Gribaudo M., Iacono M., Manini D.:" *COVID-19 spatial diffusion: A markovian agent-based model*".In *Mathematics*, Vol. 9, Issue 5, Pg. 1-12, DOI: 10.3390/math9050485 .Pub: *MDPI AG*
- [2021] **Article**. Gribaudo M., Manini D., Chiasserini C.F.:" *Modelling user radio access in dense heterogeneous networks*".In *Performance Evaluation*, Vol. 146, DOI: 10.1016/j.peva.2020.102167 .Pub: *Elsevier B.V.*
- [2021] **Article**. Ardagna D., Barbierato E., Gianniti E., Gribaudo M., Pinto T.B.M., da Silva A.P.C., Almeida J.M.:" *Predicting the performance of big data applications on the cloud*".In *Journal of Supercomputing*, Vol. 77, Issue 2, Pg. 1321-1353, DOI: 10.1007/s11227-020-03307-w .Pub: *Springer*
- [2021] **Conference Paper**. Cerotti D., Bobbio A., Bruneo D., Distefano S., Scarpa M., Gribaudo M.:" *Assessing Self-Adapting Routing Algorithm in an Industrial IoT Environment*".In *Proceedings - Annual Reliability and Maintainability Symposium*, Vol. 2021-May, DOI: 10.1109/RAMS48097.2021.9605660 .Proceedings of *67th*

Annual Reliability and Maintainability Symposium, RAMS 2021. 24 May 2021 through 27 May 2021.Pub: Institute of Electrical and Electronics Engineers Inc.

- *[2021] **Conference Paper**. Barbierato E., Gribaudo M., Serazzi G., Tanca L.:" Performance Evaluation of a Data Lake Architecture via Modeling Techniques".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 13104 LNCS, Pg. 115-130, DOI: 10.1007/978-3-030-91825-5_7 .Proceedings of 17th European Performance Engineering Workshop, EPEW 2021, and the 26th International Conference on Analytical and Stochastic Modelling Techniques and Applications, ASMTA 2021. 13 December 2021 through 14 December 2021.Pub: Springer Science and Business Media Deutschland GmbH*

- *[2021] **Conference Paper**. Campanile L., Gribaudo M., Iacono M., Mastroianni M.:" Hybrid Simulation of Energy Management in IoT Edge Computing Surveillance Systems".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 13104 LNCS, Pg. 345-359, DOI: 10.1007/978-3-030-91825-5_21 .Proceedings of 17th European Performance Engineering Workshop, EPEW 2021, and the 26th International Conference on Analytical and Stochastic Modelling Techniques and Applications, ASMTA 2021. 13 December 2021 through 14 December 2021.Pub: Springer Science and Business Media Deutschland GmbH*

- *[2021] **Conference Paper**. Gribaudo M., Iacono M., Manini D.:" Simulation of N-Dimensional Second-Order Fluid Models with Different Absorbing, Reflecting and Mixed Barriers".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12846 LNCS, Pg. 276-292, DOI: 10.1007/978-3-030-85172-9_15 .Proceedings of 18th International Conference on Quantitative Evaluation of Systems, QEST 2021. 23 August 2021 through 27 August 2021.Pub: Springer Science and Business Media Deutschland GmbH*

2020

- *[2020] **Article**. Barbierato E., Gribaudo M., Iacono M., Levis A.H.:" Evaluating the Safety of Crowds in Enclosed Spaces by Markovian Agents".In Electronic Notes in Theoretical Computer Science, Vol. 353, Pg. 61-75, DOI: 10.1016/j.entcs.2020.09.019 .Pub: Elsevier B.V.*

- *[2020] **Article**. Campanile L., Gribaudo M., Iacono M., Mastroianni M.:" Performance evaluation of a fog WSN infrastructure for emergency management".In Simulation Modelling Practice and Theory, Vol. 104, DOI: 10.1016/j.simpat.2020.102120 .Pub: Elsevier B.V.*

- *[2020] **Article**. Gribaudo M., Horváth I., Manini D., Telek M.:" Modelling large timescale and small timescale service variability".In Annals of Operations Research, Vol. 293, Issue 1, Pg. 123-140, DOI: 10.1007/s10479-019-03395-9 .Pub: Springer*

- *[2020] **Article**. Gribaudo M., Piazzolla P., Porpiglia F., Vezzetti E., Violante M.G.:" 3D augmentation of the surgical video stream: Toward a modular approach".In Computer Methods and Programs in Biomedicine, Vol. 191, DOI: 10.1016/j.cmpb.2020.105505 .Pub: Elsevier Ireland Ltd*

- *[2020] **Conference Paper**. Gribaudo M., Pironti M., Pisano P., Manini D., Scuotto V.:" Circular economy: A coloured petri net based discrete event simulation model".In Proceedings - European Council for Modelling and Simulation, ECMS, Vol. 34, Issue 1, Pg. 97-103, .Proceedings of 34th International ECMS Conference on Modelling and Simulation, ECMS 2020. 9 June 2020 through 12 June 2020.Pub: European Council for Modelling and Simulation*

- *[2020] **Conference Paper**. Gribaudo M., Manini D., Pironti M., Pisano P.:" Circular Economy: A Performance Evaluation Perspective".In ACM International Conference Proceeding Series, Pg. 196-199, DOI: 10.1145/3388831.3388858 .Proceedings of 13th EAI International Conference on Performance Evaluation Methodologies and Tools, VALUETOOLS 2020. 18 May 2020 through 20 May 2020.Pub: Association for Computing Machinery*

- *[2020] **Article**. Botta M., Cavagnino D., Gribaudo M., Piazzolla P.:" Fragile watermarking of 3D models in a transformed domain".In Applied Sciences (Switzerland), Vol. 10, Issue 9, DOI: 10.3390/app10093244 .Pub: MDPI AG*

- *[2020] **Article**. Barbierato E., Gribaudo M., Serazzi G.:" Multi-formalism models for performance engineering".In Future Internet, Vol. 12, Issue 3, DOI: 10.3390/fi12030050 .Pub: MDPI AG*

- *[2020] **Article**. Campanile L., Gribaudo M., Iacono M., Marulli F., Mastroianni M.:" Computer network simulation with ns-3: A systematic literature review".In Electronics (Switzerland), Vol. 9, Issue 2, DOI: 10.3390/electronics9020272 .Pub: MDPI AG*

- *[2020] **Conference Paper**. Barbierato E., Gribaudo M., Iacono M.:" Map-reduce process algebra: a formalism to describe directed acyclic graph task-based jobs in parallel environments".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12023 LNCS, Pg. 85-99, DOI: 10.1007/978-3-030-62885-7_7 .Proceedings of 25th International Conference on Analytical and Stochastic Modelling Techniques and Applications, ASMTA 2019. 21 October 2019 through 25 October 2019.Pub: Springer Science and Business Media Deutschland GmbH*

- *[2020] **Editorial**. Gribaudo M., Sopin E., Kochetkova I.:" Preface".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12023 LNCS, Pg. v-, .Proceedings of 25th International Conference on Analytical and Stochastic Modelling Techniques and Applications, ASMTA 2019. 21 October 2019 through 25 October 2019.Pub: Springer Science and Business Media Deutschland GmbH*

- *[2020] **Editorial**. Gribaudo M., Jansen D.N., Remke A.:" Preface".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and*

Lecture Notes in Bioinformatics), Vol. 12289 LNCS, Pg. v-vi, .Proceedings of 17th International Conference on Quantitative Evaluation Systems, QEST 2020. 31 August 2020 through 3 September 2020.Pub: Springer Science and Business Media Deutschland GmbH

- *[2020] **Conference Paper**. Campanile L., Gribaudo M., Iacono M., Mastroianni M.:" Modelling performances of an autonomic router running under attack".In International Journal of Embedded Systems, Vol. 12, Issue 4, Pg. 458-466, DOI: 10.1504/IJES.2020.107645 .Pub: Inderscience Publishers*
- *[2020] **Editorial**. Gribaudo M., Phung-Duc T., Iacono M., Razumchik R.:" Preface".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12039 LNCS, Pg. v-, .Proceedings of 16th European Workshop on Computer Performance Engineering, EPEW 2019. 28 November 2019 through 29 November 2019.Pub: Springer*
- *[2020] **Article**. Arcari L., Gribaudo M., Palermo G., Serazzi G.:" Performance-Driven Analysis for an Adaptive Car-Navigation Service on HPC Systems".In SN Computer Science, Vol. 1, Issue 1, DOI: 10.1007/s42979-019-0035-7 .Pub: Springer*
- *[2020] **Conference Paper**. Gribaudo M., Moos S., Piazzolla P., Porpiglia F., Vezzetti E., Violante M.G.:" Enhancing Spatial Navigation in Robot-Assisted Surgery: An Application".In Lecture Notes in Mechanical Engineering, Pg. 95-105, DOI: 10.1007/978-3-030-31154-4_9 .Proceedings of International Conference on Design Tools and Methods in Industrial Engineering, ADM 2019. 9 September 2019 through 10 September 2019.Pub: Springer*
- *[2020] **Article**. Antonelli F., Cortellessa V., Gribaudo M., Pinciroli R., Trivedi K.S., Trubiani C.:" Analytical modeling of performance indices under epistemic uncertainty applied to cloud computing systems".In Future Generation Computer Systems, Vol. 102, Pg. 746-761, DOI: 10.1016/j.future.2019.09.006 .Pub: Elsevier B.V.*
- *[2020] **Conference Paper**. Amparore D., Checcucci E., Gribaudo M., Piazzolla P., Porpiglia F., Vezzetti E.:" Non-linear-Optimization Using SQP for 3D Deformable Prostate Model Pose Estimation in Minimally Invasive Surgery".In Advances in Intelligent Systems and Computing, Vol. 943, Pg. 477-496, DOI: 10.1007/978-3-030-17795-9_35 .Proceedings of Computer Vision Conference, CVC 2019. 25 April 2019 through 26 April 2019.Pub: Springer Verlag*

2019

- *[2019] **Article**. Cerotti D., Miele A., Gribaudo M., Bobbio A., Bolchini C.:" Scalable analytical model for reliability measures in aging VLSI by interacting Markovian agents".In Performance Evaluation, Vol. 132, Pg. 21-37, DOI: 10.1016/j.peva.2019.01.001 .Pub: Elsevier B.V.*

- *[2019] **Article**. Cavalieri d'Oro E., Colombo S., Gribaudo M., Iacono M., Manca D., Piazzolla P.:" Modeling and evaluating a complex edge computing based systems: An emergency management support system case study".In Internet of Things (Netherlands), Vol. 6, DOI: 10.1016/j.iot.2019.100054 .Pub: Elsevier B.V.*
- *[2019] **Editorial**. Iacono M., Palmieri F., Gribaudo M., Ficco M.:" Preface".In Proceedings - European Council for Modelling and Simulation, ECMS, Vol. 33, Issue 1, .Proceedings of 33rd International ECMS Conference on Modelling and Simulation, ECMS 2019. 11 June 2019 through 14 June 2019.Pub: European Council for Modelling and Simulation*
- *[2019] **Conference Paper**. Gribaudo M., Campanile L., Iacono M., Mastroianni M.:" Performance modeling and analysis of an autonomic router".In Proceedings - European Council for Modelling and Simulation, ECMS, Vol. 33, Issue 1, Pg. 441-447, DOI: 10.7148/2019-0441 .Proceedings of 33rd International ECMS Conference on Modelling and Simulation, ECMS 2019. 11 June 2019 through 14 June 2019.Pub: European Council for Modelling and Simulation*
- *[2019] **Conference Paper**. Branca G., Gribaudo M.:" Reducing sickness and enhancing virtual reality simulation on mobile devices by tracking the body rotation".In Proceedings - European Council for Modelling and Simulation, ECMS, Vol. 33, Issue 1, Pg. 428-433, DOI: 10.7148/2019-0428 .Proceedings of 33rd International ECMS Conference on Modelling and Simulation, ECMS 2019. 11 June 2019 through 14 June 2019.Pub: European Council for Modelling and Simulation*
- *[2019] **Article**. Barbierato E., Gribaudo M., Iacono M., Jakóbik A.:" Exploiting CloudSim in a multiformalism modeling approach for cloud based systems".In Simulation Modelling Practice and Theory, Vol. 93, Pg. 133-147, DOI: 10.1016/j.simpat.2018.09.018 .Pub: Elsevier B.V.*
- *[2019] **Book Chapter**. Gribaudo M., Iacono M., Levis A.H.:" Multi-formalism modeling of complex social-behavioral systems".In Social-Behavioral Modeling for Complex Systems, Pg. 711-739, DOI: 10.1002/9781119485001.ch31 .Pub: wiley*
- *[2019] **Conference Paper**. Campanile L., Iacono M., Gribaudo M., Mastroianni M.:" Quantitative modeling of the behaviour of an autonomic router".In ACM International Conference Proceeding Series, Pg. 193-194, DOI: 10.1145/3306309.3306344 .Proceedings of 12th EAI International Conference on Performance Evaluation Methodologies and Tools, VALUETOOLS 2019. 13 March 2019 through 15 March 2019.Pub: Association for Computing Machinery*
- *[2019] **Book Chapter**. Cerotti D., Gribaudo M., Pinciroli R., Serazzi G.:" Modeling Techniques for Pool Depletion Systems".In EAI/Springer Innovations in Communication and Computing, Pg. 79-94, DOI: 10.1007/978-3-319-92378-9_6 .Pub: Springer Science and Business Media Deutschland GmbH*
- *[2019] **Book Chapter**. Spolaor S., Gribaudo M., Iacono M., Kadavy T., Oplatková Z.K., Mauri G., Pllana S., Senkerik R., Stojanovic N., Turunen E., Viktorin A., Vitabile S., Zamuda A., Nobile M.S.:" Towards human cell simulation".In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial*

Intelligence and Lecture Notes in Bioinformatics), Vol. 11400, Pg. 221-249, DOI: 10.1007/978-3-030-16272-6_8 .Pub: Springer Verlag

2018

- *[2018]* **Article**. *Gribaudo M., Iacono M., Kiran M.:" A performance modeling framework for lambda architecture based applications".In Future Generation Computer Systems, Vol. 86, Pg. 1032-1041, DOI: 10.1016/j.future.2017.07.033 .Pub: Elsevier B.V.*
- *[2018]* **Article**. *Gribaudo M., Pinciroli R., Trivedi K.:" Epistemic Uncertainty Propagation in Power Models".In Electronic Notes in Theoretical Computer Science, Vol. 337, Pg. 67-86, DOI: 10.1016/j.entcs.2018.03.034 .Pub: Elsevier B.V.*
- *[2018]* **Article**. *Gribaudo M., Iacono M., Manini D.:" Performance Evaluation of Replication Policies in Microservice Based Architectures".In Electronic Notes in Theoretical Computer Science, Vol. 337, Pg. 45-65, DOI: 10.1016/j.entcs.2018.03.033 .Pub: Elsevier B.V.*
- *[2018]* **Conference Paper**. *Ardagna D., Barbierato E., Evangelinou A., Gianniti E., Gribaudo M., Pinto T.B.M., Guimarães A., Da Silva A.P.C., Almeida J.M.:" Performance prediction of cloud-based big data applications".In ICPE 2018 - Proceedings of the 2018 ACM/SPEC International Conference on Performance Engineering, Vol. 2018-March, Pg. 192-199, DOI: 10.1145/3184407.3184420 .Proceedings of 5th International Conference in Software Engineering Research and Innovation, CONISOFT 2017. 25 October 2017 through 27 October 2017.Pub: Association for Computing Machinery, Inc*
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