

# Giuliano Casale

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## ACADEMIC EMPLOYMENT

2015-        *Senior Lecturer*. Imperial College London, Department of Computing, UK.  
2013-15    *Lecturer*. Imperial College London, Department of Computing, UK.  
2010-12    *Imperial College Research Fellow*. Imperial College London, Department of Computing, UK.  
2007-08    *Postdoctoral Research Associate*. College of William & Mary, VA, US. Group: Prof. E. Smirni.

## OTHER EMPLOYMENT

2010-        *Research Consultant*. Imperial Consultants, UK.  
2009        *Research Staff Member*. SAP Research, UK.  
2006        *Research Scientist*. Neptuny, Milan, Italy. (Startup company, now part of BMC Software.)

## EDUCATION

2003-06    *Ph.D., Computing*, Politecnico di Milano, Italy. Advisor: Prof. G. Serazzi.  
1997-02    *MEng, Computing*, Politecnico di Milano, Italy. Grade: 100/100. 5-years programme.  
2000-01    *Exchange Student*, University of Manchester, Department of Computing, UK.

## AWARDS

2019        Best Demo Award, ACM/SPEC ICPE, 2019.  
2018        Best-in-Session Presentation Award, IEEE INFOCOM 2018.  
2017        Best Paper Award, ACM SIGMETRICS.  
2017        Best Student Paper Award, IFIP/IEEE IM (with K. Molka).  
2016        Best Paper Award, ACM/SPEC ICPE (with W. Wang, A. Kattapur, M. Nambiar).  
2015        Best Paper Award, IEEE ICCAC (with D. J. Dubois).  
2015        Best Paper Award, IEEE CLOUD (with J. Wen, L. Lu, E. Smirni).  
2012        Best Paper Award, ACM/SPEC ICPE (with P.G. Harrison).  
2008        Best Paper Award, ACM/IFIP/USENIX MIDDLEWARE (with N. Mi, L. Cherkasova, E. Smirni).  
2008        Best Student Paper Award, QEST (with Z. Zhang, E. Smirni).  
2004        Best Student Paper Award, IEEE MASCOTS (with G. Serazzi).  
2003        IBM Best European Graduates Recognition.

## PROFESSIONAL SERVICE

### OFFICER ROLES AND STEERING COMMITTEES

2019-        Chair: ACM SIGMETRICS.  
2015-19    Member, Board of Directors: ACM SIGMETRICS.  
2017-        Steering Committee: QUDOS workshop series.  
2014-16    Steering Committee: ICAC conference series.

## CONFERENCE CHAIRING

- 2021 Program Co-Chair: IEEE/IFIP DSN 2021.
- 2017 Program Co-Chair: VALUETOOLS 2017.
- 2015 Program Co-Chair: IEEE MASCOTS 2015.
- 2014 Program Co-Chair: USENIX ICAC 2014.
- 2013 General Co-Chair: ACM/SPEC ICPE 2013.
- 2012 Program Co-Chair: QEST 2012.
- 2012 Program Co-Chair: ACM SIGMETRICS/Performance 2012.

## EDITORIAL WORK

- 2018- Associate Editor, ACM Trans. on Modeling and Perf. Eval. of Computing Systems (TOMPECS).
- 2017- Associate Editor, IEEE Trans. on Network and Service Management (TNSM).
- 2011-15 Newsletter Editor, ACM SIGMETRICS Performance Evaluation Review (PER).
  
- 2019 Special Issue Guest Editor, IEEE Trans. on Network and Service Management.
- 2018 Special Issue Guest Editor, Elsevier Performance Evaluation.
- 2017 Special Issue Guest Editor, IEEE Trans. on Network and Service Management.
- 2016 Special Issue Guest Editor, IEEE Trans. on Network and Service Management.
- 2012 Special Issue Guest Editor, Elsevier Performance Evaluation.
- 2009 Special Issue Guest Editor, ACM Performance Evaluation Review.

## ACTIVITIES IN PROFESSIONAL SOCIETIES

- 2017 Reviewer: BCS Distinguished Dissertation award.
- 2017 Reviewer: ACM Future of Computing Academy programme.
- 2013- Member: IFIP Working Group 7.3, Computer System Modeling.
- 2012- Imperial College representative, SPEC Research Group.
- 2011-12 Secretary/Treasurer, IEEE Special Technical Community on Sustainable Computing.
- 2005- IEEE, IEEE Computer Society.
- 2002- ACM, ACM SIGMETRICS.

## CONFERENCE ORGANIZATION

- 2016 Organizer: 2nd QUDOS Workshop (at ISSTA 2016).
- 2015 Organizer: 1st QUDOS Workshop (at ESEC/FSE 2015).
- 2015 Replication Packages Co-Chair: ESEC/FSE.
- 2014 Publicity Chair: BDC.
- 2014 Publicity Chair: QEST.
- 2011 Organizer: Joint HPDC/ SIGMETRICS Student Poster Event.
- 2011 Organizer: SIGMETRICS Student Industry Workshop.
- 2011 Student Activities Chair: SIGMETRICS.
- 2011 Track Chair: EURO-PAR.
- 2010 Publicity Chair: QEST.
- 2007 Publicity Chair: MINENET.

## OTHER SERVICE

- 2019 Workshop Host: MAMA.
- 2017 Session Chair: SIGMETRICS.
- 2016 Session Chair: ICPE.

2015 Session Chair: VALUETOOLS.  
 2013 Session Chair: MASCOTS.  
 2013 Book Reviewer: Morgan Kaufmann Publishers.  
 2011 Session Chair: SIGMETRICS.  
 2011 Track Chair: EURO-PAR.  
 2010 Session Chair: HOTMETRICS.  
 2009 Session Chair: QEST.  
 2009 Session Chair: HOTMETRICS.  
 2009 Session Chair: MASCOTS.  
 2006 Session Chair: SYS-ML.

## RESEARCH VISITS

2017 University of Melbourne, Australia. Host: R. Buyya.  
 2016 Carleton University, Ottawa, Canada. Host: M. Woodside.  
 2015 Tata Consulting Services Research, Mumbai, India. Host: M. Nambiar.  
 2015 Gran Sasso Science Institute, Italy. Host: C. Trubiani.  
 2014 College of William & Mary, VA, US. Host: E. Smirni.  
 2013 College of William & Mary, VA, US. Host: E. Smirni.  
 2012 BCAM, Bilbao, Spain. Host: J. Anselmi.  
 2004 UCLA, Computer Science Dept., CA, US. Host: R.R. Muntz.

## TECHNICAL PROGRAM COMMITTEES

I served 100+ times in TPCs (conferences and workshops): SIGMETRICS (9 times: 2011–14, 2016–20), MAMA (8: 2012–19), QEST (7: 2009–13, 17–18), VALUETOOLS (6: 2011–13, 2017, 2019-20), DSN (5: 2012–14, 2018, 2020), PERFORMANCE (5: 2013–15, 17-18), ICDCS (4: 2015, 2017–19), GREEN-METRICS (4: 2012–14, 2016), IWQoS (4: 2011–14), MASCOTS (4: 2015, 2017-19), ASMTA (4: 2010–13), CLOUD (3: 2015–17), ICAC (3: 2013–15), ICCCN (3: 2009, 2012–13), ICPE (3: 2012, 2016, 2018), DCPERF (3: 2012–14), EPEW (3: 2010, 2016-17), MICAS (3: 2012–14), BIG DATA (2: 2013–14), BDC (2: 2014–15), CCGRID (2: 2013, 2020), INFQ (2: 2011–12), MAM (2: 2016, 2018), AIMC (1: 2015), ANNET (1: 2019), ANSERVAPP (1: 2019), APSYS (1: 2017), CAC (1: 2015), CLOUDMDE (1: 2014), DSSO (1: 2015), ECMS (1: 2011), ESOCC (1: 2017), EURO-PAR (1: 2011), HOTMETRICS (1: 2010), HPDC (1: 2019), IC2E (1: 2016), ICCAC(1: 2016), IM (1: 2019), ISIICT(1: 2018), MDHPCL (1: 2014), MOD (1: 2015), PABS (1: 2018), ROSSA (1: 2010), SC (1: 2016 BoF track), SeAC (1: 2016), SDDCS (1: 2016), SRDS (1: 2019), UCC (1: 2018), WOSP-C (1: 2015)

## JOURNAL REVIEWS

I served as journal reviewer 70+ times: Elsevier PEVA (17 times), Elsevier COMCOM (10), IEEE TNSM (9), Elsevier EJOR (7), IEEE TSE (4), ACM PER (3), IEE Computer Journal (3), IEEE TPDPS (3), IEEE TCC (2), IEEE TC (2), Elsevier SIMPAT (2), ACM TOMPECS (2), Computing & Informatics (1), Elsevier ASOC (1), Elsevier DKE (1), Elsevier FGCS (1), Elsevier JSS (1), IEEE Computer (1), IEEE TACON (1), IEEE TSMC A (1), IEEE TETC (1), IEEE/ACM TON (1), INFORMS JoC (1), ISI Bernoulli Journal (1), Naval Research Logistics (1), Operations Research (1), Springer QUESTA (1), Springer SOSYM (1), Springer TOP Journal (1), Stochastic Models (1).

## RESEARCH AND GRANT ASSESSMENT

2018- Reviewer for British Council / Newton grants, UK.  
 2018- EPSRC Full Peer Review College Member, UK.  
 2017 Reviewer: Mock Research Assessment Exercise, Dept. Information Eng., CUHK, Hong Kong.  
 2017-18 EPSRC Associate Peer Review College Member, UK.  
 2017 Grant Reviewer, EPSRC, UK.  
 2017 Grant Reviewer, NSERC Council, Canada.

- 2016 Grant Reviewer, Romanian National Council for Scientific Research.
- 2016 Grant Reviewer, Flemish Research Foundation (FWO), Belgium.
- 2016 Review Panel Member for Italian PRIN projects.
- 2015 Grant Reviewer for Swiss National Science Foundation.
- 2014 Grant Reviewer for the Daphne Jackson Trust, UK.
- 2014 Grant Reviewer for NSERC Council, Canada.
- 2012 Reviewer for Italian Research Assessment Exercise 2004-10 (VQR).
- 2012 Review Panel Member for the Romanian National Council for Scientific Research.
- 2012 Review Panel Member for the Italian Future in Research 2012 programme.

#### OUTREACH ACTIVITIES

- 2017 Presentation at DevOpsDays event, Warsaw, Poland (500+ attendees).
- 2016 Presentation at OW2 event, CloudExpo, Excel London.
- 2015 Presentation at Computing Measurement Group, Mumbai, India (100+ attendees).
- 2015 Featured interview on Imperial College homepage about the DICE research project.
- 2015 Presentation at OW2 event, CloudExpo, Excel London.
- 2015 Presentation, RELATE ITN Doctoral School, Würzburg, Germany.
- 2014 Presentation, Future Internet Assembly, Athens.
- 2014 Presentation at OW2 event, CloudExpo, Excel London.
- 2013 Imperial Fringe Festival, Cloud Computing stand.
- 2013 Featured interview on Imperial College website to advertise JRF programme.
- 2013 MODAClouds presentation, ICT 2013, Vilnius, Lithuania.
- 2011-15 ACM SIGMETRICS LinkedIn group coordinator.

#### PATENTS

- 2012 *Simulation Techniques for Predicting In-Memory Database Systems Performance.* US Patent, US9111022 B2, assignee SAP, co-inventors: S. Kraft, A. Jula.
- 2011 *Characterizing Web Workloads For Quality of Service Prediction.* US Patent, US8560618 B2, assignee SAP, co-inventor: S. Pacheco-Sanchez.
- 2011 *Predicting performance of a consolidated virtualized computing environment.* US Patent, US 9164785 B2, assignee SAP, co-inventors: S. Kraft, D. Krishnamurthy.
- 2011 *Estimating service resource consumption based on response time.* European Patent, EP20100013643, assignee SAP, co-inventors: S. Kraft, S. Pacheco-Sanchez, S. Dawson.

#### TALKS

##### INVITED TALKS AT SYMPOSIA

- 2017 Keynote, 1st Vienna Software Seminar on DevOps/Continuous Delivery, Vienna, Austria.
- 2016 Invited talk, 2nd Workshop on Performance Analysis of Big data Systems (PABS), Delft, NL.
- 2015 Keynote, TACTiCS Symp. on Performance Engineering, Mumbai, India.
- 2011 Keynote, 5th Int. Workshop on Practical Applic. of Stoch. Modelling (PASM), Karlsruhe, DE.

##### INVITED RESEARCH SEMINARS

- 2019 Virginia Tech, US.
- 2019 University of Warwick, UK.
- 2017 University of Delft, The Netherlands.
- 2017 Umeå University, Sweden.
- 2016 University of Pavia, Italy.
- 2016 University of Leeds, UK, School of Computing Weekly Colloquium.
- 2016 Budapest University of Technology and Economics, Hungary.
- 2015 University of Vienna, Austria.

2015	Gran Sasso Science Institute, Italy.
2015	University of York, UK.
2015	Tata Consulting Services, Mumbai, India.
2014	INRIA Grenoble, France.
2013	University of Edinburgh, UK.
2012	BCAM, Spain.
2011	Politecnico di Milano, Italy.
2010	University of Florence, Italy.
2010	University Tor Vergata, Rome, Italy.
2010	BCAM - Basque Center for Applied Mathematics, Bilbao, Spain.
2010	IFIP Working Group 7.3 Workshop, Namur, Belgium.
2010	University of Munich (LMU), Germany.
2010	University of Venice (Cá Foscari), Italy.
2009	Northeastern University, Boston.
2009	INRIA-Grenoble Rhone Alpes, France.
2008	Mathworks, SIMULINK group, Boston, MA.
2008	SAP Research, Belfast, UK.
2007	Dagstuhl - Numerical Methods for Structured Markov Chains.
2007	College of William & Mary, Williamsburg, VA.
2006	IFIP Working Group 7.3 Workshop, St. Malo, France.

## FUNDING SUPPORT

Legend: *PI*=Principal Investigator, *CoI*= Co-Investigator, *Coord*=Project Coordinator.

## PROJECTS

2019-21	646k€	<i>Coord</i>	RADON: “ <i>Rational Decomposition and Orchestration for Serverless Computing</i> ”. Horizon 2020 RIA project (4M€ award, 8 partners). <i>CoI</i> : A. Russo.
2015-18	712k€	<i>Coord</i>	DICE: “ <i>Developing Data-Intensive Cloud Applications with Iterative Quality Enhancements</i> ”. Horizon 2020 RIA project (4M€ award, 9 partners).
2015-16	98k£	<i>PI</i>	OptiMAM: “ <i>Optimising Model-Driven Service Design via Stochastic Analysis Methods</i> ”. EPSRC First Grant.
2014-17	368k£	<i>CoI</i>	iBids: “ <i>Intelligent Management of Big Data Storage</i> ”. <i>PI</i> : P. Harrison, <i>CoI</i> : W. Knottenbelt. EPSRC standard grant.
2012-15	604k€	<i>PI</i>	MODAClouds: “ <i>Model-Driven Approach for the Design and Execution of Applications on Multiple Clouds</i> ”. <i>CoIs</i> : P. Harrison, W. Knottenbelt. FP7 project (6M€ award, 10 partners).

## OTHER FUNDING

2014–16	189k£	<i>Host</i>	SPANDO: “ <i>Self-organising Performance Prediction and Optimisation for Large-scale Software Systems</i> ”. Marie-Curie Fellowship for D. J. Dubois.
2010-12	285k£	<i>PI</i>	Imperial College Junior Research Fellowship: “ <i>Service-Oriented Applications: Models, Burstiness, and Cost/Performance Trade-off</i> ”. Internal Funding (100% <i>PI</i> time).
2017	20k\$	<i>PI</i>	Microsoft Azure Sponsorship.
2010-15	91k£	<i>PI</i>	5 industry-funded research consultancy contracts.
2013–16	20k£	<i>Host</i>	PhD scholarship funded by SAP UK.
2013	3k£	<i>PI</i>	Amazon AWS in Education Research Grant Award.
2012	10k£	<i>PI</i>	EPSRC Small Equipment Scheme.
2012	9k£	<i>CoI</i>	EPSRC Small Equipment Scheme. <i>PI</i> : P. Costa.
2011	21k£	<i>CoI</i>	EEES proposal, Internal funding. <i>PI</i> : P. Pietzuch.

## FULL LIST OF PUBLICATIONS

### REFEREED JOURNAL PUBLICATIONS

- J33. CLUS A. Alnafessah, G. Casale. Artificial Neural Networks Based Techniques for Anomaly Detection in Apache Spark, *Cluster Computing*, Springer, to appear in 2019.
- J32. SICS G. Casale, M. Artač, W.-J. van den Heuvel, *et al.* RADON: Rational Decomposition and Orchestration for Serverless Computing, *Software-Intensive Cyber-Physical Systems*, Springer, to appear in 2019.
- J31. JSS S. S. Gill, P. Garraghan, V. Stankovski, G. Casale, *et al.* Holistic Resource Management for Sustainable and Reliable Cloud Computing: An Innovative Solution to Global Challenge, *Journal of Systems and Software*, Elsevier, May 2019.
- J30. CSUR R. Buyya, S. N. Srirama, G. Casale, R. Calheiros, Y. Simmhan, B. Varghese, *et al.* A Manifesto for Future Generation Cloud Computing: Research Directions for the Next Decade, *ACM Computing Surveys*, 51(5):105, 2019.
- J29. TOMPECS W. Wang, G. Casale, A. Kattepur, and M. Nambiar. QMLE: a Methodology for Statistical Inference of Service Demands from Queueing Data, *ACM Trans. on Modeling and Perform. Eval. Comp. Sys.*, 17:1-28, 2018.
- J28. POMACS G. Casale. Accelerating Performance Inference over Closed Systems by Asymptotic Methods, *PACM on Meas. Anal. Comput. Syst.* journal, 1(1):1–23, Jun 2017.
- J27. TREL J.F. Pérez, G. Casale. LINE : A Scalable Tool for Evaluating Software Applications in Unreliable Environments, *IEEE Trans. on Reliability*, 2017.
- J26. TOMPECS K. Molka, G. Casale. Contention-Aware Workload Placement for In-Memory Databases in Cloud Environments, *ACM Trans. on Modeling and Perform. Eval. Comp. Sys.*, 2(1):1–29, Oct 2016.
- J25. EJOR G. Casale, A. Sansottera, P. Cremonesi. Compact Markov-Modulated Models for Multiclass Trace Fitting, *European J. of Oper. Research*, 255(3):822–833, Nov 2016.
- J24. TOMACS W. Wang, G. Casale, C. Sutton. A Bayesian Approach to Parameter Inference in Queueing Networks, *ACM Trans. on Modeling and Comp. Simulation*, 27(1):1–26, Nov 2016.
- J23. CLUS D. J. Dubois, G. Casale. OptiSpot: Minimizing Application Deployment Cost using Spot Cloud Resources, *Cluster Computing*, 19(2):893–909, Springer, Mar 2016.
- J22. TOMACS G. Casale, V. de Nitto-Personé, E. Smirni. QRF: An Optimization-Based Framework for Evaluating Complex Stochastic Networks, *ACM Trans. on Modeling and Computer Simulation*, 26(3):15, Jan 2016.
- J21. PEVA S. Spinner, G. Casale, F. Brosig, S. Kounev. Evaluating Approaches to Resource Demand Estimation, *Perform. Eval.*, Elsevier 92:51-71, Oct 2015.
- J20. PEVA G. Casale, J. F. Pérez, W. Wang. QD-AMVA: Evaluating Systems with Queue-Dependent Service Requirements, *Perform. Eval.* journal, Elsevier, 91:80-98, Sep 2015.
- J19. TSE J.F. Pérez, G. Casale, S. Pacheco-Sanchez. Estimating Computational Requirements in Multi-Threaded Applications, *IEEE Trans. on Softw. Eng.*, 41(3):264–278, Mar 2015.
- J18. PEVA G. Casale, M. Tribastone, P.G. Harrison. Blending Randomness in Closed Queueing Network Models, *Perform. Eval.*, Elsevier, 82:15-38, Dec 2014.
- J17. JISA D. Ardagna, G. Casale, M. Ciavotta, J. F. Pérez, W. Wang. Quality-of-Service in Cloud Computing: Modelling Techniques and Their Applications, *J. of Internet Services and Applications*, 5(1), Springer, Sep 2014.
- J16. PEVA J. Anselmi, G. Casale. Heavy-Traffic Revenue Maximization in Parallel Multiclass Queues, *Perform. Eval.* journal, 70(1):806–821, Elsevier, Oct 2013.
- J15. SOSYM S. Kraft, G. Casale, D. Krishnamurthy, D. Greer, P. Kilpatrick. Performance Models of Storage Contention in Cloud Environments, *J. of Software and Systems Modeling*, Springer, Oct 2013.
- J14. TSE G. Casale, N. Mi, L. Cherkasova, E. Smirni. Dealing With Burstiness in Multi-Tier Applications: Models and Their Parameterization, *IEEE Trans. on Softw. Eng.*, 38(5): 1040-1053, Sep/Oct 2012.
- J13. TSE G. Casale, A. Kalbasi, D. Krishnamurthy, J. Rolia. BURN: Enabling Workload Burstiness in Customized Service Benchmarks, *IEEE Trans. on Softw. Eng.*, 38(4):778–793, Jul/Aug 2012.

- J12. TNSM N. Mi, G. Casale, E. Smirni. ASIdE: Using Autocorrelation-Based Size Estimation for Scheduling Bursty Workloads, *IEEE Trans. on Network and Service Management*, 9(2):198–212, Jun 2012.
- J11. PEVA G. Casale. Exact Analysis of Performance Models by the Methods of Moments, *Perform. Eval.*, Elsevier, 68(6):873–896, Jun 2011.
- J10. PEVA G. Casale. A Generalized Method of Moments for Closed Queueing Networks, *Perform. Eval.*, Elsevier, 68(2):180–0, Feb 2011.
- J9. PEVA G. Casale. Approximating Passage Time Distributions in Queueing Models by Bayesian Expansion, *Perform. Eval.* journal, Elsevier, 67(11):1076–1091, Nov 2010.
- J8. TC G. Casale, N. Mi, E. Smirni. Model-Driven System Capacity Planning Under Workload Burstiness, *IEEE Trans. on Computers*, 59(1):66–80, Jan 2010.
- J7. PEVA G. Casale, E. Z. Zhang, E. Smirni. KPC-Toolbox: Best Recipes for Automatic Trace Fitting Using Markovian Arrival Processes, *Perform. Eval.*, Elsevier, 67(9):873–896, Sep 2010.
- J6. JISA N. Mi, G. Casale, L. Cherkasova, E. Smirni. Sizing Multi-Tier Systems with Temporal Dependence: Benchmarks and Analytic Models, *Springer J. of Internet Services and Applications*, 1(2):117–134, Nov 2010.
- J5. PEVA G. Casale, E. Z. Zhang, E. Smirni. Trace Data Characterization and Fitting for Markov Modeling, *Perform. Eval.*, Elsevier, 67(2):61–79, Feb 2010.
- J4. TSE G. Casale. CoMoM: Efficient Class-Oriented Evaluation of Multiclass Performance Models, *IEEE Trans. on Softw. Eng.*, 35(2):162–177, Mar/Apr 2009.
- J3. TC G. Casale, R. R. Muntz, G. Serazzi. Geometric Bounds: a Non-Iterative Analysis Technique for Closed Queueing Networks, *IEEE Trans. on Computers*, 57(6):780–794, Jun 2008.
- J2. QUESTA G. Casale. A Note on Stable Flow-Equivalent Aggregation in Closed Networks, *Springer Queueing Systems*, 60(3):193–2, Dec 2008.
- J1. COR E. Amaldi, M. Bruglieri, G. Casale. A Two-Phase Relaxation-Based Heuristic for the Maximum Feasible Subsystem Problem, *Computers & Operations Research*, Elsevier, 35(5):1465–1482, May 2008.

#### REFEREED CONFERENCE PUBLICATIONS

Conference papers appearing in journal proceedings are marked with an asterisk.

- C48. ICDCS A. Gias, G. Casale, M. Woodside. ATOM: Model-Driven Autoscaling for Microservices, in *Proc. of IEEE ICDCS*, 11 pages, Jul 2019.
- C47. INFOCOM G. Casale. Analyzing replacement policies in list-based caches with non-uniform access costs, in *Proc. of IEEE INFOCOM*, 432–440, Apr 2018. Best-in-Session Presentation Award. [acc. rate: 19.2%].
- C46. NOMS S. Dipietro, R. Buyya, G. Casale. PAX: Partition-Aware Autoscaling for the Cassandra NoSQL Database, in *Proc. of IEEE/IFIP NOMS*, Apr 2018.
- C45\*. SIGMETRICS Regular paper at *ACM SIGMETRICS 2017*, proceedings published in PACM journal [J28]. **Best Paper Award**. [acc. rate: 13%].
- C44. CLOUD J. Wen, L. Ren, F. Yan, D. Dubois, G. Casale, E. Smirni. How to Supercharge the Amazon T2: Observations and Suggestions, in *Proc. of IEEE CLOUD*, Jun 2017.
- C43. IM K. Molka, G. Casale. Energy-Efficient Resource Allocation and Provisioning for In-Memory Database Clusters, in *Proc. of IFIP/IEEE IM*, 2017. **Best Student Paper Award**.
- C42. VALUETOOLS S. Dipietro, G. Casale, G. Serazzi. A Queueing Network Model for Performance Prediction of Apache Cassandra, in *Proc. of VALUETOOLS*, Nov 2016.
- C41. MASCOTS P. Jamshidi, G. Casale. An Uncertainty-Aware Approach to Optimal Configuration of Stream Processing Systems, in *Proc. of IEEE MASCOTS*, Sep 2016.
- C40. QRS R. Osman, J. F. Pérez, G. Casale. Quantifying the Impact of Replication on the Quality-of-Service in Cloud Databases, in *Proc. of IEEE QRS*, Aug 2016.
- C39. CLOUD D. J. Dubois, C. Trubiani, G. Casale. Model-driven Application Refactoring to Minimize Deployment Costs in Preemptible Cloud Resources, in *Proc. of IEEE CLOUD*, Jun 2016. [acc. rate: 15%].
- C38. ICPE W. Wang, G. Casale, A. Kattapur, M. K. Nambiar. Maximum Likelihood Estimation of Closed Queueing Network Demands from Queue Length Data, in *Proc. of ACM/SPEC ICPE*, Mar 2016. **Best Paper Award**.

- C37. CNSM K. Molka, G. Casale. Experiments or Simulation? A Characterization of Evaluation Methods for In-Memory Databases, in *Proc. of IFIP/IEEE CNSM*, Nov 2015.
- C36\*. PERFORMANCE Regular paper at *IFIP PERFORMANCE 2015*, published in journal special issue [J20], Oct 2015.
- C35. ICCAC D.J. Dubois, G. Casale. Autonomic Provisioning and Application Mapping on Spot Cloud Resources, in *Proc. of IEEE ICCAC*, Sep 2015. **Best Paper Award**.
- C34. CLOUD J. Wen, L. Lu, G. Casale, E. Smirni. Less can be More: micro-Managing VMs in Amazon EC2, in *Proc. of IEEE CLOUD*, Jun 2015. **Best Paper Award**. [acc. rate: 17%].
- C33. NOMS K. Molka, G. Casale, T. Molka, L. Moore. Memory-Aware Sizing for In-Memory Databases, in *Proc. of IEEE/IFIP NOMS*, May 2014. [acc. rate: 19%].
- C32\*. PERFORMANCE Regular paper at *IFIP PERFORMANCE 2013*, published in journal special issue [J16].
- C31. MASCOTS W. Wang, G. Casale. Bayesian Service Demand Estimation with Gibbs Sampling, in *Proc. of IEEE MASCOTS*, Aug 2013 [acc. rate: 44/163 = 27%].
- C30. MASCOTS J.F. Pérez, S. Pacheco-Sanchez, G. Casale. An offline demand estimation method for multi-threaded applications, in *Proc. of IEEE MASCOTS*, Aug 2013 [acc. rate: 44/163 = 27%]. **Runner up for Best Paper Award**.
- C29. DSN A. Sansottera, G. Casale, P. Cremonesi. Analysis of Second-Order Marked Markovian Arrival Processes, in *Proc. of IEEE/IFIP DSN*, Jun 2013 [acc. rate: 25/113 = 22%].
- C28. IM S. Musabbi, D. Krishnamurthy, G. Casale. RPO: Runtime Web Server Optimization Under Simultaneous Multithreading, in *Proc. of IFIP/IEEE IM*, May 2013 [acc. rate: 53/223 = 27%].
- C27. CLOUD S. Kraft, G. Casale, A. Jula, P. Kilpatrick, D. Greer. WIQ: Work-Intensive Query Scheduling for In-Memory Database Systems, in *Proc. of IEEE CLOUD*, Jun 2012 [acc. rate: 48/282 = 17%].
- C26. ICPE G. Casale, P. Harrison. A Class of Tractable Models for Run-Time Performance Evaluation, in *Proc. of ACM/SPEC ICPE*, 63-74, Apr 2012. **Best Paper Award**.
- C25. QEST G. Casale, M. Tribastone. Fluid Analysis of Queueing in Two-Stage Random Environments, in *Proc. of QEST*, Aachen, Germany, 21-30, Sep 2011.
- C24. CLOUD S. Pacheco-Sanchez, G. Casale, B. Scotney, S. McClean, G. Parr, S. Dawson. Markovian Workload Characterization for QoS Prediction in the Cloud, in *Proc. of IEEE CLOUD*, 147-154, Washington D.C., Jun 2011 [acc. rate: 18%].
- C23. DSN V. De Nitto, G. Casale, E. Smirni. Approximate Analysis of Blocking Queueing Networks with Temporal Dependence, in *Proc. of IEEE/IFIP DSN*, 574 - 585, Hong Kong, China, IEEE Press, in Jun 2011 [acc. rate: 27%].
- C22. VALUETOOLS M. Makaronidis, G. Casale. Efficient Parallelization of the Method of Moments for Queueing Networks Using Multi-Modular Algebra, in *Proc. of VALUETOOLS*, ACM, May 2011.
- C21. ICPE S. Kraft, G. Casale, D. Krishnamurthy, D. Greer, P. Kilpatrick. I/O Performance Prediction in Consolidated Virtualized Environments, in *Proc. of ACM/SPEC ICPE*, 295-306, ACM, Mar 2011.
- C20\*. PERFORMANCE Regular paper at *IFIP PERFORMANCE 2010*, published in journal special issue [J9].
- C19. SIGMETRICS G. Casale, N. Mi, E. Smirni. CWS: A Model-Driven Scheduling Policy for Correlated Workloads, in *Proc. of ACM SIGMETRICS*, New York, NY, ACM, 251-262, Jun 2010 [acc. rate: 16%].
- C18. ICPE H. Li, G. Casale, T. Ellahi., SLA Driven Planning and Optimization of Enterprise Applications, in *Proc. of ACM/SPEC ICPE*, San Jose, CA, 117-128, Jan 2010 [acc. rate: 25%].
- C17. MIDDLEWARE G. Casale, A. Kalbasi, D. Krishnamurthy, J. Rolia. Automatic Stress Testing of Multi-Tier Systems by Dynamic Bottleneck Switch Generation, in *Proc. of ACM/IFIP/USENIX MIDDLEWARE*, Urbana-Champaign, Illinois, Springer LNCS 5896, 393-413, Dec 2009 [acc. rate: 19%].
- C16. ICAC N. Mi G. Casale, L. Cherkasova, E. Smirni. Injecting Realistic Burstiness Into a Traditional Client-Server Benchmark, in *Proc. of IEEE ICAC*, Barcelona, Spain, 149-158, IEEE Press, Jun 2009, [acc. rate: 16%].
- C15. DSN G. Casale, E. Smirni. MAP-AMVA: Approximate Mean Value Analysis of Bursty Systems, in *Proc. of IEEE/IFIP DSN*, Estoril, Portugal, 409-418, IEEE Press, Jun 2009 [acc. rate: 27%].



- C14. VALUETOOLS S.Kraft, S.Pacheco-Sanchez, G. Casale, S.Dawson. Estimating Service Resource Consumption From Response Time Measurements, in *Proc. of VALUETOOLS*, Pisa, Italy, ACM, Oct 2009.
- C13. MASCOTS N. Mi, G. Casale, Q. Zhang, A. Riska, E. Smirni. Autocorrelation-Driven Load Control in Distributed Systems, in *Proc. of IEEE MASCOTS*, London, UK, 269–278, IEEE Press, Sep 2009 [acc. rate: 20%].
- C12. QEST G. Casale. The Multi-branched Method of Moments for Queuing Networks, in *Proc. of QEST*, Budapest, Hungary, 227–236, IEEE Press, Sep 2009.
- C11. SIGMETRICS G. Casale, N. Mi, E. Smirni. Bound Analysis of Closed Queuing Networks with Workload Burstiness, in *Proc. of ACM SIGMETRICS*, 13-24, Annapolis, MD, ACM, Jun 2008 [acc. rate: 17%].
- C10. DSN N. Mi, G. Casale, E. Smirni. Scheduling for Performance and Availability in Systems with Temporal Dependent Workloads, in *Proc. of IEEE/IFIP DSN*, 336–345, Anchorage, AK, IEEE Press, Jun 2008 [25%].
- C9. MIDDLEWARE N. Mi, G. Casale, L. Cherkasova, E. Smirni. Burstiness in Multi-Tier Applications: Symptoms, Causes, and New Models, in *Proc. of ACM/IFIP/USENIX MIDDLEWARE*, 265–286, Leuven, Belgium, Springer LNCS 5346, Dec 2008. **Best Paper Award**, [acc. rate: 18%].
- C8. QEST G. Casale, E. Z. Zhang, E. Smirni. KPC-Toolbox: Simple Yet Effective Trace Fitting Using Markovian Arrival Processes, in *Proc. of QEST*, St.Malo, France, 83–92, IEEE Press, Sep 2008. **Best Student Paper Award**.
- C7. ANSS M. Bertoli, G. Casale, G. Serazzi. The JMT Simulator for Performance Evaluation of Non Product-Form Queuing Networks, in *Proc. of the 38th Annual Simulation Symposium*, 3 – 10, IEEE Press, 2007.
- C6. MASCOTS J. Anselmi, G. Casale, P. Cremonesi. Approximate Solution of Multiclass Queuing Networks with Region Constraints, in *Proc. of IEEE MASCOTS*, 1-5, Istanbul, Turkey, IEEE Press, 2007.
- C5. SIGMETRICS G. Casale. An Efficient Algorithm for the Exact Analysis of Multiclass Queuing Networks with Large Population Sizes, in *Proc. of joint ACM SIGMETRICS/IFIP PERFORMANCE 2006*, St. Malo, France, 169–180, 2006, ACM. [acc. rate: 14%].
- C4. MASCOTS G. Casale, R.R. Muntz, G. Serazzi. A New Class of Non-Iterative Bounds for Closed Queuing Networks, in *Proc. IEEE MASCOTS*, Monterey, US, 69 – 76, Sep 2006, IEEE Press.
- C3. QEST M. Bertoli, G. Casale, G. Serazzi. Java Modelling Tools: an Open Source Suite for Queuing Network Modelling and Workload Analysis, in *Proc. of QEST*, Riverside, US, Sep 2006, 119-120, IEEE Press, 2006.
- C2. QEST G. Casale. On Single Class Load-Dependent Normalizing Constant Equations, in *Proc. of QEST*, Riverside, US, Sep 2006, 333 – 342, IEEE Press, 2006.
- C1. MASCOTS G. Casale, G. Serazzi. Bottlenecks Identification in Multiclass Queuing Networks using Convex Polytopes, in *Proc. of MASCOTS*, 223-230, 2004, IEEE Press. **Best Student Paper Award**.

#### OTHER PUBLICATIONS

- O12. TOE D. Tamburri, G. Casale. Cognitive Distance and Research Output in Computing Education: A Case-Study, *IEEE Trans. on Education*, 1–9, Oct 2018.
- O11. IEEECC G. Kecskemeti, G. Casale, D. N. Jha, J. Lyon, R. Ranjan. Modelling and Simulation Challenges in Internet of Things. *IEEE Cloud Computing*, 4(1):62-69, 2017.
- O10. CF G. Casale, C. Chesta, P. Deussen, E. Di Nitto, P. Gouvas, S. Koussouris, V. Stankovski, A. Symeonidis, V. Vlassiou, A. Zafeiropoulos and Z. Zhao. Current and Future Challenges of Software Engineering for Services and Applications, in *Proc. of CloudForward*, Madrid, 2016.
- O9. CROSSCLOUD D. Petcu, E. Di Nitto, D. Ardagna, A. Solberg, G. Casale. Towards Multi-Clouds Engineering, in *Proc. of CrossCloud workshop*, Toronto, 2014.
- O8. PASTA S. Pacheco-Sanchez, G. Casale, B. Scotney, S. McClean, G. Parr. A Case Study of Demand Estimation for a Multi-Threaded ERP Application, in *Proc. of PASTA workshop*, Sep 2011.

- O7. BOOK G.Casale, M. Gribaudo, G. Serazzi. *Tools for Performance Evaluation of Computer Systems: Historical Evolution and Perspectives*, in *Proc. of IFIP PERFORM*, Springer LNCS 6821, 24–37, Vienna, Austria, Oct 2010.
- O6. PASTA G.Casale, M. Tribastone. Process-Algebraic Modeling of Priority Queueing Networks, in *Proc. of PASTA workshop*, Sep 2010.
- O5. ICPE J. Rolia, D. Khrishnamurthy, G.Casale, S.Dawson. APE: Automated Performance Evaluation of Customized Services, in *Proc. of ACM/SPEC ICPE*, San Jose, California, 3–14, Jan 2010.
- O4. NGS G.Casale, N. Mi, E. Smirni. Versatile Models of Systems Using MAP Queueing Networks, in *Proc. of NSF-NGS Workshop (at IPDPS 2008)*, IEEE Press, 2008.
- O3. NGS E. Smirni, Q. Zhang, N. Mi, A. Riska, G.Casale. New Results on the Performance Effects of Autocorrelated Flows in Systems, in *Proc. of NSF-NGS Workshop (at IPDPS 2007)*, IEEE Press, 2007.
- O2. BOOK G.Casale, G. Serazzi. Stabilisation Techniques for Load-Dependent Algorithms. Book chapter in *J.A.Barria Ed., Communication Networks and Computer Systems*, Imperial College Press, 2006.
- O1. BOOK G.Casale, G. Serazzi. Estimating Bottlenecks of Very Large Models. Book chapter in *G.Kotsis Ed., Performance Evaluation: Stories and Perspective*, Vienna, Austria, Dec 2003, Austrian Computing Group (OCG) Press.

#### WORK-IN-PROGRESS PAPERS

- W11. MASCOTS K. Molka, G. Casale. Efficient Memory Occupancy Models for In-Memory Databases, *Proc of IEEE MASCOTS*, Sep 2016, ACM.
- W10. MAMA W. Wang, G. Casale. Maximum Likelihood Estimation of Closed Queueing Network Demands from Queue Length Data, *Special Issue on MAMA Workshop*, ACM Perf. Eval. Rev., Sep 2015, ACM.
- W9. MICAS W. Wang, G. Casale. Evaluating Weighted Round Robin Load Balancing for Cloud Web Services, in *Proc. of Management of Resources and Services in Cloud and Sky Computing (MICAS) Workshop*, Sep 2014, IEEE Press.
- W8. MICAS J. Moschetta, G. Casale. OFBench: an Enterprise Application Benchmark for Cloud Resource Management Studies, in *Proc. of Management of Resources and Services in Cloud and Sky Computing (MICAS) Workshop*, Sep 2012, IEEE Press.
- W7. DCPERF G.Casale, S. Kraft, D. Krishnamurthy. *A Model of Storage I/O Performance Interference in Virtualized Systems*, in *Proc. of 1st Data Center Performance Workshop*, Jun 2011.
- W6. NMSC G.Casale, P.G.Harrison, M. Vigliotti. Product-Form Approximation of Tandem Queues via Matrix Geometric Methods, in *Proc. of Numerical Solution of Markov Chains (NSMC) Workshop*, Sep 2010.
- W5. HOTMETRICS G.Casale, A.Kalbasi, D.Khrishnamurthy, J. Rolia. Automatically Generating Bursty Benchmarks for Multi-Tier Systems, *Special Issue on the 2nd ACM HOTMETRICS workshop*, ACM Perf. Eval. Rev. 37(3):32–37, Dec 2009, ACM.
- W4. HOTMETRICS A.Riska, N.Mi, G.Casale, E. Smirni. Feasibility Regions: Exploiting Trade-offs between Power and Performance in Disk Drives, *Special Issue on the 2nd ACM HOTMETRICS workshop*, ACM Perf. Eval. Rev. 37(3):43–48, Dec 2009, ACM.
- W3. HOTMETRICS G.Casale, N. Mi, L. Cherkasova, E. Smirni. How to Parameterize Models with Bursty Workloads, *Special Issue on the 1st ACM HOTMETRICS workshop*, ACM Perf. Eval. Rev. 36(2):38-44, Jun 2008, [27%].
- W2. MAMA G.Casale. CoMoM: Class-Oriented Evaluation of Multiclass Models, *Special Issue on MAMA Workshop*, ACM Perf. Eval. Rev. 36(2):38-44, ACM, Sep 2008, ACM.
- W1. MAMA G.Casale, E.Z. Zhang, E. Smirni. Characterization of Moments and Autocorrelation in MAPs, *Special Issue on MAMA Workshop* in ACM Perf. Eval. Rev., 35(2):27–29, Sep 2007, ACM.

#### DEMOS

- D8. ICPE G.Casale. Automated multi-paradigm analysis of extended and layered queueing models with LINE, in *Proc. of ICPE*, 2019. **Best Demo Award**.

D7.	QEST	C. Li, T. Altamimi, M. H. Zargari, <u>G. Casale</u> , and D. Petriu. Tulsa: A Tool for Transforming UML to Layered Queueing Networks for Performance Analysis of Data Intensive Applications, in <i>Proc. of QEST</i> , 2017.
D6.	ICPE	<u>G. Casale</u> , M. Cazzoli, J. Shuai, V.S. Lopes, G. Serazzi, L. Zhu. Generalized Synchronizations and Capacity Constraints for Java Modelling Tools, in <i>Proc. of ACM/SPEC ICPE</i> , 2017.
D5.	MASCOTS	D.J. Dubois, <u>G. Casale</u> . Performance Prediction for Burstable Cloud Resources, in <i>Proc. of VALUETOOLS</i> , Nov 2016.
D4.	QUDOS	W. Wang, J. Pérez, <u>G. Casale</u> . Filling the Gap: a Tool to Automate Parameter Estimation for Software Performance Models, in <i>Proc. of QUDOS</i> , 2015, ACM.
D3.	ICPE	S. Spinner, <u>G. Casale</u> , X. Zhu, S. Kounev. LibReDE: A Library for Resource Demand Estimation, in <i>Proc. of ICPE</i> , 2014, ACM.
D2.	MAM	<u>G. Casale</u> , E. Smirni. KPC-Toolbox: Fitting Markovian Arrival Processes and Phase-Type Distributions with MATLAB, <i>ACM Perf. Eval. Rev.</i> , 39(4):47, Mar 2012.
D1.	SIGMETRICS	E.Z. Zhang, <u>G. Casale</u> , E. Smirni. KPC-Toolbox: Best Recipes Toward Automatization of Workload Fitting, <i>ACM Perf. Eval. Rev.</i> 36(2):134-136, Sep 2008.

#### TUTORIALS

T6.	PERFORMANCE	<u>G. Casale</u> , G. Serazzi, L. Zhu. <i>Performance Evaluation with Java Modelling Tools: a Hands-On Introduction</i> , at <i>IFIP Performance 2017</i> .
T5.	ICPE	<u>G. Casale</u> , S. Spinner, W. Wang. <i>Automated Parameterization of Performance Models from Measurements</i> , at <i>ACM/SPEC ICPE 2016</i> .
T4.	UCC	D. Ardagna, N. Ferry, <u>G. Casale</u> . <i>Model-Driven Management of Multi-Cloud Applications</i> , at <i>IEEE/ACM UCC 2014</i> .
T3.	ASE	D. Ardagna, N. Ferry, <u>G. Casale</u> , M. Almeida, J.F. Pérez. <i>MDD-CLOUD - Model Driven Design of Cloud Applications with “a priori” Quality of Service Guarantees</i> , at <i>IEEE/ACM ASE 2014</i> .
T2.	SIGMETRICS	<u>G. Casale</u> . <i>Building Accurate Workload Models using Markovian Arrival Processes</i> , at <i>ACM SIGMETRICS 2011</i> , Jun 2011.
T1.	ICPE	<u>G. Casale</u> , G. Serazzi. <i>Quantitative System Evaluation with Java Modelling Tools</i> , at <i>ACM/SPEC ICPE 2011</i> , Mar 2011.

#### TEACHING

##### COURSES

2018–	C339 Performance Engineering, Imperial College London.
2016–17	C436H Performance Engineering, Imperial College London.
2015–	C337 Simulation and Modelling, Imperial College London.
2014–	C343 Operations Research, Imperial College London.
2014–15	C436H Performance Analysis, Imperial College London.
2011–14	C436 Performance Analysis, Imperial College London.
2005–06	Capacity planning (Dimensionamento dei Sistemi Informatici), Politecnico di Milano.
2003	Enterprise Systems (Impianti Informatici), Politecnico di Milano, Italy.

##### PROJECT SUPERVISION

A UG final project is equivalent to a BSc thesis. A MSc final project is equivalent to a MSc thesis. Group projects are 3-month projects with a development focus. ISO and Topics projects are literature surveys. MRes projects are 4-month research projects that award the same number of credits of a course.

2010–18	22 UG final projects, 1 MRes project, 24 MSc final projects, 9 UG group projects, 1 MSc group project, 3 ISO projects, 1 Topics project.
2003–06	15 final projects for UG and MSc students at Politecnico di Milano, Italy.

## SUPERVISION AND MENTORING

### RA SUPERVISION

*Postdoctoral researchers* (5): Chen Li (2016-2018), Pooyan Jamshidi (2015-16), Rasha Osman (2015), Daniel J. Dubois (2014-16), Juan F. Pérez (2013-15).

*Pre-doc RA supervisor* (3): Vitor S. Lopez (2016), Shuai Jiang (2015), Tatiana Ustinova (2015-17).

### PHD STUDENT SUPERVISION

*PhD supervisor* (6): Alim Gias (2017-), Ahmad Alnafessah (2017-), Lulai Zhu (2017-), Salvatore Dipietro (2015-), Karsten Molka (2013-17), Weikun Wang (2013-16).

*Industrial PhD mentor* (2): Stephan Kraft (2009-11), Sergio Pacheco-Sanchez (2009-11).

## UNIVERSITY SERVICE

### PHD EXAMINER

*Internal examiner* (6): Imperial College London (2018, 2×2017, 2014, 2013, 2012).

*External examiner* (9): University of Calgary (2017), Umeå University (2017, 2016), Delft University (2017), Carleton University (2016), Newcastle University (2015), University of Turin (2013), Politecnico di Milano (2012), DTU Copenhagen (2010).

### ADMINISTRATION

All the activities below have been carried out at Imperial College London.

- 2018-        PhD admissions tutor, Department of Computing.
- 2017-18    PhD admissions tutor, HiPEDS Centre for Doctoral Training.
- 2016-18    PhD scholarship committee, HiPEDS Centre for Doctoral Training.
- 2015-        PhD scholarship committee, Department of Computing.
- 2017        Panel co-chair, Google European PhD fellowships departmental shortlisting panel.
- 2016-18    Deputy PhD admissions tutor, Department of Computing.
- 2015        Departmental EPSRC doctoral prize committee.
- 2013-16    Internal lunch seminars coordinator.
- 2012        Panel member, PhD Careers Event.
- 2012        Judge for Google PhD Poster Competition.