

Valeria Cardellini

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1 Research Interests

My research interests are in the broad field of distributed computing systems, with a focus on Web-based and Cloud-based systems and services. From 1998 my research topics included high performance and quality-aware Web systems as well as distributed infrastructures for adapting Web applications. In the last 10 years, I have been working on: (i) QoS-driven runtime adaptation of service-oriented systems, (ii) resource provisioning and elasticity in Cloud and edge/fog systems, (iii) self-adaptive deployment of geo-distributed data stream applications, and (iv) optimization of kernel codes on GPUs.

2 Education and Positions

2.1 Education

1997-2001 Ph.D. in Computer Science and Automation Engineering at Tor Vergata University of Rome, Italy. Thesis title: “Scalable Web-server systems”. Thesis supervisors: Michele Colajanni and Salvatore Tucci.

1991-1997 Laurea with summa cum laude in Computer Engineering (equivalent to M.Eng.) at Tor Vergata University of Rome, Italy.

2.2 Current Position

Full professor (December 2023-present) in Information processing systems (Italian SSD IINF-05/A, previously ING-INF/05) at the Department of Civil Engineering and Computer Science Engineering, Tor Vergata University of Rome, Italy.

2.3 Past Positions

Associate professor (January 2015-December 2023) at Tor Vergata University of Rome, Italy.

Assistant professor (tenure track) (October 2006-January 2015) at Tor Vergata University of Rome, Italy.

Research associate (2001-2006) at Tor Vergata University of Rome, Italy.

Visiting researcher (May-November 1999), IBM T.J. Watson Research Center, NY, USA, in the unit led by Philip S. Yu.

3 International Awards and Acknowledgements

2024 Included in the Stanford University-Elsevier ranking of 2% top-cited scientists for the career up until 2023 (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/7>).

2023 Included in the Stanford University-Elsevier ranking of 2% top-cited researchers for the career up until 2022 (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6>).

2023 Best paper award at the Special Session on Compute Continuum of the 31st Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2023).

2022 Best paper award at the 15th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2022).

2022 Included in the Stanford University-Elsevier ranking of 2% top-cited researchers for the career up until 2021 (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/4>).

2021 Included in the Stanford University-Elsevier ranking of 2% top-cited researchers for the career up until 2020 and for the single year 2020 (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3>).

2021 Best paper award at the 1st IEEE International Workshop on Distributed and Intelligent Systems (DistInSys 2021).

2020 Included in the Stanford University-Elsevier ranking of 2% top-cited researchers for the single year 2019 (10.1371/journal.pbio.3000918, Table S7-singleyr-2019).

2016 Honorable mention paper award at the 10th ACM International Conference on Distributed and Event-Based Systems (DEBS 2016).

2015 Best poster award at the 9th ACM International Conference on Distributed Event-Based Systems (DEBS 2015).

2011 Best paper award at the IEEE 6th International Symposium on Service-Oriented System & Engineering (SOSE 2011).

2002 “The state of the art in locally distributed Web-server systems” published in ACM Computing Surveys in June 2002 was in the top 10 of the most downloaded papers from the ACM Digital Library for the quarters June-Sept. 2002 and Oct.-Dec. 2002.

4 Research Projects

4.1 Responsibility

2022-2025 Italian National Centre for HPC, Big Data and Quantum Computing, Spoke 1 on Future HPC & Big Data.

Responsibility: Tor Vergata research unit.

2016-2018 EU Horizon 2020 “Energy oriented Centre of Excellence (EoCoE) for computing applications”, Grant Agreement Number: 676629, Tor Vergata University of Rome is linked third-party of CNR.

Responsibility: Tor Vergata research unit from November 2016 till the project end.

- 2013-2017** European COST Action “IC1304: Autonomous Control for a Reliable Internet of Services (ACROSS)”.
- Responsibility:* Management Committee member.
- 2017** Realization of a research and development project (pre-commercial procurement) on “Cloud for Europe” (Tender no. 5843932, FP7-610650), Phase II (Prototype development) for Lots 1, 2 and 3.
- Responsibility:* Tor Vergata research unit.
- 2016** Realization of a research and development project (pre-commercial procurement) on “Cloud for Europe” (Tender no. 5843932, FP7-610650), Phase I (Solution design) for Lots 1, 2 and 3.
- Responsibility:* Tor Vergata research unit.
- 2015-2016** HOME/2013/ISEC/FINEC/4000005234 “System for prevention and combat identity theft (SYPCIT)”, financed by the European Commission.
- Responsibility:* Tor Vergata research unit from November 2015 till the project end.
- 2002** Tor Vergata University of Rome, young researchers project “Cooperative Proxy Servers for Universal Web Access”.
- Responsibility:* principal investigator.
- 1999** IBM Research Grant for research activity in cooperation with Dr. Philip Yu, IBM T.J. Watson Research Center.
- Responsibility:* principal investigator.

4.2 Participation

I contribute and contributed actively in the following international and national research projects:

- 2024-2026** EU EuroHPC “Energy oriented Centre of Excellence (EoCoE-III) for computing applications”.
- 2021-2023** “Earth in the Cloud” funded by POR FESR Lazio 2014-2020 (Action 1.2.1).
- 2020-2024** “RELYSOFT: Reliable and Safe Complex Software Systems: From Empirical Principles to Theoretical Models in View of Industrial Applications”, funded by Croatian Science Foundation.
- 2015-2018** SIR 2014 “MUltidimensional Single-cell microfluidic Impedance Cytometry (MUSIC)”, funded by the Italian Ministry of Education, University and Research.
- 2018** MSU “Global Discovery” Seed Grant Program “Autonomic security for next generation health care systems”, funded by the Mississippi State University (MSU).
- 2015-2016** EU Horizon 2020 “Energy oriented Centre of Excellence (EoCoE) for computing applications”, Grant Agreement No. 676629 (Tor Vergata University of Rome is linked third-party of CNR).
- 2014-2015** HOME/2013/ISEC/FINEC/4000005234 “System for prevention and combat identity theft (SYPCIT)”, financed by the European Commission.
- 2014** EU FP7 IST-318784 STP “TROPIC: Distributed computing, storage and radio resource allocation over cooperative femtocells”.
- 2013-2015** FRGS Fasa 2/2013 “A robust multi-layer planning model for a self-adaptive service-based framework”, funded in the framework of the Fundamental Research Grant Scheme (FRGS) by the Ministry of Higher Education, Malaysia.
- 2012-2014** FAPESP 2011/09524-7 “Development and evaluation of new computational techniques to enable the provision of quality service in SOA architectures”, funded by Fundação de

- Amparo á Pesquisa do Estado de São Paulo (FAPESP), Brazil.
- 2009-2011** PRIN 2007 “D-ASAP: Dependable Adaptable Software Architectures for Pervasive Computing”, financed by the Italian Ministry of Education, University and Research,
- 2005-2008** PON “CRESCO: Centro Computazionale di RicErca sui Sistemi Complessi”, financed by the Italian Ministry of Education, University and Research.
- 2002-2006** FIRB “WEB MINDS: Wide-scalE, Broadband, Middleware for Network Distributed Services”, financed by the Italian Ministry of Education, University and Research.
- 2002-2006** FIRB “Perf: Performance Evaluation of Complex Systems: Techniques, Methodologies, and Tools - Perf”, financed by the Italian Ministry of Education, University and Research.
- 2002-2004** “SP1 Internet Networks: efficiency, integration and security”, financed by the Italian National Research Council (CNR).
- 2002-2003** COFIN “High quality Web systems”, financed by the Italian Ministry of Education, University and Research.
- 2002-2003** Agenzia 2000 “Computational grids and applications”, financed by the Italian National Research Council (CNR).
- 1998-1999** “MOSAICO: Methodologies and Tools for the Design of High Performance Systems for Distributed Applications”, financed by the Italian Ministry of Education, University and Research.

4.3 Research Projects Evaluator

- 2023** NSERC Discovery Grants, Natural Sciences and Engineering Research Council of Canada.
- 2022** NSERC Discovery Grants, Natural Sciences and Engineering Research Council of Canada.
- 2020** Generic Call for Proposals 2020 (AAPG 2020), French National Research Agency (ANR).
- 2018** Member of the expert panel “Doctoral (PhD) grant strategic basic research (SB) SBWT50 - Informatics and data communication”, Research Foundation - Flanders (FWO), Belgium.
- 2013** “Futuro in Ricerca” program, Ministry of Education, University and Research, Italy.
- 2009** Millennium Science Initiative, Chile.

5 Professional Service

5.1 Editorial Board

- 2020-** Associate Editor of IEEE Transactions of Parallel and Distributed Systems.
- 2021-** Associate Editor of Journal of Parallel and Distributed Computing.

5.2 Journal Guest Editor

- 2024-2025** *ACM Transactions on Autonomous and Adaptive Systems*, Special Issue on “Artificial Intelligence for Adaptive and Autonomous Cloud/Edge Computing Systems”. Guest editor with I. Dusparic, S. Iannucci, and G. Russo Russo.
- 2023-2024** *Future Generation Computer Systems* (Elsevier), Special Issue on “Scalable Compute Continuum”. Guest editor with M. Nardelli, P. Dazzi, G. Mencagli, and M. Torquati. www.sciencedirect.com/special-issue/10CLZBGL11T

2019-2020 *Big Data Research* (Elsevier), Special issue “Big Data in Industrial and Commercial Applications”. Guest editor with L. Lundberg, H. Grahn, A. Polze, and S. Shirinbab. doi.org/10.1016/j.bdr.2021.100244

2018-2020 *Parallel Computing* (Elsevier), Special Issue on “Data Stream Processing in HPC Systems: New Frameworks and Architectures for High Frequency Streaming”. Guest editor with M. Aldinucci, G. Mencagli, and M. Torquati. www.sciencedirect.com/special-issue/10FPKN8DZGW

2017-2018 *Future Generation Computer Systems* (Elsevier), Special Issue on “New Landscapes of the Data Stream Processing in the era of Fog Computing”. Guest editor with G. Mencagli, D. Talia, and M. Torquati. www.sciencedirect.com/special-issue/108G131XD84

5.3 Conference and Workshop Organization

General Chair

1. *15th ACM/SPEC International Conference on Performance Engineering* (ICPE 2023), Coimbra, Portugal, April 2023. Co-chair with M. Vieira.

Program Committee Chair

1. *19th ACM International Conference on Distributed and Event-based Systems* (DEBS 2025), Research track. Co-chair with P. Carbone.
2. *15th International Conference on Cloud Computing and Services Science* (CLOSER 2025).
3. *16th ACM International Conference on Distributed and Event-based Systems* (DEBS 2022), Industry and Application track. Co-chair with Y. Wu.
4. *2020 IEEE International Conference on Fog Computing* (ICFC 2020). Co-chair with S. Guo.
5. *11th IEEE/ACM International Conference on Utility and Cloud Computing* (UCC 2018). Co-chair with L. F. Bittencourt.

Workshop Chair

1. *4th International Workshop on Distributed Machine Learning for the Intelligent Computing Continuum* (DML-ICC 2024), co-located with IEEE/ACM UCC 2024. Co-chair with L. F. Bittencourt and Y. Himeur.
2. *2nd International Workshop on Artificial Intelligence for Autonomous computing Systems* (AI4AS 2024), co-located with IEEE ACSOS 2024. Co-chair with P. Romano and G. Russo Russo.
3. *2nd International Workshop on Scalable Compute Continuum* (WSSC 2024), co-located with Euro-Par 2024. Co-chair with P. Dazzi, G. Mencagli, M. Nardelli and M. Torquati.
4. *2nd International Workshop on Converged Computing on Edge, Cloud, and HPC* (WOCC 2024), co-located with ISC 2024. Co-chair with I. Peng, D. Milroy, and T. Patki.
5. *3rd International Workshop on Distributed Machine Learning for the Intelligent Computing Continuum* (DML-ICC 2023), co-located with IEEE/ACM UCC 2023. Co-chair with L. F. Bittencourt and M. Aldinucci.
6. *First International Workshop on Artificial Intelligence for Autonomous computing Systems* (AI4AS 2023), co-located with IEEE ACSOS 2023. Co-chair with S. Iannucci and G. Russo Russo.

7. *International Workshop on Scalable Compute Continuum (WSCC 2023)*, co-located with Euro-Par 2023. Co-chair with P. Dazzi, G. Mencagli, M. Nardelli and M. Torquati.
8. *4th International Workshop on Self-Protecting Systems (SPS 2022)*, co-located with IEEE ACSOS 2022. Co-chair with S. Iannucci.
9. *4th International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2021)*, co-located with ACM/SPEC ICPE 2021. Co-chair with G. Mencagli and M. Torquati.
10. *3rd International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2019)*, co-located with Euro-Par 2019. Co-chair with G. Mencagli and M. Torquati.
11. *2nd International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2018)*, co-located with Euro-Par 2018. Co-chair with G. Mencagli and M. Torquati.
12. *International Workshop on Autonomic Systems for Big Data Analytics (ASBDA 2017)*, Tucson, AZ, USA, September 18, 2017, co-located with IEEE ICACC 2017. Co-chair with M. Parashar.
13. *International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2017)*, co-located with Euro-Par 2017. Co-chair with G. Mencagli and M. Torquati.
14. *International Workshop on Autonomous Control for Performance and Reliability Trade-offs in Internet of Services (ACPROSS 2017)*, co-located with ICPE 2017. Co-chair with F. Lo Presti and P. Pocta.
15. *3rd International Workshop on Advanced Architectures and Algorithms for Internet DELivery and Applications (AAA-IDEA 2009)*, co-located with QShine 2009. Co-chair with A. Mahanti.

Other Roles in Conference Organization

1. Workshops Chair: *ACM SIGMETRICS/IFIP Performance 2024*.
2. Workshops Chair: *16th IEEE/ACM International Conference on Utility and Cloud Computing* and *10th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (UCC/BDCAT 2023)*.
3. PhD Symposium Chair: *33rd International Symposium on High-Performance Parallel and Distributed Computing (ACM HPDC 2024)*.
4. Tutorials Chair: *8th ACM/SPEC International Conference on Performance Engineering (ICPE 2017)*.
5. Proceedings Chair: *22nd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2022)*.
6. Proceedings Chair: *6th IEEE International Conference on Fog and Edge Computing (ICFEC 2022)*.
7. Publicity Chair: *2020 IEEE International Conference on Fog Computing (ICFC 2020)*.
8. Publicity Chair: *12th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2019)* and *6th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT 2019)*.
9. Organizing Committee member: *IFIP WG 7.3 International Symposium on Computer Modeling, Measurement and Evaluation (Performance 2002)*.

Technical Program Committee Member

TPC of International Conferences and Symposia

1. *45th IEEE International Conference on Distributed Computing Systems (ICDCS 2025)*.
2. *16th ACM/SPEC International Conference on Performance Engineering (ICPE 2025)*.
3. *17th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2024)*.
4. *2024 Conference on Principles of Distributed Systems (OPODIS 2024)*.
5. *The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC 2024)*, State of the Practice track.
6. *36th IEEE International Symposium on Computer Architecture and High-Performance Computing (SBAC-PAD 2024)*, Performance Evaluation track.
7. *IEEE 32nd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2024)*.
8. *5th IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2024)*.
9. *ACM 4th International Conference on Information Technology for Social Good (GoodIT 2024)*.
10. *30th International European Conference on Parallel and Distributed Computing (Euro-Par 2024)*, Scheduling, Resource Management, Cloud, Edge Computing, and Workflows track.
11. *2nd International Conference on Metaverse Computing, Networking and Applications (Meta-Com 2024)*.
12. *24th IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CC-GRID 2024)*, AI/ML for Systems and Systems for AI/ML track.
13. *8th IEEE International Conference on Fog and Edge Computing (ICFEC 2024)*.
14. *15th ACM/SPEC International Conference on Performance Engineering (ICPE 2024)*, Research track, Emerging Research track.
15. *16th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2023)*.
16. *The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC 2023)*, State of the Practice track.
17. *IEEE 31st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2023)*.
18. *4th IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2023)*.
19. *29th International European Conference on Parallel and Distributed Computing (Euro-Par 2023)*, Scheduling, Resource Management, Cloud, Edge Computing, and Workflows track.
20. *International Conference on Metaverse Computing, Networking and Applications (MetaCom 2023)*, Metaverse Computing track.
21. *7th IEEE International Conference on Fog and Edge Computing (ICFEC 2023)*.
22. *The Web Conference 2023*, Systems and Infrastructure for Web, Mobile Web, and Web of Things track.
23. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA) and Special Session on Compute Continuum*, 31st Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2023).
24. *18th International Conference on Mobility, Sensing and Networking (MSN 2022)*, Edge Computing, IoT and Digital Twins track.
25. *15th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2022)*.

- Cloud, Parallel, Distributed and High-Performance Computing track.
26. *IEEE 30th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2022)*.
 27. *3rd IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2022)*.
 28. *28th International European Conference on Parallel and Distributed Computing (Euro-Par 2022)*.
 29. *9th International Conference on Future Internet of Things and Cloud (FiCloud 2022)*.
 30. *42th IEEE International Conference on Distributed Computing Systems (ICDCS 2022)*.
 31. *6th IEEE International Conference on Fog and Edge Computing (ICFEC 2022)*.
 32. *13th ACM/SPEC International Conference on Performance Engineering (ICPE 2022)*, Research track, Industry track, Vision and Work-in-Progress track.
 33. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA)*, 30th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2022).
 34. *17th International Conference on Mobility, Sensing and Networking (MSN 2021)*, Edge Computing and IoT track.
 35. *14th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2021)*, Cloud, Parallel, Distributed and High-Performance Computing track.
 36. *IEEE 29th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2021)*.
 37. *18th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2021)*.
 38. *2nd IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2021)*.
 39. *5th IEEE International Conference on Fog and Edge Computing (ICFEC 2021)*.
 40. *12th ACM/SPEC International Conference on Performance Engineering (ICPE 2021)*, Research track, Vision and Work-in-Progress track.
 41. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA)*, 29th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2021).
 42. *13th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2020)*, Research track and Doctoral Symposium.
 43. *IEEE 28th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2020)*.
 44. *14th IEEE International Conference on Big Data Science and Engineering (IEEE BigDataSE 2020)*.
 45. *29th International Conference on Computer Communications and Networks (ICCCN 2020)*, Communication Networks Architectures, Algorithms, Measurement and Performance Evaluation track.
 46. *27th International Science Conference on Computer Networks (CN 2020)*.
 47. *4th IEEE International Conference on Fog and Edge Computing (ICFEC 2020)*.
 48. *The Web Conference 2020*, Intelligent Systems and Infrastructure track.
 49. *11th ACM/SPEC International Conference on Performance Engineering (ICPE 2020)*.
 50. *4th International Conference on Fog and Mobile Edge Computing (FMEC 2020)*, PhD Forum

- and Posters track.
51. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA)*, 28th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2020).
 52. *6th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM 2019)*.
 53. *12th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2019)*.
 54. *International Symposium on Algorithmic Aspects of Cloud Computing (ALGO CLOUD 2019)*.
 55. *19th IEEE International Conference on Scalable Computing and Communications (ScalCom 2019)*.
 56. *13th ACM International Conference on Distributed and Event-based Systems (DEBS 2019)*.
 57. *26th International Science Conference on Computer Networks (CN 2019)*.
 58. *4th International Conference on Fog and Mobile Edge Computing (FMEC 2019)*, PhD Forum and Posters track.
 59. *The Web Conference 2019* (formerly known as WWW), Intelligent Systems and Infrastructure track.
 60. *3rd IEEE International Conference on Fog and Edge Computing (ICFEC 2019)*.
 61. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA)*, 27th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2019).
 62. *18th IEEE International Conference on Scalable Computing and Communications (ScalCom 2018)*.
 63. *15th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2018)*, Mobile Cloud Computing track.
 64. *Special Session on Technologies for Secure and High-Quality Web-Based Services (Tech-SQWeb)*, 25th International Scientific Conference on Computer Networks 2018.
 65. *2nd IEEE International Conference on Fog and Edge Computing (ICFEC 2018)*.
 66. *Special Session on Cloud Computing on Infrastructure as a Service and its Applications (CCISA)*, 26th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2018).
 67. *IEEE 25th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2017)*.
 68. *5th International Conference on Future Internet of Things and Cloud (FiCloud 2017)*, QoS-aware IoT and Cloud Services Composition track.
 69. *14th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2017)*, Mobile Cloud Computing track.
 70. *IEEE 24th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2016)*.
 71. *13th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2016)*, Mobile Cloud Computing track.
 72. *IEEE 23rd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2015)*.
 73. *12th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2015)*, Mobile Cloud Computing track.
 74. *Selected Areas in Communications Symposium* at the 2015 IEEE International Conference on

- Communications (ICC 2015), Data Storage and Cloud Computing track.
75. *IEEE 22nd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2014)*.
 76. *5th International Conference on Computer and Communication Technology (ICCCCT 2014)*.
 77. *11th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2014)*, Mobile Cloud Computing track.
 78. *IEEE 21st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2013)*.
 79. *5th International Conference on Internet and Distributed Computing Systems (IDCS 2012)*.
 80. *Special Session on Distributed Networking and Computing (DNC 2011)*, Networking and Electronic Commerce Research Conference 2011.
 81. *16th International World Wide Web Conference (WWW 2007)*, Performance and Scalability track.

TPC of International Workshops

1. *12th International Workshop on Education for High-Performance Computing (EduHPC-24)*, co-located with SC24.
2. *Special Track about Big data and High-Performance Computing (BigHPC 2024)*, co-located with the 3rd Italian Conference on Big Data and Data Science (ITADATA 2024).
3. *11th International Workshop on Education for High-Performance Computing (EduHPC-23)*, co-located with SC23.
4. *2nd Workshop on Networked Sensing Systems for a Sustainable Society (NET4us 2023)*, collocated with ACM MOBICOM 2023.
5. *Special Track about Big data and High-Performance Computing (BigHPC 2023)*, co-located with the 2nd Italian Conference on Big Data and Data Science (ITADATA 2023).
6. *2nd International Workshop on Massive Digital Twins for the Computer-Networks Evolution (TwinNets 2023)*, collocated with WoWMoM 2023.
7. *2nd Workshop on Serverless Computing for Pervasive Cloud-Edge-Device Systems and Services (*LESS 2023)*, co-located with IEEE Percom 2023.
8. *2nd Workshop on Distributed Machine Learning for the Intelligent Computing Continuum (DML-ICC 2022)*, collocated with IEEE/ACM UCC 2022.
9. *10th International Workshop on Education for High-Performance Computing (EduHPC-22)*, co-located with SC22.
10. *Euro-EduPar 2022 (EEP 2022)*, co-located with Euro-Par22.
11. *1st International Workshop on Massive Digital Twins for the Computer-Networks Evolution (TwinNets 2022)*, collocated with WoWMoM 2022.
12. *1st Workshop on Distributed Machine Learning for the Intelligent Computing Continuum (DML-ICC 2021)*, collocated with UCC 2021.
13. *9th International Workshop on Education for High-Performance Computing (EduHPC-21)*, co-located with SC21.
14. *3rd International Workshop on Self-Protecting Systems (SPS 2021)*, co-located with ACSOS 2021.
15. *10th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-20)*, co-located with IPDPS 2020.
16. *9th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-19)*,

co-located with IPDPS 2019.

17. *InfQ 2017 - New Frontiers in Quantitative Methods in Informatics*.
18. *1st International Workshop on Autonomic Management of Large-scale Container-based Systems (AMLCs 2017)*.
19. *12th International Workshop on Feedback Computing (FC 2017)*, co-located with ICAC 2017.
20. *InfQ 2016 - New Frontiers in Quantitative Methods in Informatics*, co-located with Valuetools 2016
21. *5th Workshop of the Italian group of Quantitative Informatics (InfQ 2014)*.
22. *International Workshop on Cloud Convergence: challenges for future infrastructures and services (WCC 2013)*, co-located with ICC 2013.
23. *International Workshop on Clouds for Business and Business for Clouds (C4BB4C)*, co-located with ISPA 2012.
24. *2nd IEEE International Workshop on Services and Architectures for the Ubiquitous Web and Mobile Internet (SIUMI 2006)*, co-located with ICDCS 2006.
25. *1st IEEE International Workshop on Services and Architectures for the Ubiquitous Web and Mobile Internet (SIUMI 2005)*, co-located with ICDCS 2005.

5.4 Expert Panels

1. “From Cloud native to Big Data: What is the point (and place) of academic research?”, joint panel at the *11th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2018)* and *5th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT 2018)*, Zurich, Switzerland, December 19, 2018.
2. “Towards gender balance in our field”, *4th European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR 2018)*, Turin, Italy, August 28, 2018.

5.5 Advisory Boards

1. Scientific Advisory Board: EU Horizon Project “OpenCUBE: Open-Source Cloud-Based Services on EPI Systems” (2023-2025).

5.6 Award Committees

1. SPEC Kaivalya Dixit Distinguished Dissertation Award 2023.
2. 2021 IEEE Technical Committee on Cloud Computing (TCCLD) Award Committee.

5.7 Reviewer for Journals and Conferences

Since 2003 I have reviewed more than 280 articles submitted to **international journals**, including top-ranked journals such as ACM Computing Surveys, ACM Transactions on Internet Technology, ACM Transactions on Mathematical Software, ACM Transactions on the Web, IEEE/ACM Transactions on Networking, IEEE Transactions on Cloud Computing, IEEE Transactions on Computers, IEEE Transactions on Mobile Computing, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Services Computing, IEEE Transactions on Vehicular Technology, Computer Networks, Journal of Systems and Software. A verified record is available on my Web of Science profile (www.webofscience.com/wos/author/record/1489860).

From 2000 to 2018 I reviewed more than 50 submissions to **international conferences**, among which: Euro-Par 2004 and 2018, ACM/SPEC ICPE 2017, IEEE INFOCOM 2004, 2014, and 2016, HICSS 2007 and 2009-2013, ACM/IEEE MSWiM 2005, 2006, and 2009, AMCIS 2008 and 2009, ESEC/FSE 2009, WWW 2002, 2004 and 2005, ACM SAC 2004, IEEE MASCOTS 2003, ACM Sigmetrics 2001 and 2002.

5.8 Membership and Responsibility for Professional Associations

- Faculty sponsor of the ACM Student Chapter at Tor Vergata University of Rome (2016-present)
- Member, ACM (1999-present)
- Member, IEEE and IEEE Computer Society (1998-present)

6 Invited Talks, Lectures and Tutorials

6.1 Keynote and Invited Talks

1. “Serverless at the convergence of Edge, Cloud and HPC: Issues and perspectives”, **keynote talk** at *2nd International Workshop on Converged Computing on Edge, Cloud, and HPC (WOCC 2024)*, May 16, 2024, Hamburg, Germany. <https://kth-scalab.github.io/events/wocc24>
2. “Serverless across the Edge-Cloud continuum: Issues and perspectives”, **keynote lecture** at *14th International Conference on Cloud Computing and Services Science (CLOSER 2024)*, Angers, France, May 4, 2024. <https://closer.scitevents.org/KeynoteSpeakers.aspx?y=2024>
3. “Hierarchical control for runtime adaptation”, invited seed talk at *Dagstuhl Seminar 23171: Driving HPC Operations With Holistic Monitoring and Operational Data Analytics*, Dagstuhl, Germany, April 25, 2023. <https://www.dagstuhl.de/23171>
4. “Self-adaptation for streaming analytics at the edge”, invited talk at *International Workshop on Container-based Systems for Big Data, Distributed and Parallel Computing (CBDP 2018)*, in conjunction with Euro-Par 2018, Turin, Italy, August 27, 2018. <https://sites.google.com/view/cbdp18/>
5. “Decentralized self-adaptation for elastic data stream processing”, invited talk at *13th Cloud Control Workshop*, Skåvsjöholm, Sweden, June 15, 2018. <http://cloudresearch.org/workshops/13th/>
6. “Web: the engineering perspective”, invited talk at *1st International Global Governance Symposium*, Rome, Italy, July 13, 2017. <http://www.globalgovernanceconference.it/1st-global-governance-symposium/>
7. “Deploying data streaming applications in the Fog”, invited talk at *2nd Workshop Through the Fog*, Pisa, Italy, February 24, 2017. <http://pages.di.unipi.it/throughthefog/events/second-workshop/>
8. “Placing applications in large-scale distributed and heterogeneous environments”, **keynote talk** at *IEEE 24th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 2016)*, London, UK, September 19, 2016. <https://doi.org/10.1109/MASCOTS.2016.78>

6.2 Invited Lectures at International Schools

1. “Cross layer latency control for Big Data Analytics over fog/edge computing, part I”, International Summer School on Latency Control for Internet of Services, Karlstad, Sweden, June 30, 2017.
2. “Toward large-scale distributed stream processing: models, systems and challenges, part I”, 2nd International Summer School on Autonomous Control for Reliable Future Networks and Services, Opatija, Croatia, May 30, 2016.
3. “QoS in Service Oriented Architectures”, Summer School on Computational Mathematics, Statistics and Computer Science, Institute of Mathematics and Computer Science, University of São Paulo, Brazil, February 9, 2009.

6.3 Conference Tutorials

1. V. Cardellini, F. Lo Presti, G. Russo Russo, “Reinforcement learning for run-time performance management in the Cloud/Edge”, *39th International Symposium on Computer Performance, Modeling, Measurements and Evaluation 2021 (Performance 2021)*, Milan, Italy, 8 November, 2021.
2. M. Colajanni, M. Andreolini, V. Cardellini, “Benchmarking of locally and geographically distributed Web-server systems”, *12th International World Wide Web Conference (WWW 2003)*, Budapest, Hungary, May 20-24, 2003.
3. M. Andreolini, V. Cardellini, M. Colajanni, “Benchmarking models and tools for distributed Web server systems”, *IFIP WG 7.3 International Symposium on Computer Modeling, Measurement and Evaluation (Performance 2002)*, Roma, Italy, September 23-27, 2002.
4. M. Colajanni, P.S. Yu, V. Cardellini, “Scalable Web server systems: Architectures, models, and load balancing algorithms”, *ACM International Conference on Measurement and Modeling of Computer Systems (ACM Sigmetrics 2000)*, Santa Clara, CA, USA, June 18-21, 2000.

7 Ph.D. Students

7.1 Ph.D. Graduates

Stefano Iannucci (2015), “MOSES: a QoS-driven Autonomic Framework for Service Oriented Systems”. Assistant Professor at Roma Tre University, Italy.

Davide Barbieri (2015), “SIMPL: A Pattern Language for Writing Efficient Kernels on GPU architectures”, joint supervisor with Salvatore Filippone. Founder of GhostShark Games.

Alessandro Fanfarillo (2016), “Parallel Programming Techniques for Heterogeneous Exascale Computing Platforms”, joint supervisor with Salvatore Filippone. Technical staff member at AMD Research, USA.

Matteo Nardelli (2018), “QoS-aware Deployment and Adaptation of Data Stream Processing Applications in Geo-distributed Environments”. Matteo’s thesis won the SPEC Kaivalya Dixit Distinguished Dissertation Award 2018. ICT Expert at Bank of Italy, Italy.

Steve Nicola Antonio Petruzza (2018), “Combining Scalability, Portability, and Usability in Big Data Analytics for HPC”. Assistant Professor at Utah State University, USA.

Gabriele Russo Russo (2021), “Model-based Auto-Scaling of Distributed Data Stream Processing Applications”, joint supervisor with Francesco Lo Presti. Research fellow (RTD-A) at Tor Vergata University of Rome, Italy.

Fabiana Rossi (2022), “Elastic Deployment of Cloud Applications”, joint supervisor with Francesco Lo Presti. ICT Expert at Bank of Italy, Rome, Italy.

Giacomo Belocchi (2023), “Empowering End-host Networking with eBPF and Programmable SmartNICs”, joint supervisor with Giuseppe Bianchi. Co-Founder of Axbryd Inc.

7.2 Current Ph.D. Students

2023- Cecilia Calavaro, expected 2027.

7.3 Member of Ph.D. Thesis Defense Committees

2024 “Orchestrating a Resource-aware Edge” by Klervie Tocze, Linköping University, Sweden.

2024 PhD Program in Engineering in Computer Science, Sapienza University of Rome, Italy (18 theses, 3 sessions).

2023 PhD Program in Smart Computing, University of Florence, Italy (2 theses).

2021 “Resource Management for Data Stream Processing in Geo-Distributed Environments” by Hamidreza Arkian, Université de Rennes 1, France.

2020 “Scheduling Solutions for Data Stream Processing Applications on Cloud-Edge Infrastructure” by Felipe Rodrigo de Souza, École Normale Supérieure de Lyon, France.

2020 “Predictive Approaches for Resource Provisioning in Distributed Systems” by Michael Borkowski, TU Wien, Austria.

2020 “Task Placement and Resource Allocation in Edge Computing Systems” by Sladana Josilo, KTH Royal Institute of Technology, Stockholm, Sweden.

2019 PhD Program in Computer Science, Sapienza University of Rome, Italy (12 theses, 2 sessions).

2017 PhD Program in Computer Science, Sapienza University of Rome, Italy (14 theses, 2 sessions).

2017 PhD Program in Information Technology, Politecnico of Milan, Italy (2 theses).

7.4 External Reviewer/Opponent for Ph.D. Theses

2023 Opponent of Daniel Araújo De Medeiros’ Licentiate seminar on “Emerging Paradigms in the Convergence of Cloud and High-Performance Computing”, KTH Royal Institute of Technology, Sweden.

2023 External reviewer of “Microservices-based Internet of Things Applications Placement in Fog Computing Environments” by Samodha Pallewatta, University of Melbourne, Australia.

2022 Opponent of “Efficient Data Streaming Analytic Designs for Parallel and Distributed Processing” by Hannaneh Najdataei, Chalmers University of Technology, Gothenburg, Sweden.

2021 External reviewer of “Machine Learning-based Energy and Thermal Efficient Resource Management Algorithms for Cloud Data Centres” by Shashikant Ilager, University of Melbourne, Australia.

2021 External reviewer of “Distributed Data Stream Processing and Task Placement on Edge-Cloud Infrastructure” by Gayashan N. Amarasinghe, University of Melbourne, Australia.

- 2019-2020** External reviewer of “Predictive Approaches for Resource Provisioning in Distributed Systems” by Michael Borkowski, TU Wien, Austria.
- 2019** Opponent of “Performance Implications of Virtualization” by Sogand Shirinbab, Blekinge Institute of Technology, Karlskrona, Sweden.
- 2018** External reviewer of “New Horizons for Stream Processing” by Lorenzo Affetti, Politecnico of Milan, Italy.
- 2018** Opponent of “Resource Allocation for Mobile Edge Clouds” by Amardeep Mehta, Umeå University, Sweden.
- 2018** External reviewer of “Task Scheduling in Data Stream Processing Systems” by Leila Eskandari, University of Otago, New Zealand.
- 2018** External reviewer of “Code Offloading and Resource Management Algorithms for Heterogeneous Mobile Clouds” by Bowen Zhou, University of Melbourne, Australia.
- 2017** External reviewer of “Auto-scaling and Deployment of Web Applications in Distributed Computing Cloud” by Chenhao Qu, University of Melbourne, Australia.
- 2016** External reviewer of “Towards Sustainable Solutions for Applications in Cloud Computing and Big Data” by Nguyen Thi Thao Ho, Politecnico of Milan, Italy.
- 2009** External reviewer of “Utility-Oriented Internetworking of Content Delivery Networks” by Al-Mukaddim K. Pathan, University of Melbourne, Australia.

8 Teaching

8.1 Graduate Courses

At Tor Vergata University of Rome, for the Laurea Magistrale (master’s degree) in Computer Engineering:

Distributed Systems and Cloud Computing (from 2011/12 to 2024/25), 9 ECTS from 2011/12 to 2022/23, 8 out of 9 ECTS from 2023/24.

Systems and Architectures for Big Data (from 2016/17 to 2024/25), 6 ECTS from 2016/17 to 2021/22, 4 out of 6 ECTS from 2022/23.

Distributed Systems (from 2008/09 to 2010/11), 9 ECTS

Web Engineering (2006/07, 2007/08), 6 ECTS

As teaching assistant: Computer Architectures (1998/99, 1999/2000), Advanced Computer Architectures (2000/01), Web Engineering (from 2001/02 to 2005/06)

At Cranfield University, MSc in Computational and Software Techniques in Engineering:
module on Machine Learning and Big Data (2020/21), 28 hours

8.2 Undergraduate Courses

At Tor Vergata University of Rome, for the Laurea (bachelor’s degree) in Computer Engineering:

Computer Architectures (from 2018/19 to 2019/20), 3 (out of 9) ECTS

Computer Architectures and Operating Systems - part 1 (2008/09), 5 ECTS

Advanced Computer Architectures (from 2005/06 to 2007/08), 5 ECTS

Computer Architectures (from 2002/03 to 2004/05), 5 ECTS

At the Faculty of Economics of the Tor Vergata University of Rome, for the bachelor degree programs taught in English:

Algorithms, Data and Security (from 2018/19 to 2023/24), 6 ECTS

Computer Skills (6 ECTS in 2015/16, 3 ECTS in 2014/15)
At Sapienza University of Rome:
Computer Architectures (2001/02), 5 ECTS

8.3 1st and 2nd Level Master Degree Courses

At Tor Vergata University of Rome:
Big Data (from 2014/15 to 2022/23), 4 ECTS, 1st Level Master degree in Data Science
Big Data, Hadoop & Spark (from 2014/15 to 2023/24), 12 hours, 2nd Level Master degree in
Customer Experience, Statistics, Machine learning & Artificial Intelligence (CESMA)

8.4 Supervised Theses

Since 2008 I have supervised 106 Laurea Magistrale theses and since 2004 52 undergraduate level theses, all at Tor Vergata University of Roma. I was also assistant supervisor for 20 Laurea Magistrale theses.

8.5 Teaching Grants

2020 AWS Educate Classroom grant (750 \$).
2019 AWS Educate Classroom grant (2250 \$).
2019 Google Cloud Platform Education grants (a total of 5400 \$).
2018 Google Cloud Platform Education grant (1550 \$).
2014 Amazon Web Services (AWS) in Education teaching grant (4500 \$).
2013 Amazon Web Services (AWS) in Education teaching grant (5100 \$).
2012 Amazon Web Services (AWS) in Education teaching grant (4000 \$).

9 Publications

9.1 Refereed Journal Articles

- J1.** G. Russo Russo, D. Ferrarelli, D. Pasquali, V. Cardellini, F. Lo Presti, “QoS-aware offloading policies for serverless functions in the Cloud-to-Edge continuum”, *Future Generation Computer Systems*, Vol. 156, pp. 1–15, July 2024. doi: 10.1016/j.future.2024.02.019
- J2.** G. Russo Russo, V. Cardellini, F. Lo Presti, “A framework for offloading and migration of serverless functions in the Edge-Cloud continuum”, *Pervasive and Mobile Computing*, Vol. 100, pp. 1–21, May 2024. doi: 10.1016/j.pmcj.2024.101915
- J3.** G. Russo Russo, V. Cardellini, F. Lo Presti, “Hierarchical auto-scaling policies for data stream processing on heterogeneous resources”, *ACM Transactions on Autonomous and Adaptive Systems*, Vol. 18, No. 4, pp. 1–44, December 2023. doi: 10.1145/3597435
- J4.** F. Rossi, V. Cardellini, F. Lo Presti, M. Nardelli, “Dynamic multi-metric thresholds for scaling applications using reinforcement learning”, *IEEE Transactions on Cloud Computing*, Vol. 11, No. 2, pp. 1807–1821, April-June 2023. doi: 10.1109/TCC.2022.3163357
- J5.** V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, “Runtime adaptation of data stream processing systems: The state of the art”, *ACM Computing Surveys*, Vol. 54, No. 11s,

Article No. 237, pp. 1–36 (plus 20-page long supplementary appendix), September 2022. doi: 10.1145/3514496, appendix

- J6.** V. Cardellini, E. Casalicchio, S. Iannucci, M. Lucantonio, S. Mittal, D. Panigrahi, A. Silvi, “irs-partition: An Intrusion Response System utilizing Deep Q-Networks and system partitions”, *SoftwareX*, Vol. 19, 8 pages, June 2022. doi: 10.1016/j.softx.2022.101120
- J7.** S. Iannucci, V. Cardellini, O.D. Barba, I. Banicescu, “A hybrid model-free approach for the near-optimal intrusion response control of non-stationary systems”, *Future Generation Computer Systems*, Vol. 109, pp. 111–124, August 2020. doi: 10.1016/j.future.2020.03.018
- J8.** F. Rossi, V. Cardellini, F. Lo Presti, M. Nardelli, “Geo-distributed efficient deployment of containers with Kubernetes”, *Computer Communications*, Vol. 159, pp. 161–174, June 2020. doi: 10.1016/j.comcom.2020.04.061
- J9.** V. Cardellini, V. Di Valerio, F. Lo Presti, “Game-theoretic pricing and provisioning strategies in cloud systems”, *IEEE Transactions on Service Computing*, Vol. 13, No. 1, pp. 86–98, January/February 2020. doi: 10.1109/TSC.2016.2633266
- J10.** M. Nardelli, V. Cardellini, V. Grassi, F. Lo Presti, “Efficient operator placement for distributed data stream processing applications”, *IEEE Transactions on Parallel and Distributed Systems*, Vol. 30, No. 8, pp. 1753–1767, August 2019. doi: 10.1109/TPDS.2019.2896115
- J11.** A. Abdullahi Hassan, V. Cardellini, P. D’Ambra, D. di Serafino, S. Filippone, “Efficient algebraic multigrid preconditioners on clusters of GPUs”, *Parallel Processing Letters*, Vol. 29, No. 1, March 2019. doi: 10.1142/S0129626419500014
- J12.** V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, “Decentralized self-adaptation for elastic data stream processing”, *Future Generation Computer Systems*, Vol. 87, pp. 171–185, October 2018. doi: 10.1016/j.future.2018.05.025
- J13.** G. Russo Russo, M. Nardelli, V. Cardellini, F. Lo Presti, “Multi-level elasticity for wide-area data streaming systems: a reinforcement learning approach”, *Algorithms*, Special Issue on Algorithms for the Resource Management of Large Scale Infrastructures, Vol. 11, No. 9, Art. 134, pp. 1–27, MDPI, September 2018. doi: 10.3390/a11090134
- J14.** V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, “Optimal operator deployment and replication for elastic distributed data stream processing”, *Concurrency and Computation: Practice & Experience*, Vol. 30, No. 9, May 2018. doi: 10.1002/cpe.4334
- J15.** E. Casalicchio, V. Cardellini, G. Interino, M. Palmirani, “Research challenges in legal-rule and QoS-aware cloud service brokerage”, *Future Generation Computer Systems*, Vol. 78, Part 1, pp. 211–223, January 2018. doi: 10.1016/j.future.2016.11.025
- J16.** V. Cardellini, A. Fanfarillo, S. Filippone, “Coarray-based load balancing on heterogeneous and many-core architectures”, *Parallel Computing*, Vol. 68, pp. 45–58, October 2017. doi: 10.1016/j.parco.2017.06.001
- J17.** V. Cardellini, V. Grassi, F. Lo Presti, M. Nardelli, “Optimal operator replication and placement for distributed stream processing systems”, *ACM SIGMETRICS Performance Evaluation Review*, Vol. 44, No. 4, pp. 11–22, March 2017. doi: 10.1145/3092819.3092823
- J18.** S. Filippone, V. Cardellini, D. Barbieri, A. Fanfarillo, “Sparse matrix-vector multiplication on GPGPUs”, *ACM Transactions on Mathematical Software*, Vol. 43, No. 4, Article No. 30, pp. 30:1–30:49, January 2017. doi: 10.1145/3017994
- J19.** V. Cardellini, V. De Nitto Personè, V. Di Valerio, F. Facchinei, V. Grassi, F. Lo Presti, V. Piccialli, “A game-theoretic approach to computation offloading in mobile cloud computing”, *Mathematical Programming*, Vol. 157, No. 2, pp. 421–449, June 2016. doi: 10.1007/s10107-

015-0881-6

- J20.** V. Cardellini, S. Filippone, D. Rouson, “Design patterns for sparse-matrix computations on hybrid CPU/GPU platforms”, *Scientific Programming*, Vol. 22, No. 1, pp. 1-19, 2014. doi: 10.3233/SPR-130363
- J21.** V. Cardellini, V. Di Valerio, V. Grassi, S. Iannucci, F. Lo Presti, “QoS driven per-request load-aware service selection in service oriented architectures”, *International Journal of Software and Informatics*, Special Issue on Service Oriented Systems Engineering, Vol. 7, No. 2, pp. 195-220, 2013.
- J22.** V. Cardellini, E. Casalicchio, V. Grassi, S. Iannucci, F. Lo Presti, R. Mirandola, “MOSES: a framework for QoS driven runtime adaptation of service-oriented systems”, *IEEE Transactions on Software Engineering*, Vol. 38, No. 5, pp. 1138-1159, Sept./Oct. 2012. doi: 10.1109/TSE.2011.68
- J23.** M. Abundo, V. Cardellini, F. Lo Presti, “Admission control policies for a multi-class QoS-aware service oriented architecture”, *ACM SIGMETRICS Performance Evaluation Review*, Special issue on modeling dynamic behaviors of complex distributed systems, Vol. 39, No. 4, pp. 89-98, Apr. 2012. doi: 10.1145/2185395.2185445
- J24.** C. Canali, V. Cardellini, R. Lancellotti, “Content adaptation architectures based on Squid proxy server”, *World Wide Web*, Springer, Vol. 9, No. 1, pp. 63–92, Mar. 2006. doi: 10.1007/s11280-005-4049-9
- J25.** V. Cardellini, M. Colajanni, P.S. Yu, “Request redirection algorithms for distributed Web systems”, *IEEE Transactions on Parallel and Distributed Systems*, Vol. 14, No. 4, pp. 355-368, Apr. 2003. doi: 10.1109/TPDS.2003.1195408
- J26.** V. Cardellini, E. Casalicchio, M. Colajanni, P.S. Yu, “The state of the art in locally distributed Web-server systems”, *ACM Computing Surveys*, Vol. 34, No. 2, pp. 263–311, June 2002. doi: 10.1145/508352.508355
- J27.** E. Casalicchio, V. Cardellini, M. Colajanni, “Content-aware dispatching algorithms for cluster-based Web servers”, *Cluster Computing*, Kluwer Academic Publ., Vol. 5, No. 1, pp. 65–74, Jan. 2002. doi: 10.1023/A:1012796706047
- J28.** V. Cardellini, E. Casalicchio, M. Colajanni, S. Tucci, “Mechanisms for quality of service in Web clusters”, *Computer Networks*, Elsevier Science, Vol. 37, No. 6, pp. 761–771, Dec. 2001. doi: 10.1016/S1389-1286(01)00252-3
- J29.** V. Cardellini, E. Casalicchio, M. Colajanni, M. Mambelli, “Web switch support for differentiated services”, *ACM SIGMETRICS Performance Evaluation Review*, Vol. 29, No. 2, pp. 14–19, Sept. 2001. doi: 10.1145/572317.572320
- J30.** V. Cardellini, M. Colajanni, P.S. Yu, “DNS dispatching algorithms with state estimators for scalable Web-server clusters”, *World Wide Web*, Baltzer Science, Vol. 2, No. 3, pp. 101–113, Aug. 1999. doi: 10.1023/A:1019296605640
- J31.** V. Cardellini, M. Colajanni, P.S. Yu, “Dynamic load balancing on Web-server systems”, *IEEE Internet Computing*, Vol. 3, No. 3, pp. 28–39, May–June 1999. doi: 10.1109/4236.769420

9.2 Editorial Articles

- EA1.** L. Lundberg, H. Grahn, V. Cardellini, A. Polze, S. Shirinbab, “Editorial to the Special Issue on Big Data in Industrial and Commercial Applications”, *Big Data Research*, Vol. 26, November 2021. doi: 10.1016/j.bdr.2021.100244
- EA2.** M. Aldinucci, V. Cardellini, G. Mencagli, M. Torquati, “Data stream processing in HPC sys-

tems: New frameworks and architectures for high-frequency streaming”, *Parallel Computing*, Vol. 98, October 2020. doi: 10.1016/j.parco.2020.102694

- EA3.** V. Cardellini, G. Mencagli, D. Talia, M. Torquati, “New landscapes of the data stream processing in the era of fog computing”, *Future Generation Computer Systems*, Vol. 99, pp. 646–650, October 2019. doi: 10.1016/j.future.2019.03.027

9.3 Refereed Conference Papers

(Acceptance rates are provided when known.)

- C1.** G. Russo Russo, E. D’Alessandro, V. Cardellini, F. Lo Presti, “Towards a Multi-Armed Bandit Approach for Adaptive Load Balancing in Function-as-a-Service Systems”, *Proceedings of the 2024 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C 2024)*, Aarhus, Denmark, September 16-20 2024, pp. 103–108. doi: 10.1109/ACSOS-C63493.2024.00039
- C2.** C. Calavaro, G. Russo Russo, M. Salvati, V. Cardellini, F. Lo Presti, “Towards energy-aware execution and offloading of serverless functions”, *Proceedings of the 4th Workshop on Flexible Resource and Application Management on the Edge (Frame 2024)* (in conjunction with ACM HPDC 2024), Pisa, Italy, June 4 2024, pp. 23–30, ACM. doi: 10.1145/3659994.3660313
- C3.** M. Nardelli, G. Russo Russo and V. Cardellini, “Compute continuum: What lies ahead?”, *Euro-Par 2023: Parallel Processing Workshops*, LNCS Vol. 14351, pp. 5–17, Springer, April 2024. doi: 10.1007/978-3-031-50684-0_1
- C4.** F. Filippini, R. Cavadini, D. Ardagna, R. Lancellotti, G. Russo Russo, V. Cardellini, F. Lo Presti, “FIGARO: reinFORCEment learnInG mANagement acROSS computing cONTINUUM”, *3rd International Workshop on Distributed Machine Learning for the Intelligent Computing Continuum (DML-ICC 2023)*, Taormina, Italy, December 4 2023. Published in *Proceedings of the IEEE/ACM 16th International Conference on Utility and Cloud Computing*, 8 pages, April 2024. doi: 10.1145/3603166.3632565
- C5.** M. Aldinucci, E. M. Baralis, V. Cardellini, I. Colonnelli, M. Danelutto, S. Decherchi, G. Di Modica, L. Ferrucci, M. Griboaud, F. Iannone, M. Lapegna, D. Medić, G. Muscianisi, F. Righetti, E. Sciacca, N. Tonello, M. Tortonesi, P. Trunfio, T. Vardanega, “A systematic mapping study of Italian research on workflows”, *Proceedings of the SC ’23 Workshops of the International Conference on High Performance Computing, Network, Storage, and Analysis (SC-W ’23)*, pp. 2065–2076, ACM, Denver, CO, USA, November 12 2023. doi: 10.1145/3624062.3624285
- C6.** F. Boito, J. Brandt, V. Cardellini, P. Carns, F. M. Ciorba, H. Egan, A. Eleliemy, A. Gentile, T. Gruber, J. Hanson, U.-U. Haus, K. Huck, T. Ilsche, T. Jakobsche, T. Jones, S. Karlsson, A. Mueen, M. Ott, T. Patki, K. Raghavan, S. Simms, K. Shoga, M. Showerman, D. Tiwari, T. Wilde, I. Peng, K. Yamamoto, “Autonomy loops for monitoring, operational data analytics, feedback, and response in HPC operations”, *Proceedings of the 2023 IEEE International Conference on Cluster Computing Workshops (CLUSTER Workshops)*, pp. 37–43, Santa Fe, NM, USA, October 31 2023. doi: 10.1109/CLUSTERWorkshops61457.2023.00016
- C7.** G. Russo Russo, T. Mannucci, V. Cardellini, F. Lo Presti, “Serverledge: Decentralized Function-as-a-Service for the edge-cloud continuum”, *Proceedings of the 21st International Conference on Pervasive Computing and Communications (PerCom 2023)*, pp. 131–140, Atlanta, USA, March 13-17, 2023. doi: 10.1109/PERCOM56429.2023.10099372 (acceptance

rate full+short: 17%)

- C8. G. Russo Russo, T. Mannucci, V. Cardellini, F. Lo Presti, “Artifact: Serverledge: Decentralized Function-as-a-Service for the edge-cloud continuum”, *Proceedings of the 2023 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*, Atlanta, USA, March 13-17, 2023, pp. 1-2, doi: 10.1109/PerComWorkshops56833.2023.10150345
- C9. G. Russo Russo, V. Cardellini, F. Lo Presti, “Serverless functions in the cloud-edge continuum: Challenges and opportunities”, *Proceedings of the 31st Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2023)*, pp. 321-328, Naples, Italy, March 1-3, 2023. doi: 10.1109/PDP59025.2023.00056 **Best paper award at the Special Session on Compute Continuum**
- C10. P. Raith, T. Rausch, F. Rossi, V. Cardellini, S. Dustdar, R. Ranjan, “Mobility-aware serverless function adaptations across the edge-cloud continuum”, *Proceedings of the 15th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2022)*, pp. 123–132, Portland, OR, USA, December 6-9, 2022. doi: 10.1109/UCC56403.2022.00023 (acceptance rate: 27%) **Best paper award**
- C11. C. Calavaro, G. Russo Russo, V. Cardellini, “Real-time analysis of market data leveraging Apache Flink”, *Proceedings of the 16th ACM International Conference on Distributed and Event-Based Systems (DEBS 2022)*, pp. 162–165, Copenhagen, Denmark, June 27-30, 2022. doi: 10.1145/3524860.3539650
- C12. G. Russo Russo, A. Milani, S. Iannucci, V. Cardellini, “Towards QoS-aware function composition scheduling in Apache OpenWhisk”, *Proceedings of the 2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*, pp. 693–698, Pisa, Italy, March 21 2022. doi: 10.1109/PerComWorkshops53856.2022.9767299
- C13. S. Iannucci, J. Ables, W. Anderson, B. Abburi, V. Cardellini, I. Banicescu, “A performance-oriented comparison of neural network approaches for anomaly-based intrusion detection”, *Proceedings of the 2021 IEEE Symposium Series on Computational Intelligence (SSCI 2021)*, 7 pages, Orlando, Florida, USA, December 5-7 2021. doi: 10.1109/SSCI50451.2021.9660100
- C14. F. Rossi, S. Falvo, V. Cardellini, “GOFs: Geo-distributed scheduling in OpenFaaS”, *1st IEEE International Workshop on Distributed and Intelligent Systems (DistInSys 2021), Proceedings of the 2021 IEEE Symposium on Computers and Communication (ISCC 2021)*, 6 pages, Athens, Greece, September 5 2021. doi: 10.1109/ISCC53001.2021.9631492 (acceptance rate: 40%) **Best paper award**
- C15. G. Russo Russo, V. Cardellini, G. Casale, F. Lo Presti, “MEAD: Model-based vertical auto-scaling for data stream processing”, *Proceedings of the 21st IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2021)*, pp. 314–323, May 11-13 2021. doi: 10.1109/CCGrid51090.2021.00041 (acceptance rate: 26%)
- C16. G. Russo Russo, A. Schiazza, V. Cardellini, “Elastic Pulsar functions for distributed stream processing”, *Proceedings of the Companion of the ACM/SPEC International Conference on Performance Engineering (ICPE ’21)*, pp. 9–16, ACM, April 20 2021. doi: 10.1145/3447545.3451901
- C17. F. Rossi, V. Cardellini, F. Lo Presti, “Self-adaptive threshold-based policy for microservices elasticity”, *Proceedings of the 28th IEEE Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2020)*, 8 pages, Nice, France, November 17-19 2020. doi: 10.1109/MASCOTS50786.2020.9285951 (acceptance rate: 27%)

- C18.** F. Rossi, V. Cardellini, F. Lo Presti, “Hierarchical scaling of microservices in Kubernetes”, *Proceedings of the 2020 IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2020)*, pp. 28-37, IEEE, Washington, DC, Washington, USA, August 17-21 2020. doi: 10.1109/ACSOS49614.2020.00023 (acceptance rate: 26%)
- C19.** G. Belocchi, V. Cardellini, A. Cammarano, G. Bianchi, “Paxos in the NIC: hardware acceleration of distributed consensus protocols”, *Proceedings of the 16th International Conference on the Design of Reliable Communication Networks (DRCN 2020)*, pp. 1–6, IEEE, Milan, Italy, March 24-27 2020. doi: 10.1109/DRCN48652.2020.1570611009
- C20.** V. Cardellini, F. Lo Presti, M. Nardelli, F. Rossi, “Self-adaptive container deployment in the fog: A survey”, *5th International Symposium on Algorithmic Aspects of Cloud Computing (ALGO CLOUD 2019)*, Munich, Germany, September 10, 2019. LNCS Vol. 12041, Springer, pp. 77–102, August 2020. doi: 10.1007/978-3-030-58628-7_6
- C21.** F. Rossi, M. Nardelli, V. Cardellini, “Horizontal and vertical scaling of container-based applications using reinforcement learning”, *Proceedings of the 2019 IEEE International Conference on Cloud Computing (IEEE CLOUD 2019)*, pp. 329–338, Milan, Italy, July 8-13 2019. doi: 10.1109/CLOUD.2019.00061 (acceptance rate: 21%)
- C22.** F. Rossi, V. Cardellini, F. Lo Presti, “Elastic deployment of software containers in geo-distributed computing environments”, *Proceedings of the 2019 IEEE Symposium on Computers and Communications (ISCC 2019)*, pp. 1–8, Barcelona, Spain, June 29-July 3 2019. doi: 10.1109/ISCC47284.2019.8969607 (acceptance rate: 36%)
- C23.** G. Russo Russo, V. Cardellini, F. Lo Presti, “Reinforcement learning based policies for elastic stream processing on heterogeneous resources”, *Proceedings of the 13th ACM International Conference on Distributed and Event-based Systems (DEBS 2019)*, pp. 31–42, Darmstadt, Germany, June 24-28 2019. doi: 10.1145/3328905.3329506 (acceptance rate: 28%)
- C24.** S. Iannucci, O. D. Barba, V. Cardellini, I. Banicescu, “A performance evaluation of deep reinforcement learning for model-based intrusion response”, *Proceedings of the 2019 IEEE 4th International Workshops on Foundations and Applications of Self* Systems (FAS*W)*, pp. 158–163, Umeå, Sweden, June 16-20 2019. doi: 10.1109/FAS-W.2019.00047
- C25.** M. Nardelli, G. Russo Russo, V. Cardellini, F. Lo Presti, “A multi-level elasticity framework for distributed data stream processing”, *Euro-Par 2018: Parallel Processing Workshops*, LNCS Vol. 11339, Springer, pp. 53–64, March 2019. doi: 10.1007/978-3-030-10549-5_5
- C26.** M. Nardelli, V. Cardellini, E. Casalicchio, “Multi-level elastic deployment of containerized applications in geo-distributed environments”, *Proceedings of the IEEE 6th International Conference on Future Internet of Things and Cloud (FiCloud 2018)*, Barcelona, Spain, August 6-8, 2018, pp. 1–8. doi: 10.1109/FiCloud.2018.00009 (acceptance rate: 30%)
- C27.** V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, “Auto-scaling in data stream processing applications: A model based reinforcement learning approach”, *InfQ 2017 – New Frontiers in Quantitative Methods in Informatics* (in conjunction with VALUETOOLS 2017), Venice, Italy, December 4, 2017. Communications in Computer and Information Science Vol. 825, pp. 97–110, Springer, May 2018. doi: 10.1007/978-3-319-91632-3_8
- C28.** A. Abdullahi Hassan, V. Cardellini, S. Filippone, “Solving sparse linear systems of equations using CAF”, *International Conference on Parallel Computing (ParCo 2017)*, Bologna, Italy, September 12-15, 2017. *Parallel Computing is Everywhere*, Advances in Parallel Computing Vol. 32, pp. 87–96, IOS Press, 2018. doi: 10.3233/978-1-61499-843-3-87
- C29.** V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, “Towards hierarchical autonomous

- control for elastic data stream processing in the fog”, *Euro-Par 2017: Parallel Processing Workshops*, LNCS Vol. 10659, Springer, pp. 106–117, February 2018. doi: 10.1007/978-3-319-75178-8_9
- C30.** A. Abdullahi Hassan, V. Cardellini, S. Filippone, “A framework for unit testing with Coarray Fortran”, *Proceedings of the 25th High Performance Computing Symposium (HPC 2017)*, Virginia Beach, VA, USA, April 23-26, 2017, The Society for Modeling and Simulation International, pp. 5:1–5:12. doi:10.22360/springsim.2017.hpc.014
- C31.** V. Cardellini, V. Grassi, F. Lo Presti, M. Nardelli, “Joint operator replication and placement optimization for distributed streaming applications”, *InfQ 2016 - New Frontiers in Quantitative Methods in Informatics* (in conjunction with VALUETOOLS 2016), Taormina, Italy, October 25, 2016. *Proceedings of the 10th EAI International Conference on Performance Evaluation Methodologies and Tools*, ACM, pp. 263–270, 2017. doi:10.4108/eai.25-10-2016.2266628
- C32.** V. Cardellini, M. Nardelli, D. Luzi, “Elastic stateful stream processing in Storm”, *Proceedings of the 2016 International Conference on High Performance Computing & Simulation (HPCS 2016)*, Innsbruck, Austria, July 18-22, 2016, IEEE, pp. 583–590. doi:10.1109/HPCSim.2016.7568388 (acceptance rate: 39%)
- C33.** G. Marciani, M. Piu, M. Porretta, M. Nardelli, V. Cardellini, “Real-time analysis of social networks leveraging the Flink framework”, *Proceedings of the 10th ACM International Conference on Distributed and Event-Based Systems (DEBS 2016)*, Irvine, CA, USA, June 20-24, 2016, pp. 386–389. doi:10.1145/2933267.2933517
- C34.** V. Cardellini, V. Grassi, F. Lo Presti, M. Nardelli, “Optimal operator placement for distributed stream processing applications”, *Proceedings of the 10th ACM International Conference on Distributed and Event-Based Systems (DEBS 2016)*, Irvine, CA, USA, June 20-24, 2016, pp. 69–80. doi:10.1145/2933267.2933312 **Honorable mention paper award**
- C35.** V. Cardellini, A. Fanfarillo, S. Filippone, “Heterogeneous CAF-based load balancing on Intel Xeon Phi”, *Proceedings of the 2016 IEEE International Parallel & Distributed Processing Symposium Workshops*, pp. 702–711, Chicago, IL, USA, May 23, 2016. doi:10.1109/IPDPSW.2016.51
- C36.** V. Cardellini, A. Fanfarillo, S. Filippone, D. Rouson, “Hybrid coarrays: a PGAS feature for many-core architectures”, *International Conference on Parallel Computing (ParCo 2015)*, Edinburgh, UK, September 1-4, 2015. *Parallel Computing: On the Road to Exascale*, Advances in Parallel Computing Vol. 27, IOS Press, pp. 175–184, April 2016. doi:10.3233/978-1-61499-621-7-175
- C37.** V. Cardellini, M. D’Angelo, V. Grassi, M. Marzolla, R. Mirandola, “A decentralized approach to network-aware service composition”, *Proceedings of the 4th European Conference on Service-Oriented and Cloud Computing (ESOCC 2015)*, Taormina, Italy, September 15-17, 2015, LNCS Vol. 9306, Springer, pp. 34–48. doi:10.1007/978-3-319-24072-5_3 (acceptance rate: 27%)
- C38.** V. Cardellini, V. Grassi, F. Lo Presti, M. Nardelli, “On QoS-aware scheduling of data stream applications over fog computing infrastructures”, *5th International Workshop on Management of Cloud and Smart City Systems 2015 (MOCS 2015)*, Larnaca, Cyprus, July 6, 2015. *Proceedings of the 2015 IEEE Symposium on Computers and Communication (ISCC 2015)*, pp. 271–276, 2015. doi:10.1109/ISCC.2015.7405527
- C39.** V. Cardellini, V. Grassi, F. Lo Presti, M. Nardelli, “Distributed QoS-aware scheduling in Storm”, *Proceedings of the 9th ACM International Conference on Distributed Event-Based*

Systems (DEBS 2015), Oslo, Norway, June 29 - July 3, 2015, pp. 344–347.
doi:10.1145/2675743.2776766 **Best poster award**

- C40.** D. Barbieri, V. Cardellini, S. Filippone, “SIMPL: a pattern language for writing efficient kernels on GPGPU”, *Proceedings of the 1st IEEE/ACM International Workshop on Software Engineering for High Performance Computing in Science (SE4HPCS 2015)* (in conjunction with ICSE 2015), Florence, Italy, May 18, 2015, pp. 38–45. doi:10.1109/SE4HPCS.2015.13
- C41.** M. Abundo, V. Di Valerio, V. Cardellini, F. Lo Presti, “QoS-aware bidding strategies for VM spot instances: a reinforcement learning approach applied to periodic long running jobs”, *Proceedings of the 14th IFIP/IEEE International Symposium on Integrated Network Management (IM 2015)*, Ottawa, ON, Canada, May 11-15, 2015, pp. 53–61. doi:10.1109/INM.2015.7140276 (acceptance rate: 27%)
- C42.** A. Fanfarillo, T. Burnus, V. Cardellini, S. Filippone, D. Nagle, D. Rouson, “OpenCoarrays: open-source transport layers supporting coarray Fortran compilers”, *Proceedings of the 8th International Conference on Partitioned Global Address Space Programming Models (PGAS 2014)*, Eugene, OR, USA, October 7-10, 2014, ACM, pp. 4:1–4:11. doi:10.1145/2676870.2676876
- C43.** A. Ismail, V. Cardellini, “Decentralized planning for self-adaptation in multi-cloud environment”, *2nd International Workshop on Cloud for IoT (CLIoT)* (in conjunction with ESOC 2014), Manchester, UK, September 2, 2014. *Advances in Service-Oriented and Cloud Computing*, Communications in Computer and Information Science Vol. 508, Springer International Publishing Switzerland, pp. 76–90, 2015. doi:10.1007/978-3-319-14886-1_9
- C44.** A. Fanfarillo, T. Burnus, V. Cardellini, S. Filippone, D. Nagle, D. Rouson, “Coarrays in GNU Fortran”, *Proceedings of the 23rd International Conference on Parallel Architectures and Compilation Techniques (PACT 2014)*, Edmonton, Alberta, Canada, August 24-27, 2014, poster session, ACM, pp. 513–514. doi: 10.1145/2628071.2671427
- C45.** V. Cardellini, A. Fanfarillo, S. Filippone, “Sparse matrix computations on clusters with GPGPUs”, *Proceedings of the 2014 International Conference on High Performance Computing and Simulation (HPCS 2014)*, Bologna, Italy, July 21-25, 2014, IEEE, pp. 23–30. doi:10.1109/HPCSim.2014.6903665 (acceptance rate: 38%)
- C46.** D. Barbieri, V. Cardellini, S. Filippone, “Exhaustive key search on clusters of GPUs”, *Proceedings of the 28th IEEE International Parallel & Distributed Processing Symposium Workshops*, pp. 1160-1168, Phoenix, AZ, USA, May 23, 2014. doi:10.1109/IPDPSW.2014.131 (acceptance rate: 38%)
- C47.** M. Abundo, V. Di Valerio, V. Cardellini, F. Lo Presti, “Bidding strategies in QoS-aware cloud systems based on N-armed bandit problems”, *Proceedings of the 3rd IEEE Symposium on Network Cloud Computing and Applications (NCCA 2014)*, Roma, Italy, February 5-7, 2014, pp. 38-45. doi:10.1109/NCCA.2014.15
- C48.** A. Ismail, V. Cardellini, “Towards self-adaptation planning for complex service-based systems”, *1st Workshop on Pervasive Analytical Service Clouds for the Enterprise and Beyond (PASCEB 2013)* Berlin, Germany, December 2, 2013. *Service-Oriented Computing – ICSOC 2013 Workshops*, LNCS Vol. 8377, Springer, pp. 432-444, 2014. doi: 10.1007/978-3-319-06859-6_38
- C49.** V. Cardellini, A. Fanfarillo, S. Filippone, “Heterogeneous sparse matrix computations on hybrid GPU/CPU platforms”, *International Conference on Parallel Computing (ParCo 2013)*, Munich, Germany, 10-13 September 2013. *Parallel Computing: Accelerating Computational Science and Engineering (CSE)*, Advances in Parallel Computing Vol. 25, IOS Press, pp.

203–212, March 2014. doi: 10.3233/978-1-61499-381-0-203

- C50.** D. Barbieri, V. Cardellini, S. Filippone, “Fast uniform grid construction on GPGPUs using atomic operations”, *International Conference on Parallel Computing (ParCo 2013)*, Munich, Germany, 10-13 September 2013. *Parallel Computing: Accelerating Computational Science and Engineering (CSE)*, Advances in Parallel Computing Vol. 25, IOS Press, pp. 295–304, March 2014. doi: 10.3233/978-1-61499-381-0-295
- C51.** V. Di Valerio, V. Cardellini, F. Lo Presti, “Optimal pricing and service provisioning strategies in cloud systems: a Stackelberg game approach”, *Proceedings of the IEEE 6th International Conference on Cloud Computing (CLOUD 2013)*, Santa Clara, CA, USA, June 28 - July 3, 2013, pp. 115-122. doi: 10.1109/CLOUD.2013.102 (acceptance rate: 17%)
- C52.** V. Cardellini, S. Iannucci, “Designing a flexible and modular architecture for a private cloud: a case study”, *Proceedings of the 6th International Workshop on Virtualization Technologies in Distributed Computing (VTDC 2012)* (in conjunction with HPDC 2012), Delft, The Netherlands, June 18-19, 2012, ACM, pp. 37-44. doi: 10.1145/2287056.2287067
- C53.** V. Cardellini, V. Di Valerio, V. Grassi, S. Iannucci, F. Lo Presti, “A new approach to QoS driven service selection in service oriented architectures”, *Proceedings of the IEEE 6th International Symposium on Service-Oriented System Engineering (SOSE 2011)*, Irvine, CA, December 12-14, 2011, pp. 102-113. doi: 10.1109/SOSE.2011.6139098 (acceptance rate: 33%)
- Best paper award**
- C54.** V. Cardellini, E. Casalicchio, L. Silvestri, F. Lo Presti, “SLA-aware resource management for application service providers in the Cloud”, *Proceedings of the IEEE 1st Symposium on Network Cloud Computing and Applications (NCCA 2011)*, Toulouse, France, 21-23 November, 2011, pp. 20-27. doi: 10.1109/NCCA.2011.11
- C55.** V. Cardellini, V. Di Valerio, V. Grassi, S. Iannucci, F. Lo Presti, “A performance comparison of QoS-driven service selection approaches”, *Proceedings of the 4th European ServiceWave Conference (ServiceWave 2011)*, Poznam, Poland, October 26-28, 2011, LNCS Vol. 6994, Springer, pp. 167–178. doi: 10.1007/978-3-642-24755-2_16
- C56.** M. Abundo, V. Cardellini, F. Lo Presti, “Optimal admission control for a QoS-aware service-oriented system”, *Proceedings of the 4th European ServiceWave Conference (ServiceWave 2011)*, Poznam, Poland, October 26-28, 2011, LNCS Vol. 6994, Springer, pp. 179–190. doi: 10.1007/978-3-642-24755-2_17
- C57.** D. Barbieri, V. Cardellini, S. Filippone, D. Rouson, “Design patterns for scientific computations on sparse matrices”, *Proceedings of Euro-Par 2011 Workshops, Part I*, LNCS Vol. 7155, Springer, pp. 367–376, 2012. doi: 10.1007/978-3-642-29737-3_41
- C58.** M. Abundo, V. Cardellini, F. Lo Presti, “An MDP-based admission control for a QoS-aware service-oriented system”, *Proceedings of the 19th ACM/IEEE International Workshop on Quality of Service (IWQoS 2011)*, San Jose, CA, USA, June 6-7, 2011, poster session, 3 pages. doi: 10.1109/IWQOS.2011.5931324
- C59.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, “Adaptive management of composite services under percentile-based Service Level Agreements”, *Proceedings of the 8th International Conference on Service Oriented Computing (ICSOC 2010)*, San Francisco, CA, USA, December 7-10, 2010, LNCS Vol. 6470, Springer, pp. 381–395. doi: 10.1007/978-3-642-17358-5_26 (acceptance rate: 15%)
- C60.** A. Bellucci, V. Cardellini, V. Di Valerio, S. Iannucci, “A scalable and highly available brokering service for SLA-based composite services”, *Proceedings of the 8th International Con-*

ference on Service Oriented Computing (ICSOC 2010), San Francisco, CA, USA, December 7-10, 2010, LNCS Vol. 6470, Springer, pp. 527–541. doi: 10.1007/978-3-642-17358-5_36 (acceptance rate: 15%)

- C61.** V. Cardellini, S. Iannucci, “Designing a broker for QoS driven runtime adaptation of SOA applications”, *Proceedings of the IEEE International Conference on Web Services (ICWS 2010)*, Applications and Industry Track, Miami, FL, USA, July 5-10, 2010, pp. 504–511. doi: 10.1109/ICWS.2010.77 (acceptance rate: 18%)
- C62.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, R. Mirandola, “On guaranteeing global dependability properties in collaborative business process management”, *International Workshop on Business System Management and Engineering (BSME 2010)* (in conjunction with TOOLS 2010), Malaga, Spain, June 28, 2010. ¹
- C63.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, R. Mirandola, “A scalable approach to QoS-aware self-adaption in service-oriented architectures”, *6th International ICST Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine 2009)*, Las Palmas de Gran Canaria, Spain, November 23-26, 2009. *Quality of Service in Heterogeneous Networks*, LNICST Vol. 22, Springer, pp. 431–447, 2009. doi: 10.1007/978-3-642-10625-5_27
- C64.** D. Barbieri, V. Cardellini, S. Filippone, “Generalized GEMM kernels on GPGPUs: Experiments and applications”, *International Conference on Parallel Computing (ParCo 2009)*, Lyon, France, September 1-4, 2009. *Parallel Computing: From Multicores and GPU’s to Petascale*, Advances in Parallel Computing Vol. 19, IOS Press, pp. 307–314, April 2010. doi: 10.3233/978-1-60750-530-3-307
- C65.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, R. Mirandola, “QoS-driven runtime adaptation of service oriented architectures”, *Proceedings of the Joint 12th European Software Engineering Conference and the 17th ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2009)*, Amsterdam, The Netherlands, August 24-29, 2009, pp. 131–140. doi: 10.1145/1595696.1595718 (acceptance rate: 15%)
- C66.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, “Efficient provisioning of service level agreements for service oriented applications”, *Proceedings of the 2nd International Workshop on Service Oriented Software Engineering (IW-SOSWE 2007)* (in conjunction with ESEC/FSE 2007), Dubrovnik, Croatia, September 3, 2007, ACM, pp. 29–35. doi: 10.1145/1294928.1294936 (acceptance rate: 38%)
- C67.** V. Cardellini, E. Casalicchio, V. Grassi, F. Lo Presti, “Flow-based service selection for Web service composition supporting multiple QoS classes”, *Proceedings of the 2007 IEEE International Conference on Web Services (ICWS 2007)*, Applications and Industry Track, Salt Lake City, UT, USA, July 9-13, 2007, pp. 743–750. doi: 10.1109/ICWS.2007.91
- C68.** V. Cardellini, E. Casalicchio, E. Galli, “Agent-based modeling of interdependencies in critical infrastructures through UML”, *Proceedings of the 2007 Spring Simulation Multiconference - Vol. 2*, Norfolk, VA, USA, March 25-29, 2007, Society for Computer Simulation International, pp. 119–126.
- C69.** V. Cardellini, E. Casalicchio, V. Grassi, R. Mirandola, “A framework for optimal service selection in broker-based architectures with multiple QoS classes”, *Proceedings of the 2006 IEEE Services Computing Workshops*, pp. 105–112, Chicago, IL, USA, September 18, 2006.

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- C70.** V. Cardellini, E. Casalicchio, S. Tucci, “Agent-based modeling of Web systems in critical information infrastructures”, *Proceedings of the International Workshop on Complex Network and Infrastructure Protection (CNIP 2006)*, Roma, Italy, March 28-29, 2006, pp. 541–553.
- C71.** E. Casalicchio, V. Cardellini, S. Tucci, “A layer-2 trigger to improve QoS in content and session-oriented mobile services”, *Proceedings of the 8th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM 2005)*, Montreal, Quebec, Canada, October 10-13, 2005, pp. 95–102. doi: 10.1145/1089444.1089462 (acceptance rate: 22%)
- C72.** E. Casalicchio, V. Cardellini, S. Tucci, “Design and performance evaluation of mechanisms for mobile-devices handoff forecast”, *Proceedings of the FIRB-Perf Workshop on Techniques, Methodologies and Tools for Performance Evaluation of Complex Systems* (in conjunction with QEST 2005), September 19, 2005, Turin, Italy, IEEE Computer Society, pp. 64–74. doi: 10.1109/FIRB-PERF.2005.7
- C73.** C. Canali, V. Cardellini, M. Colajanni, R. Lancellotti, “Performance comparison of distributed architectures for content adaptation and delivery of Web resources”, *Proceedings of the IEEE Distributed Computing Systems Workshops*, pp. 331–337, Columbus, OH, USA, June 6, 2005. doi: 10.1109/ICDCSW.2005.109
- C74.** C. Canali, V. Cardellini, M. Colajanni, R. Lancellotti, P.S. Yu, “A two-level distributed architecture for efficient Web content adaptation and delivery”, *Proceedings of the 2005 IEEE/IPSJ Symposium on Applications and the Internet (SAINT 2005)*, Trento, Italy, January 31 - February 4, 2005, pp. 132–139. doi: 10.1109/SAINT.2005.10 (acceptance rate: 31%)
- C75.** C. Canali, V. Cardellini, M. Colajanni, R. Lancellotti, “Evaluating user-perceived benefits of Content Distribution Networks”, *Proceedings of the 2004 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS 2004)*, San Jose, CA, USA, July 25-29, 2004, pp. 98–105.
- C76.** C. Canali, V. Cardellini, M. Colajanni, R. Lancellotti, P.S. Yu, “Cooperative architectures and algorithms for discovery and transcoding of multi-version content”, *Web Content Caching and Distribution: Proceedings of the 8th International Workshop*, Kluwer Academic Publisher, pp. 205–221, June 2004. doi: 10.1007/1-4020-2258-1_14 (acceptance rate: 33%)
- C77.** V. Cardellini, M. Colajanni, R. Lancellotti, P.S. Yu, “A distributed architecture of edge proxy servers for cooperative transcoding”, *Proceedings of the 3rd IEEE Workshop on Internet Applications (WIAPP 2003)*, San Jose, CA, USA, June 24, 2003, pp. 66–70. doi: 10.1109/WIAPP.2003.1210288 (acceptance rate: 19%)
- C78.** C. Canali, V. Cardellini, M. Colajanni, R. Lancellotti, P.S. Yu, “Cooperative TransCaching: A system of distributed proxy servers for Web content adaptation”, *Poster Proceedings of the 12th International World Wide Web Conference (WWW 2003)*, Budapest, Hungary, May 20-24, 2003, 2 pages.
- C79.** V. Cardellini, E. Casalicchio, M. Colajanni, M. Mambelli, “Enhancing a Web-server cluster with Quality of Service mechanisms”, *Proceedings of the 21st IEEE International Performance, Computing, and Communications Conference (IPCCC 2002)*, Phoenix, AZ, USA, April 3-5, 2002, pp. 205–212. doi: 10.1109/IPCCC.2002.995152
- C80.** V. Cardellini, E. Casalicchio, M. Colajanni, M. Mambelli, “Web switch support for differentiated services”, *Proceedings of the Performance and Architecture of Web Servers Workshop (PAWS 2001)* (in conjunction with ACM Sigmetrics 2001), Cambridge, MA, USA, June 16-17,

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- C81.** V. Cardellini, E. Casalicchio, M. Colajanni, S. Tucci, “Mechanisms for quality of service in Web clusters”, *Proceedings of the TERENA Networking Conference 2001*, Antalya, Turkey, May 14-17, 2001. ³
- C82.** V. Cardellini, E. Casalicchio, M. Colajanni, “A performance study of distributed architectures for the quality of Web services”, *Proceedings of the 34th Hawaii International Conference on System Sciences (HICSS-34)*, Maui, Hawaii, USA, January 3-6, 2001, IEEE Computer Society, pp. 3551–3560. doi: 10.1109/HICSS.2001.927213
- C83.** V. Cardellini, P.S. Yu, Y.-W. Huang, “Collaborative proxy system for distributed Web content transcoding”, *Proceedings of the 9th ACM International Conference on Information and Knowledge Management (CIKM 2000)*, McLean, VA, USA, November 6-11, 2000, pp. 520–527. doi: 10.1145/354756.354861 (acceptance rate: 37%)
- C84.** V. Cardellini, M. Colajanni, P.S. Yu, “Geographic load balancing for scalable distributed Web systems”, *Proceedings of the 8th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2000)*, San Francisco, CA, USA, 29 August - 1 September, 2000, pp. 20–27. doi: 10.1109/MASCOT.2000.876425
- C85.** V. Cardellini, M. Colajanni, P.S. Yu, “Redirecting strategies for load sharing policies in distributed Web systems”, *Proceedings of the 14th International Symposium on Computer and Information Sciences (ISCIS 1999)*, Kusadasi, Turkey, October 18-20, 1999, pp. 91–98.
- C86.** V. Cardellini, M. Colajanni, P.S. Yu, “Redirection algorithms for load sharing in distributed Web-server systems”, *Proceedings of the 19th IEEE International Conference on Distributed Computing Systems (ICDCS 1999)*, Austin, TX, USA, May 31 - June 4, 1999, pp. 528–535. doi: 10.1109/ICDCS.1999.776555
- C87.** V. Cardellini, M. Colajanni, P.S. Yu, “High performance Web-server systems”, *Advances in Computer and Information Sciences '98 - Proceedings of the 13th International Symposium on Computer and Information Sciences (ISCIS 1998)*, Ankara, Turkey, October 1998, IOS Press, pp. 288–293.
- C88.** V. Cardellini, M. Colajanni, P.S. Yu, “Efficient state estimators for load control policies in scalable Web server clusters”, *Proceedings of the 22th IEEE International Computer Software and Application Conference (COMPSAC 1998)*, Vienna, Austria, August 19-21, 1998, pp. 449–455. doi: 10.1109/COMPSAC.1998.716694 (acceptance rate: 22%)
- C89.** M. Colajanni, P.S. Yu, V. Cardellini, “Dynamic load balancing in geographically distributed heterogeneous Web servers”, *Proceedings of the 18th IEEE International Conference on Distributed Computing Systems (ICDCS 1998)*, Amsterdam, The Netherlands, May 26-29, 1998, pp. 295–302. doi: 10.1109/ICDCS.1998.679729

9.4 Refereed Book Chapters

- B1.** A. Alnafessah, G. Russo Russo, V. Cardellini, G. Casale, F. Lo Presti, “AI-driven performance management in data-intensive applications”, *Communications Network and Service Management in the Era of Artificial Intelligence and Machine Learning*, N. Zincir-Heywood, Y. Diao, M. Mellia (eds.), IEEE Press Series on Networks and Service Management, Wiley,

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³Selected and published as extended journal version in Computer Networks, 2001.

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