EVGENIA SMIRNI

William & Mary
Department of Computer Science
P.O. Box 8795
Williamsburg, VA 23187-8795
http://www.cs.wm.edu/~esmirni

Home: (757) 220-8047
Office: (757) 221-3580
Fax: (757) 221-1717

esmirni@cs.wm.edu

RESEARCH INTERESTS

Performance evaluation, Reliability, High-Performance Computing, Models for Computer Performance Prediction, Queueing Networks, Markov Chains, Matrix-Analytic Methods, Cloud Computing, Data Centers, Workload Characterization and Analysis, Storage Systems, Performance Tools.

EDUCATION

Ph.D. in C.S.
May 1995
Computer Science Department, Vanderbilt University, Nashville, TN.
Dissertation Title: "Processor Allocation and Thread Placement Policies in Parallel Multiprocessor Systems". *Advisor:* L.W. Dowdy

M.S. in C.S.
December 1993
Computer Science Department, Vanderbilt University, Nashville, TN.

Diploma in C.E.
January 1988
Department of Computer Engineering and Informatics, *(5-year curriculum)*, Polytechnic School, University of Patras, Patras, Greece.

ACADEMIC POSITIONS

July 2022 –	*Department Chair*
	Computer Science Department, William and Mary, Williamsburg, VA.
Dec. 2019 – Mar. 2020	*Visiting Professor*
	Monash University, Melbourne, Australia.
Aug. 2014 –	*Sidney P. Chockley Professor of Computer Science*
	Computer Science Department, William and Mary, Williamsburg, VA.
Aug. 2010 – 2011	*Visiting Researcher*
	IBM Research, Zurich Research Lab, Zurich, Switzerland.
Aug. 2008 –	*Professor*
	Computer Science Department, William and Mary, Williamsburg, VA.
Aug. 2005 – 2008	*Wilson and Martha Claiborne Stephens Associate Professor*
	Computer Science Department, William and Mary, Williamsburg, VA.
Aug. 2002 – 2005	*Associate Professor*
	Computer Science Department, William and Mary, Williamsburg, VA.
Fall 2003	*Visiting Faculty*
	Seagate Research, Pittsburgh, PA.
1997 – 2002	*Assistant Professor*
	Computer Science Department, William and Mary, Williamsburg, VA.
1995 – 1997	*Postdoctoral Research Associate*
	Computer Science Department, University of Illinois at Urbana-Champaign, IL.

HONORS/AWARDS

2023	**AAIA Fellow**
2020	Elected Member to the IFIP W.G. 10.4 on Dependable Computing and Fault-Tolerance
2020	**IEEE Fellow**, class of 2020.
2015	IEEE CLOUD 2015, **Best Paper Award**
2015	*23rd of the IEEE International Conference on Network Protocols (ICNP 2015)*, **Best Paper Finalist**
2014	Sidney P. Chockley Professor of Computer Science.
2013	**ACM Distinguished Scientist**.
2012	Plumeri Award for Faculty Excellence, William and Mary
2012	One of Selected Best Papers, *High Performance Distributed Computing 2012*
2010	Elected Member to the IFIP W.G. 7.3 on Computer System Modeling
2010	International Teletraffic Congress 2010 (ITC22), **Best Student Paper Award**
2008	Middleware'08 **Best Paper Award**
2008	QEST'08 **Best Student Paper Award**
2007	One of Selected Best Papers, *International Conference on Autonomic Computing 2007*.
2006	ΦBK Award for the Advancement of Scholarship
2005 – 2008	Wilson and Martha Claiborne Stephens Term Distinguished Associate Professor.
2002	One of Selected Best Papers, *Internet Performance Symposium*, GLOBECOM 2002.
1997	One of Selected Best Papers, 9th *International Conference on Modeling Techniques and Tools for Computer Performance Evaluation*, 1997.

KEYNOTE ADDRESSES

2023	53rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2023 Porto, Portugal Title: "Queuing Theory for Performance and Reliability in the Era of ChatGPT: Simplifying Inherent Complexity"
2022	5th Workshop on Hot Topics in Cloud Computing Performance (HotCloudPerf 2022) Part of ICPE 2022 Title: "Serverless Machine Learning Serving for Scalable Workflows".
2021	1st International Workshop on Serverless Machine Learning for Intelligent and Scalable AI Workflow, Part of IEEE BigData 2021 Title: "Machine learning inference serving on serverless platforms with adaptive batching".
2020	17th International Conference on Quantitative Evaluation of SysTems (QEST 2020), part of QONFEST 2020 (CONCUR-FMICS-FORMATS-QEST) Title: "Machine Learning for Reliability Analysis of Large Scale Distributed Systems".
2019	10th ACM/SPEC International Conference on Performance Engineering (ICPE 2019), IIT-Bombay, Mumbai, India. Title: "Practical Reliability Analysis of GPGPUs in the Wild: from Systems to Applications"
2017	PABS 2017 (ICPE 2017 Workshop), L'Aquila, Italy. Title: "Powering the Service Responsiveness of Deep Neural Networks: How Queueing Models can Help".

RESEARCH FUNDING

2024	CoVA CCI: (HC-3Q24-047): Securing the Machine Learning Components of Autonomous Systems: Risk Assessment and Mitigation, $100,000, PI January 15 2024 – January 31, 2025
2023	Cisco Systems: From Vulnerability Reports to Exploits: Which Ones to Prioritize and Why $75,000, co-PI , w/ Denys Poshyvanyk and C. Shenefiel August 1, 2023 – July 29, 2024
2022	CoVA CCI: Developing Infrastructure for Advancing Research and Teaching in Security and Reliability

	(CCI) $79,670, co-PI (PI: D.Evtyushkin)
	January 1, 2022 – December 31, 2022
2021	CoVA CCI: C-Q122-WM-02: Toward Trustworthiness in Autonomous Vehicles
	(CCI) $150,000, PI
	July 1, 2021 – June 30, 2022
2021	NSF, #IIS-2130681, Div. of Information & Intelligent Systems
	(IIS EAGER) $205,708, PI
	"EAGER: Epidemic Spread Modeling Using Hard Data",
	Oct. 1, 2021 – Sept. 30, 2023
2018	NSF, #IIS-1838022, Div. of Information & Intelligent Systems
	(IIS BIGDATA) $357,987, PI
	"BIGDATA: IA: Collaborative Research: Protecting Yourself from Wildfire Smoke:
	Big Data-Driven Adaptive Air Quality Prediction Methodologies",
	Jan. 1, 2019 to Dec. 31, 2021.
2017	NSF, #CCF-1717532, Computing and Communication Foundations – Software and Hardware Foundations.
	(CORE) $449,999, co-PI
	"SHF: Small: Enabling and Analyzing Accuracy-aware Reliable GPU Computing",
	Aug. 1, 2017 to July 31, 2020.
2016	NSF, #CCF-1649087, Computing and Communication Foundations – Software and Hardware Foundations.
	(CCF EAGER) $299,994, PI
	"EAGER: Using Machine Learning to Increase the Operational Efficiency of Large, Distributed Systems"
	Sept. 1, 2016 to August 31, 2018.
2015	AWS (Amazon Web Services) in Education grant, $6,000, PI
2012	NSF, #CCF-1218758, Computing and Communication Foundations – Software and Hardware Foundations.
	(CCF CORE) $490,816, PI
	"SHF-Small: Robust Methodologies for Effective Data Center Management",
	June 1, 2012 to February 28, 2017.
2009	NSF, #CCF-0937925, Computing and Communication Foundations,
	(HECURA) $700,000, co-PI
	"Interleaving Workloads with Performance Guarantees on Storage Clusters",
	Sept. 1, 2009 to August 31, 2014.
2008	NSF, #CCF-0811417, Computing and Communication Foundations – Computing Processes and Artifacts,
	(CPA-ACR-CPA) $300,000, PI
	"Effective Resource Allocation under Temporal Dependence",
	August 1, 2008 to July 31, 2011.
2007	NSF, #0720699, Computing Systems Research – Systems Modeling and Analysis Program,
	(CSR-SMA) $200,000, PI
	"Autocorrelated Flows in Systems: Analytic Models and Applications"
	September 1, 2007 to August 31, 2010.
2007	HP Labs Gift,
	$30,0000, PI
	"A Practical Capacity Planning Framework for Multi-Tier Enterprise Services with Real Workloads"
2004	NSF, #0428330, Information Technology Research
	(ITR), $413,941, PI
	"Reconfigurable, Data-driven Resource Allocation in Complex Systems: Practice
	and Theoretical Foundations"
	September 15, 2004 to August 31, 2008.
2001	NSF, #0090221, Advanced Computational Research Program,
	$185,449, PI
	"Collaborative Research: Adaptive Data Parallel Storage"
	October 1, 2001 to September 30, 2005.

2001   NSF, #0098278, Operating Systems and Compilers Program,
          $279,997), PI
          "Effective Techniques and Tools for Resource Management in Clustered Web Servers "
          July 15, 2001 to June 30, 2005.
1999   NSF, #9974992, Next Generation Software Program,
          (NGS), $350,000, PI
          "Coordinated Allocation of Processor and and I/O Resources in Parallel Systems"
          September 1, 1999 to February 29, 2004.
1999   NSF, #9977030, Major Research Instrumentation Grant,
          (MRI), $461,820, co-PI
          "MRI: Acquisition of High Performance Clusters for Effective Parallel Computing
          in Computational Science Research and Education"
          August 15, 1999 to July 31, 2002 (multi-faculty grant).
1999   Summer Research Grant, ($5,000), William and Mary.
1998   Summer Research Grant, ($5,000), William and Mary.

Students/Personnel/Job Placement

Postdoctoral Associates   **Xenia Mountrouidou** (January 2010 – August 2011).
                             First Placement: Assistant Professor of Computer Science, Jacksonville University.
                             Giuliano Casale (January 2007 – December 2008).
                             First placement SAP Research.
                             Current placement: Reader, Imperial College London.
                             Riccardo Pinciroli (March 2019 – September 2020).
                             Current placement: Gran Sasso Institute, L'Aquila, Italy

Ph.D.   **Alma Riska** (graduated, November 2002).
                             Graduate Park Award.
                             First placement: Research Scientist at Seagate Research, Pittsburgh, PA.
                             Currently: Research Scientist at Facebook.
                             Barry Lawson (graduated, August 2002, co-advised with S. Park).
                             First placement: Assistant Professor at University of Richmond.
                             Currently: Colony Family Professor of Digital and Computational Studies, Bates College.
                             Qi Zhang (graduated, December 2006).
                             First and current placement: Microsoft Research Engineer , Redmond, WA.
                             Ningfang Mi (graduated, August 2009).
                             Graduate Park Award. NSF CAREER Award. AFOSR Young Investigator Award.
                             First placement: Assistant Professor, Northeastern University, Boston MA.
                             Currently: Associate Prof. of Electrical and Computer Engineering at Northeastern University.
                             Lei Lu (graduated December 2013).
                             First Placement: Research Engineer at VMWare, Palo Alto, CA.
                             Feng Yan (graduated May 2016)
                             NSF CAREER Award.
                             First Placement: Assistant Professor, University of Nevada at Reno, Reno, NV.
                             Ji Xue (graduated May 2017)
                             First Placement: Software Engineer, Google, New York, NY.
                             Bin Nie (graduated May 2019)
                             First Placement: Software Engineer, Google Search Engine, Mountain View, CA.
                             Graduate Park Award. Runner-Up for the 2019 Standard Performance Evaluation Corporation (SPEC)
                             Kaivalya Dixit Distinguished Dissertation Award (international award)
                             Quote:*"Nie's thesis is a perfect example of bridging the gap between theory and practice*

and generated a high number of high quality publications and patent submissions."
Lishan Yang (graduated May 2022)
First Placement: George Mason University,
Graduate Park Award. **Winner** of the 2022 Standard Performance Evaluation Corporation (SPEC)
Kaivalya Dixit Distinguished Dissertation Award (international award)
Quote:*"The selection committee was impressed by the high quality of scientific work conducted by Dr. Yang, and particularly by her ability to bridge multiple academic disciplines (spanning software engineering, performance, and computer systems)."*
Anna Schmedding (in progress)
Bowen Sun (in progress)
Yiyang Lu (in progress)

M.S.	Melissa Rau, (graduated, May 1999).
	Richard Tran Mills, (Co-advised with A. Stathopoulos).
	Vesselin Diev, (graduated, August 2002).
	Daniela Puiu, (graduated, August 2002).
	Wei Sun, (Co-advised with G. Ciardo).
	Ling Liu, (graduated, May 2004).
	Zhili Hua, (graduated, August 2005).
	Andrew Caniff (graduated, May 2010).
	Shannon Hughes (graduated, May 2013).
	Andy Kowalski (graduated, January 2014).
	Kari Heffner (graduated, May 2014).
	Jiawei Wen (graduated, August 2016).
	Lihua Ren (graduated, December 2016).
	Jacob Alter (graduated, May 2019).
Undergr. Student Research	Philip Schowitz, graduated with Honors, May 2023.
	Eric W. Davis, Spring 2002.
	Andrew Otto, Fall 2004
Ph.D. Committee Member external examiner	Giuliano Casale, Politechnico di Milano, Italy (completed, spring 2006)
	Tao Zheng, Carleton University, Canada (completed, summer 2007)
	Marco Bessi, Politecnico di Milano, Italy (completed, spring 2014)
	Andrea Sansottera, Politecnico di Milano, Italy (completed, spring 2014)
	Monica Vitali, Politecnico di Milano, Italy (completed, spring 2014)
	Fernando Fernandes dos Santos, Federal University of Rio Grande do Sul, Brazil (completed, fall 2021)

SERVICE TO THE PROFESSION

<u>Board of Directors</u>

2011 – 2015   *ACM SIGMETRICS, elected member, Spring 2011*

<u>Editorial Board</u>

2023 –	Associate Editor, IEEE Transactions of Parallel and Distributed Systems
2023 –	Associate Editor, IEEE Transactions on Computers
2019 – 2022	Associate Editor, IEEE Transactions of Dependable and Secure Computing
2018 –	Senior Associate Editor, ACM Transactions on Modeling and Performance Evaluation of

Computing Systems (ACM ToMPECS).

2018   Special Issue Editor (with Anne Koziolek) , ACM ToMPECS 3(2), 2018
              Selected Papers from the 8th ACM/SPEC International Conference on Performance
              Engineering (ICPE 2017).

2014 – 2017 Associate Editor, ACM Transactions on Modeling and Performance Evaluation of
              Computing Systems (ACM ToMPECS).

2003 – 2009 Editor, ACM *SIGMETRICS* Performance Evaluation Review (PER).

General Chair

2023   *ACM SIGMETRICS 2023*
              June 19-23 2023, Orlando, FL (part of ACM FCRC 2023).

2010   *5th International Conference on Quantitative Evaluation of SysTems* (QEST'10)
              September 2010, Williamsburg, VA.

2010   *Numerical Solution of Markov Chains 2010* (NSMC'10)
              September 2010, Williamsburg, VA.

Program Committee co-Chair

2021   *41st IEEE International Conference on Distributed Computing Systems, ICDCS 2021*
              Program Vice-chair: Cloud Computing and Data Centers
              July 2021, Washington, DC (tentative).

2019   *28th International Symposium on High-Performance Parallel and Distributed Computing, HPDC 2019*
              June 2019, Ploenix, AR, part of ACM FCRC 2019 (ACM Federated Computer Research Conference)

2019   *38th IEEE International Symposium on Reliable Distributed Systems, SRDS 2019*
              October 2019, Lyon, France.

2017   *47th IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2017*
              June 2017, Denver, CO.

2017   *8th ACM/SPEC International Conference on Performance Engineering, ICPE 2017*
              April 2017, L'Aquilla, Italy.

2010   *ACM HotMetrics 2010* Workshop
              June 2010, New York, NY.

2006   *Joint ACM SIGMETRICS/IFIP W.G. 7.3 Performance 2006* Conference
              June 2006, Saint-Malo, France.

2005   *Second International Conference on Quantitative Evaluation of Systems*
              QEST 2005, (former TOOLS, PNPM, and PAPM-ProbMIV)
              September 2005, Torino, Italy.

Award Committees (outside William and Mary)

2022   Rising Star Award Committee, DSN 2022.
2021   2021 Kaivalya Dixit Distinguished Dissertation Award.
2021   2021 William C. Carter Ph.D. Dissertation Award on Dependability.
2021   Jean-Claude Laprie Award on Dependable Computing.
2020   Most Influential Paper award Committee for SEAMS 2006/2007.
2020   Most influential paper presented at the WOSP/SIPEW 2010 conference.
2020   Test of Time Award Committee, SIGMETRICS 2020.
2020   Rising Star Award Committee, DSN 2020.
2018   2018 Kaivalya Dixit Distinguished Dissertation Award, **Selection Committee Chair**
              Sponsored by the SPEC (Standard Performance Evaluation Corporation) Research Group.
2013   Test of Time Award Committee, SIGMETRICS 2013.

Expert Panels

2019	"Student Mentoring Panel", *Panelist*
	2019 Sigmetrics Conference, part of FCRC 2019, Phenix, AZ, June 2019.
2014	"The convergence of Big Data, Cloud, and Mobile: What would happen in 5 years?, *Panelist*
	2014 IEEE International Workshop on Cloud Analytics, Boston, MA, March 2014.
2008	"Solving your Two-Body Problem: Family and Career", *Panelist*
	2008 Grace Hopper Celebration of Women in Computing, Tuscon, AZ, September 2008.
2007	"Future Directions in Performance Evaluation Research", *Panel Organizer and Panelist*
	SIGMETRICS 2007, Panelists: F. Darema, A. Greenberg, A. Hoisie, D. Towsley.
2001	"Systems Software for Complex Computing Environments", *Panelist*
	NSF organized in conjunction with ICS 2001, Sorrento, Italy, June 2001.
1996	"MPI-2 I/O: What should an MPI parallel I/O library include?", *Panelist*
	MPI Developers Conference, Notre Dame, IN, July 1996.

Steering Committee Member

2019–	ACM International Symposium on High-Performance Parallel and Distributed Computing, HPDC
2018–2021	IEEE Dependable Systems and Networks (DSN).
2010	QEST Conference (two year term as QEST'10 general co-chair), (www.qest.org).
2005	QEST Conference (three year term), elected September 2005, (www.qest.org).

Program Committee Member

2024	Sigmetrics/Performance 2024, ICPE 2024, SAFECOMP, AppLied 2024, DSN-Disrupt 2024
2023	DSN 2023, ICPE 2023, WEPPE 2023, ValueTools 2023, MAMA 2023, AppLied 2023
2022	Sigmetrics 2022, DSN 2022, SEAMS 2022, ICPE 2022, MAMA 2022, UCC 2022
2021	ICPE 2021, Performance 2021, MAMA 2021, Sigmetrics 2021, UCC 2021, SEAMS 2021, DSN 2021
2020	ICPE 2020, Sigmetrics 2020, ValueTools 2020, ICDCS 2020, HPDC 2020, SEAMS 2020, Performance 2020, UCC 2020, MAMA 2020
2019	Sigmetrics 2019, DSN 2019, ICPE 2019, ValueTools 2019, ICDCS 2019, UCC 2019
2018	SIGMETRICS 2018, HPDC 2018, ICPE 2018, ICDCS 2018, CLOUD 2018, UCC 2018, E2DC'18, DIDL'18
2017	HPDC 2017, ICDCS 2017, ICAC 2017, CLOUD 2017, DIDL 2017, MWDS'17
2016	Supercomputing 2016, DSN 2016, ICPE 2016, IC2E 2016, QEST 2016, MAMA 2016
2015	DSN 2015, SIGMETRICS 2015, QEST 2015, ICSC 2015, Performance 2015, ICDCS 2015, MAMA 2015
2014	DSN 2014, SIGMETRICS 2014, QEST 2014, IWCA14, ICAC 2014, MOBIHOC 2014, Performance 2014, Inf-Q 2014, MAMA 2014
2013	SIGMETRICS 2013, DSN-PDS 2013, CC-Grid 2013, ICAC 2013, Performance 2013, Inf-Q 2013 MAMA 2013, Matrix Analytic Methods 2013
2012	Joint SIGMETRICS/Performance 2012, QEST 2012, ITC24, Inf-Q 2012, MAMA 2012
2011	ITC23, QEST'11, LSAP 2011, Performance 2011, Inf-Q 2011, MAM 2011, MAMA 2011
2010	DSN 2010, SIGMETRICS 2010, ICDCS 2010, Performance 2010, LSAP 2010, ITC22
2009	SIGMETRICS/Performance 2009, DSN 2009, ICPP 2009, ICPP-LBS'09, Middleware'09 Doctoral Symposium, QTNS'04
2008	41st Annual Simulation Symposium, SIGMETRICS 2008, QEST 2008, MAMA 2008, HotMetrics 2008
2007	SMCtools'07, Performance 2007, 40th Annual Simulation Symposium, SIGMETRICS 2007, QEST 2007, MAMA 2007
2006	SMCTools'06, MAMA 2006, QEST 2006, Markov Anniversary Meeting, 3rd European Performance Engineering Workshop, 39th Annual Simulation Symposium
2005	Performance 2005, SIGMETRICS'05, Fifth International Conference on Matrix Analytic Methods in Stochastic Models (MAM5), IPDPS International Workshop

on Parallel and Distributed Real-Time Systems (WPDRTS), 38th Annual Simulation Symposium

2004	QEST 2004, Joint *SIGMETRICS'04* and Performance'04, 37th Annual Simulation Symposium
2003	TOOLS 2003, 4th Meeting on the *Numerical Solution of Markov Chains*, SIGMETRICS'03, *Workshop on Parallel I/O in Cluster Computing and Computational Grids* , 36th Annual Simulation Symposium
2002	Performance 2002
	Joint *SIGMETRICS'01* and Performance'01 Conference, 10th *Siam Conference on Parallel2001* ,
2000	*IPDS'00, International Computer Performance and Dependability Symposium*
1999	SIGMETRICS 1999
1997	ICDCS'97

Minisymposium Organizer

2007 "Numerical Solutions of Markov Chains: Techniques and Applications"
co-organizer with A. Stathopoulos,
ICIAM'07, Zurich, Switzerland, July 2007

Proceedings Chair

2013 *ICPE 2013*, Prague, Czech Republic, April 2013
2003 *SIGMETRICS'03*, June 2003, San Diego, CA.

Workshops and Tools Chair

2021 *Performance 2021*, *39th International Symposium on Computer Performance, Modeling, Measurements and Evaluation 2021*, October 2021, Milano, Italy.
1999 *ICATPN'99*, 20th *International Conference on Application and Theory of Petri Nets*, June 1999, Williamsburg, VA.

PATENTS

P1. A. Riska, N. Mi, E. Riedel, E. Smirni, "Data Storage Device with Histogram of Idle Time and Scheduling of Background and Foreground Jobs", US patent 7,904,673, granted on March 11, 2011.

RESEARCH PUBLICATIONS

J. Articles in Refereed Journals

1. A. Schmedding, R. Pinciroli, L. Yang, and E. Smirni, "Epidemic Spread Modeling for COVID-19 Using Cross-Fertilization of Mobility Data", in*IEEE Trans. Big Data* 9(5): 1260-1275 (2023), DOI:10.1109/TBDATA.2023.3248650.

2. R. Pinciroli, L. Yang, J. Alter and E. Smirni, "Lifespan and Failures of SSDs and HDDs: Similarities, Differences, and Prediction Models," in *IEEE Transactions on Dependable and Secure Computing*, 20(1): 256-272 (2023), DOI: 10.1109/TDSC.2021.3131571.

3. R. Pinciroli, A. Ali, F. Yan, E. Smirni, "CEDULE+: Resource Management for Burstable Cloud Instances Using Predictive Analytics", in *IEEE Transactions on Network and Service Management*, 18(1): 945-957 (2021) DOI:10.1109/TNSM.2020.3039942

4. L. Yang, B. Nie, A. Jog, E. Smirni, "Practical Resilience Analysis of GPGPU Applications in the Presence of Single- and Multi-bit Faults", in *IEEE Transactions on Computers*, 70(1): 30-44 (2021) DOI:10.1109/TC.2020.2980541

5. F. Yan, Y. He, O. Ruwase, E. Smirni, "Efficient Deep Neural Network Serving: Fast and Furious", in *IEEE Transactions on Network and Service Management (TNSM)*, 15(1): 39-52 (2018).

6. J. Xue, R. Birke, L. Y Chen, E. Smirni, "Spatial-Temporal Prediction Models for Active Ticket Management in Data Centers", in *IEEE Transactions on Network and Service Management (TNSM)*, 15(1): 112-126 (2018).

7. R. Birke, A. Podzimek, L. Y. Chen, and E. Smirni, "Virtualization in the Private Cloud: State of the Practice", *IEEE Transactions on Service Management*, 13(3): 608-621 (2016).

8. J. Xue, F. Yan, A. Riska, E. Smirni, "Scheduling Data analytics Work with Performance Guarantees: Queuing and Machine Learning Models in Synergy ", *Cluster Computing*, 19(2): 849-864 (2016), DOI: 10.1007/s10586-016-0563-z.

9. F. Yan, X. Mountrouidou, A. Riska, E. Smirni, "PREFiguRE: an Analytic Framework for HDD Management", in *ACM Transaction on Modeling and Performance Evaluation of Computing Systems (TOMPECS)*, 1(3): 10:1-10:27 (2016).

10. G. Casale, V. de Nitto Personé, E. Smirni, "QRF: an Optimization-Based Framework for Evaluating Complex Stochastic Networks", *ACM Transactions on Modeling and Computer Simulation*, *ACM Trans. Model. Comput. Simul. (TOMACS)* 26(3): 15 (2016).

11. F. Yan, L. Cherkasova, Z. Zhang, E. Smirni, "DyScale: a MapReduce Job Scheduler for Heterogeneous Multicore Processors", *IEEE Transactions on Cloud Computing*, Vol.5(2), pp. 317-330 (2017).

12. L. Chen, G. Serazzi, D. Ansaloni, E. Smirni, and W. Binder, "What to Expect when You Consolidate: Effective Models of Application Performance Prediction on Multicores", *Cluster Computing*, Volume 17, Issue 1 (2014), pp. 19-37, DOI:10.1007/s10586-013-0273-8
Special issue on the best papers of High Performance Distributed Computing 2012 (HPDC 2012).

13. 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), 2012, pp. 198-212.

14. G.Casale, N.Mi, L.Cherkasova, and E.Smirni, "Dealing with Burstiness in Multi-Tier Applications: Models and Their Parameterization", *IEEE Trans. on Software Engineering*, Vol.38(5), Sept.-Oct. 2012, pp. 1040-1053.

15. N. Mi, G. Casale, L. Cherkasova, E. Smirni, "Sizing multi-tier systems with temporal dependence: benchmarks and analytic models", *Journal of Internet Services and Applications*, Special Issue: Middleware, Vol. 1(2), 2010, pp. 117-134.

16. G. Casale, E. Z. Zhang, E. Smirni, "KPC-Toolbox: Best recipes for automatic trace fitting using Markovian Arrival Processes", *Performance Evaluation*, Vol.67(9), September 2010, pp. 873-896. Special issue on the best papers of QEST 2008.

17. G. Casale, E. Z. Zhang, E. Smirni, "Trace data characterization and fitting for Markov modeling", *Performance Evaluation*, Vol.67(2), February 2010, pp. 61-79.

18. G. Casale, N. Mi, and E. Smirni, "Model-Driven System Capacity Planning Under Workload Burstiness", *IEEE Transactions on Computers*, January 2010, Vol. 59(1) pp. 66-80.

19. L. Cherkasova, K. Ozonat, N. Mi, J. Simmons, and E. Smirni "Automatic Anomaly Detection and Performance Modeling". *ACM Transactions on Computer Systems*, ACM TOCS, 27(3): 6:1-6:32 (2009).

20. N. Mi, A. Riska, Q. Zhang, E. Smirni, and E. Riedel, "Efficient Management of Idleness in Storage Systems", *ACM Transactions in Storage Systems*, ACM TOS 5(2): 4:1-4:25 (2009)

21. Q. Zhang, L. Cherkasova, N. Mi, and E. Smirni, "A Regression-Based Analytic Model for Capacity Planning of Multi-Tier Applications", *Cluster Computing*, special issue on the best papers of ICAC'07, Vol.11(3), Sept. 2008, pp. 197–211.

22. Q. Zhang, N. Mi, A. Riska, E. Smirni, "Performance-Guided Load (Un)Balancing Under Autocorrelated Flows", *IEEE Transactions on Parallel and Distributed Systems*, Vol.19(5), pp. 652-665, May 2008.

23. N. Mi, Q. Zhang, A. Riska, E. Smirni, E. Riedel, "Performance Impacts of Autocorrelated Flows in Multi-tiered Systems", *Performance Evaluation*, Vol. 64(9-12), pp. 1082-1101, October 2007. Presented at the *Performance'07 Conference*.

24. A. Riska, E. Smirni, "ETAQA Solutions for Infinite Markov Processes with Repetitive Structure", *INFORMS Journal of Computing*, Vol. 19 (2), pp. 215-228, Spring 2007.

25. A. Stathopoulos, A. Riska, Z. Hua, E. Smirni, "Bridging ETAQA and Ramaswami's Formula for the Solution of M/G/1-type Processes", *Performance Evaluation*, Vol. 62 (1–4), pp. 331–348, October 2005. Presented at the *Performance'05 Conference*.

26. Q. Zhang, A. Heindl, E. Smirni, "Characterizing the BMAP/MAP/1 Departure Process via the ETAQA Truncation", *Communications in Statistics – Stochastic Models*, Vol. 21 (2–3), pp. 821–846 June 2005.

27. Q. Zhang, A. Riska, W. Sun, E. Smirni, G. Ciardo, "Workload-Aware Load Balancing for Clustered Web Servers", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 16 (3), pp. 219–233, March 2005.

28. G. Ciardo, W. Mao, A. Riska, E. Smirni, "ETAQA-MG1: An Efficient Technique for the Analysis of M/G/1-type Processes by Aggregation". *Performance Evaluation*, Vol. 57 (3), pp. 235–260, July 2004.

29. A. Riska, E. Smirni, G. Ciardo, "Exact Analysis of a Class of GI/G/1-type Performability Models". *IEEE Transactions on Reliability*, Vol.53 (2), pp. 238–249, June 2004.

30. A. Riska, V. Diev, and E. Smirni, "An EM-based technique for approximating long-tailed data sets with PH distributions". *Performance Evaluation*, Vol. 55 (1-2), pp. 147–164, January 2004. Special issue on the best papers at the Internet Performance Symposium at GlobeCom 2002.

31. E. Rosti, G. Serazzi, E. Smirni, M.S. Squillante, "Models of Parallel Applications with Large Computation and I/O Requirements", *IEEE Transactions on Software Engineering*, Vol. 28, No. 3, pp. 286-307, March 2002.

32. G. Ciardo, A. Riska, E. Smirni, "EquiLoad: a load balancing policy for clustered web servers" *Performance Evaluation*, Vol. 46(2-3), pp. 101-124, October 2001. A preliminary version of this paper was presented at the *Symposium on Advanced Performance Methods 2000*, Orlando, FL.

33. G. Ciardo, E. Smirni, "ETAQA: An Efficient Technique for the Analysis of QBD-processes by Aggregation", *Performance Evaluation* 36-37 (1999), pp. 71-93. Presented at the *Performance'99 Conference*.

34. P. Cremonesi, E. Rosti, G. Serazzi, E. Smirni, "Performance Evaluation of Parallel Systems", *Parallel Computing*, Vol. 25, pp. 1677-1698, 1999.

35. E. Smirni and D.A. Reed, "Lessons from Characterizing the Input/Output Behavior of Parallel Scientific Applications", *Performance Evaluation*, 33, 1998, pp. 27-44.
Special issue on the best papers of the 9th *International Conference on Modeling Techniques and Tools for Computer Performance Evaluation.*

36. E. Smirni, E. Rosti, L.W. Dowdy, G. Serazzi, "A Methodology for the Evaluation of Multiprocessor Non-Preemptive Allocation Policies", *Journal of Systems Architecture*, 44/09, pp. 703-721, June 1998.

37. E. Rosti, E. Smirni, G. Serazzi, L.W. Dowdy, K.C. Sevcik, " Processor Saving Scheduling Policies for Multiprocessor Systems", *IEEE Transactions on Computers*, Vol. 47, No. 2, pp. 178-189, February 1998.

38. E. Rosti, E. Smirni, L.W. Dowdy, G. Serazzi, B.M. Carlson, "Robust Partitioning Policies for Multiprocessor Systems", *Performance Evaluation* 19 (1994), pp. 141-165, Special Issue on Parallel Systems.

OJ. Articles in Other Journals

1. B.G. Lawson and E. Smirni, "Multiple-queue Backfilling Scheduling with Priorities and Reservations for Parallel Systems", *Performance Evaluation Review*, Vol. 29 (4), pp. 40-47, March 2002. Also appeared the *Proceedings of the 8th Workshop on Job Scheduling Strategies for Parallel Processing* [C3].

2. L.W. Dowdy, E. Rosti, G. Serazzi, E. Smirni, "Scheduling Issues in High-Performance Computing", *Performance Evaluation Review*, special issue on Parallel Scheduling, pp. 60-69, March 1999.

B. Book Chapters

1. N. Herbst, S. Becker, S. Kounev, H. Koziolek, M. Maggio, A. Milenkoski, Evgenia Smirni, "Metrics and Benchmarks for Self-aware Computing Systems", Self-Aware Computing Systems 2017, *Springer International Publishing*, pp. 437-464.

2. L. Y. Chen, R. Birke, E. Smirni, "State of Practice of Non-self-aware Virtual Machine Management in Cloud Data Centers", Self-Aware Computing Systems 2017, *Springer International Publishing*, pp. 555-574.

3. R. Birke, L. Y. Chen, E. Smirni, "Usage Patterns in Multi-tenant Data Centers: A Large-case Filed Study", S. U. Khan, A. Y. Zomaya (eds), *Handbook on Data Centers*, DOI 10.1007/978-1-4939-2092-1_43, Springer Science+Business Media, New York 2015, pp. 1257-1266.

4. A. Riska and E. Smirni, "M/G/1-type Markov Processes: A Tutorial", in Performance Evaluation of Complex Systems:Techniques and Tools, Performance 2002 Tutorial Lectures, M. Calzarossa and S. Tucci (eds), Springer-Verlag, Lecture Notes in Computer Science (2459), pp. 36-63, Rome, Italy, September 2002.

5. E. Rosti, E. Smirni, T.D. Wagner, A.W. Apon, and L.W. Dowdy, "The KSR1: Experimentation and Modeling of Poststore", *Multiprocessor Performance Measurement and Evaluation*, pp. 292-303, L.N. Bhuyan and X. Zhang (*editors*), ISBN 0-8186-6522-X, November 1994. `Invited Chapter.`
Also appeared in the Proceedings of the *ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, 1993, pp. 74–85 [C65].
An extended version of this paper appeared as ORNL technical report, ORNL/TM-12287 [M1].

6. E. Smirni, R.A. Aydt, A.A. Chien, and D.A. Reed, "I/O Requirements of Scientific Applications: An Evolutionary View", *High Performance Mass Storage and Parallel I/O: Technologies and Applications*, pp. 576-595, Ch. 40, T. Cortes, H. Jin, and R. Buyya, (*editors*), IEEE and Wiley Press, ISBN: 0-471-20809-4, New York, USA, 2001. `Invited Chapter`.
A shorter version of this paper appeared in the Proceedings of the *Fifth IEEE International Symposium on High Performance Distributed Computing*, Syracuse, New York, August 1996, pp. 49-59.

C. Refereed Conference Publications

(Acceptance rates are provided when known.)

1. A. Ali, R. Pinciroli, F. Yan, E. Smirni, "Optimizing Inference Serving on Serverless Platforms", Proc. VLDB Endow. 15(10): 2071-2084 (2022)

2. A. Schmedding, L. Yang, R. Pinciroli, E. Smirni, "GeoSpread: an Epidemic Spread Modeling Tool for COVID-19 Using Mobility Data", GoodIT 2022: 125-131

3. X. Zhou, A. Schmedding, H. Ren, L. Yang, P. Schowitz, E. Smirni, H. Alemzadeh, "Strategic Safety-Critical Attacks against an Advanced Driver Assistance System", DSN 2022, Baltimore, MD, June 2022, pp. 79-87. Acceptance Rate: 18.7%.

4. G. Kadam, E. Smirni, A. Jog, "Data-centric Reliability Management on GPUs.", in Proceedings of the 51th IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2021, (Taipei, Taiwan, online event), June 2021. Acceptance Rate: 16.5%.

5. L. Yang, B. Nie, A. Jog, and E. Smirni, "SUGAR: Speeding-up GPGPU Application Resilience Estimation with Input Sizing", Proceedings ofthe ACM on Measurement and Analysis of Computing Systems, 5(1) (2021): 129. (SIGMETRICS 2021, Fall Deadline, Acceptance Rate: 12%), DOI:doi.org/10.1145/3447375

6. L. Yang, B. Nie, A. Jog, and E. Smirni, "Enabling Software Resilience in GPGPU Applications via Partial Thread Protection", in ICSE 2021: 1248-1259, Acceptance Rate: 23%.

7. A. Ali, R. Pinciroli, F. Yang, E. Smirni: "BATCH: Machine Learning Inference Serving on Serverless Platforms with Adaptive Batching", in Proceedings of Supercomputing 2020, Atlanta, GA, November 2020, SC 2020: 69:1-69:15, Acceptance Rate: 25%.

8. B. Nie, J. Xu, J. Alter, H. Chen, E. Smirni: "Mining Multivariate Discrete Event Sequences for Knowledge Discovery and Anomaly Detection", in Proceedings of the 50th IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2020: 552-563, Valencia, Spain, June 2020. Acceptance Rate: 16.5%.

9. B. Nie, A. Jog, E. Smirni: "Characterizing Accuracy-Aware Resilience of GPGPU Applications", in Proceedings of the 20th IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing, CCGrid 2020:111-120. Melbourne, Australia, May 2020. Acceptance Rate: 28%.

10. A. Ali, R. Pinciroli, F. Yan, E. Smirni: "It's not a Sprint, it's a Marathon: Stretching Multi-resource Burstable Performance in Public Clouds." Middleware 2019: 36-42

11. J. Alter, J. Xu, A. Riska, E. Smirni, "SSD Failures in the Field: Symptoms, Causes, and Prediction Models", in Proceedings of Supercomputing 2019, Denver, CO, November 2019, pp.75:1-75:14. Acceptance Rate: 20%.

12. B. Nie, L. Yang, A. Jog, E. Smirni, "Error Site Pruning for Practical Reliability Analysis of GPGPU Applications", in Proceedings of the 51st Annual IEEE/ACM International Symposium on Microarchitecture, MICRO 2018, Fukuoka City, Japan, October 2018, pp. 749-761. Acceptance Rate: 21%.

13. A. Ali, R. Pinciroli, F. Yan, E.Smirni, "CEDULE: A Scheduling Framework for Burstable Performance in Cloud Computing", in Proceedings of the 15th IEEE International Conference on Autonomic Computing (ICAC 2018), Trento, Italy, September 2018, pp. 141-150.

14. B. Nie, J. Xue, S. Gupta, T. Patel, C. Engelmann, E. Smirni, D. Tiwari, "Machine Learning Models for GPU Error Prediction in a Large Scale HPC System", in Proceedings of the 48th International Conference on Dependable Systems and Networks (DSN), Luxembourg City, Luxembourg, June 2018, pp. 96-106. Acceptance rate: 25%.

15. L. Yang, L. Cherkasova, R. Badgujar, J. Blancaflor, R. Konde, J. Mills, E. Smirni: "Evaluating Scalability and Performance of a Security Management Solution in Large Virtualized Environments", in Proceedings of the 2018 ACM/SPEC International Conference on Performance Engineering, ICPE 2018, Berlin, Germany, April 09-13, 2018, ICPE 2018, pp. 168-175.

16. J. Xue, B. Nie, E. Smirni, "Fill-in the Gaps: Spatial-Temporal Models for Missing Data", in Proceedings of the 13th International Conference on Network and Service Management (CNSM 2017), Tokyo, Japan, November, 2017, pp. 1-9. Acceptance Rate: 17%.

17. F. Yan, L. Ren, D. J. Dubois, G. Casale, J. Wen, E. Smirni, "How to Supercharge the Amazon T2: Observations and Suggestions", in Proceedings of the *IEEE CLOUD 2017*, Honolulu, HI, USA , June 2017, pp. 278-285. Acceptance Rate: 18%.

18. B. Nie, J. Xue, S. Gupta, C. Engelmann, E. Smirni, D. Tiwari, "Characterizing Temperature, Power, and Soft-Error Behaviors in Data Center Systems: Insights, Challenges, and Opportunities", in Proceedings of the *2017 IEEE 25th International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, Banff, Canada, September 2017, pp: 22-31. Acceptance Rate: 30%.

19. F. Yan, Y. He, O. Ruwase, E. Smirni, "SERF: Efficient Scheduling for Fast Deep Neural Network Serving via Judicious Parallelism", in Proceedings of the *International Conference for High Performance Computing, Networking, Storage and Analysis (SC 2016)*, Salt Lake City, USA, Nov, 2016, pp. 26. Acceptance rate: 18.4%.

20. J. Xue, R. Birke, L. Y. Chen, E. Smirni, "Tale of Tails: Anomaly Avoidance in Data Centers", in Proceedings of the *35th IEEE Symposium on Reliable Distributed Systems (SRDS)*, Budapest, Hungary, September 2016, pp. 91-100.

21. J. Xue, R. Birke, L. Chen, E. Smirni, "Managing Data Center Tickets: Prediction and Active Sizing", in Proceedings the *46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, Toulouse, France, June 2016, pp. 335-346. Acceptance Rate 22%.

22. F. Yan and E. Smirni, "Workload Interleaving with Performance Guarantees in Data Centers", in Proceedings of the *IEEE/IFIP Network Operations and Management Symposium (NOMS 2016)*, Istanbul, Turkey, April 2016, pp. 967-972.

23. B. Nie, D. Tiwari, S. Gupta, E. Smirni, J. H. Rogers, "A Large-Scale Study of Soft-Errors on GPUs in the Field", in Proceedings of the *22nd IEEE Symposium on High Performance Computer Architecture (HPCA 2016)*, Barcelona, Spain, March 2016, pp. 519-530. Acceptance Rate 22%.

24. S. Hao, H. Wang, A. Stavrou, E. Smirni, "On the DNS Deployment of Modern Web Services", in Proceedings of the *23rd of the IEEE International Conference on Network Protocols (ICNP 2015)*, San Francisco, CA, November 2015, pp. 100-110 **Best Paper Finalist**. Acceptance Rate 20.3%.

25. J. Xue, F. Yan, R. Birke, L. Y. Chen, T. Scherer, E. Smirni, "PRACTISE: Robust Prediction of Data Center Time Series," in Proceedings of the *11th International Conference on Network and Service*

Management (CNSM 15), 126-134, Barcelona, Spain, November, 2015, pp. 126-134. Acceptance Rate 17.6%.

26. J. Xue, F. Yan, A. Riska, E. Smirni, "Proactive Management of Systems via Hybrid Analytic Techniques", in Proceedings of the *2015 IEEE International Conference on Cloud and Autonomic Computing (ICCAC 2015)*, pp. 137-148, IEEE Press, Cambridge, MA, September, 2015. (Acceptance Rate: 33%).

27. J. Wen, L. Lu, G. Casale, E. Smirni, "Less can be More: micro-Managing VMs in Amazon EC2", in Proceedings of the *8th IEEE International Conference on Cloud Computing (IEEE CLOUD 2015)*, New York, NY, USA, June, 2015, pp. 317-324. Acceptance rate: 17%. **Best Paper Award**.

28. J. Xue, F. Yan, A. Riska, E. Smirni, "Storage Workload Isolation via Tier Warming: How Models Can Help", *11th International Conference on Autonomic Computing, ICAC '14,* pp.1–11, Philadelphia, PA, USA, June 18-20, 2014, Acceptance Rate: 22.6%.

29. F. Yan, L. Cherkasova, Z. Zhang, and E. Smirni, "Optimizing Power and Performance Trade-offs of MapReduce Job Processing with Heterogeneous Multi-Core Processors", in Proceedings of the *7th IEEE International Conference on Cloud Computing (IEEE CLOUD 2014)*, pp. 240–247, Alaska, USA, June, 2014, Acceptance rate: 20%.

30. F. Yan, S. Hughes, A. Riska, and E. Smirni, "Agile Middleware for Scheduling: Meeting Competing Performance Requirements of Diverse Tasks", in *Proceedings of the 5th ACM/SPEC International Conference in Performance Engineering (ICPE 2014)*, Dublin, Ireland, March, 2014, pp. 185-196. Acceptance rate: 30%.

31. R. Birke, M. Bjoerkqvist, L. Y. Chen, E. Smirni, T. Engbersen, "(Big)Data in a Virtualized World: Volume, Velocity, and Variety in Cloud Datacenters", *12th USENIX Conference on File and Storage Technologies (FAST '14)*, pp. 177–189, February 2014, Santa Clara, CA. Acceptance rate: 18%.

32. L. Lu, X. Zhu, R. Griffith, P. Padala, A. Parosh, P. Shah, and E. Smirni, "Application-Driven Dynamic Vertical Scaling of Virtual Machines in Resource Pools", in *the IEEE/IFIP Network Operations and Management Symposium, NOMS 2014*, pp. 1–9, May 2014, Krakow, Poland. Acceptance Rate: 29%

33. R. Birke, L. Y. Chen, and E. Smirni, "Multi-Resource (In)dependency in Production Datacenters", in *the IEEE/IFIP Network Operations and Management Symposium, NOMS 2014*, pp. 1–6, May 2014, Krakow, Poland.

34. L. Lu and E. Smirni, "Effective Resource and Workload Management in Data Centers", in *the IEEE/IFIP Network Operations and Management Symposium, NOMS 2014*, pp. 1–7, May 2014, Krakow, Poland. (Dissertation Paper).

35. F. Yan, S. Hughes, A. Riska, and E. Smirni, "Overcoming Limitations of Off-the-shelf Priority Schedulers in Dynamic Environments", in Proceedings of *IEEE 21st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2013)*, San Fransisco, CA, August 2013, pp. 505-514. Acceptance rate: 27%.

36. L. Lu, H. Zhang, E. Smirni, G. Jiang, and K. Yoshihira, "Predictive VM Consolidation on Multiple Resources: Beyond Load Balancing", in Proceedings of the *2013 the IEEE/ACM IWQoS Symposium (IWQoS 2013)*, Montreal, Canada, June 2013, pp. 83-92. Acceptance rate: 28%.

37. R. Birke, A. Podzimek, L. Chen, and E. Smirni, "State-of-the-Practice in Data Center Virtualization: Towards a Better Understanding of VM Consolidation", in Proceedings of the *43nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2013)*, Budapest, Hungary, June 2013, pp. 1-12. Acceptance rate: 19%.

38. S. Spicuglia, M. Bjoerkqvist, L. Y. Chen, G. Serazzi, W. Binder, and E. Smirni, "On Load Balancing: A Mix-aware Algorithm for Heterogeneous Systems", in Proceedings of the *4th ACM/SPEC International Conference on Performance Engineering (ICPE 2013)*, Prague, Czech Republic, April 2013, pp. 71-76.

39. F. Yan, X. Mountrouidou, A. Riska, E. Smirni, "Quantitative Estimation of the Performance Delay with Propagation Effects in Disk Power Savings", in HotPower 2012 (in conjunction with OSDI 2012), Hollywood, CA, October, 2012. Acceptance rate: 25%.

40. R. Birke, L.Y. Chen, E. Smirni, "Usage Patterns in Multi-Tenant Data Centers: a Temporal Perspective", in *Proceedings of ICAC 2012*, San Jose, CA, September 2012, pp. 161-166. Acceptance Rate: 24%

41. F. Yan, A. Riska, E. Smirni, "Toward Fast Eventual Consistency with Performance Guarantees", in *Proceedings of ICAC 2012*, San Jose, CA, September 2012, pp. 167-171. Acceptance Rate: 24%

42. D. Ansaloni, L. Y. Chen, E. Smirni, W. Binder, "Model-Driven Consolidation of Java Workloads on Multicores", in Proceedings of the *42nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2012)*, Boston, MA, June 2012. Acceptance rate 17%.

43. L. Y. Chen, D. Ansaloni, E. Smirni, A. Yokokawa, W. Binder, "Achieving application-centric performance targets via consolidation on multicores: myth or reality?", in *Proceedings of HPDC 2012*, Delft, the Netherlands, June 2012, pp. 37-48. Acceptance Rate 16%.

44. R. Birke, L. Y. Chen, E. Smirni, "Data Centers in the Cloud: A Large Scale Performance Study", in *Proceedings of IEEE CLOUD 2012, 5th International Conference on Cloud Computing*, Research Track, June 2012, Honolulu, Hawaii, pp. 336-343. Acceptance Rate 18%.

45. F. Yan, A. Riska, E. Smirni, "Fast Eventual Consistency with Performance Guarantees for Distributed Storage", in *Proceedings of DCPerf (Data Center Performance) Workshop, in conjunction with ICDCS 2012*, Macau, China, June 2012, pp. 23-28. `Invited Paper`.

46. F. Yan, A. Riska, E. Smirni, "Busy bee: how to use traffic information for better scheduling of background tasks", in *Proceedings of ICPE 2012*, Boston, MA, April 2012, pp. 145-156. Acceptance Rate 28%.

47. G. Casale, E. Smirni, "KPC-toolbox: fitting Markovian arrival processes and phase-type distributions with MATLAB", SIGMETRICS Performance Evaluation Review 39(4): 47 (2012), appeared in *Matrix Analytic Methods 7*, New York, NY, June 2011.

48. F. Yan, X. Mountrouidou, A. Riska, E. Smirni, "Copy rate synchronization with performance guarantees for work consolidation in storage clusters", SIGMETRICS Performance Evaluation Review 39(3): 82-86 (2011), San Jose, CA, June 2011, appeared in *GreenMetrics 2011*.

49. F. Yan, X. Mountrouidou, A. Riska, and E. Smirni, "Toward Automating Work Consolidation in Storage Clusters with Performance Guarantees", in Proceedings of the 19th *ACM/IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2011)*, Singapore, IEEE Press, July 2011, pp. 326–335. Acceptance rate 26%.

50. X. Mountrouidou, A. Riska, and E. Smirni, "Saving Power without Compromising Disk Drive Reliability", *ERSS: Workshop on Energy Consumption and Reliability of Storage Systems*, part of International Green Computing Conference, Orlando, FL., June 2011, pp. 1–6.

51. L. Lu, H. Zhang, G. Jiang, H. Chen, K. Yoshihira, and E. Smirni, "Untangling Mixed Information to Calibrate Resource Utilization in Virtual Machines" , in *Proceedings of the 8th International Conference on Autonomic Computing (ICAC 2011)*, Karlsruhe, Germany, June 2011, pp. 151 – 160. Acceptance rate 22%.

52. V. De Nitto Persone, G. Casale, and E. Smirni, "Approximate Analysis of Blocking Queueing Networks with Temporal Dependence" , in *Proceedings of the 41st IEEE/IFIP International Conference on Dependable Systems and Networks (DSN'11) (PDS track)*, Hong Kong, June 2011, pp. 574 – 585. Acceptance rate 17%.

53. X. Mountrouidou, A. Riska, E. Smirni, "Adaptive Workload Shaping for Power Savings on Disk Drives" , in *Proceedings of the 2nd ACM/SPEC International Conference in Performance Engineering (WOSP/SIPEW 2011)*, Karlruhe, Germany, March 2011, pp. 109 – 120. Acceptance rate 30%.

54. A. Caniff, L. Lu, N. Mi, L. Cherkasova, and E. Smirni, "Fastrack for Taming Burstiness and Saving Power in Multi-Tiered Systems", in *Proceedings of the 22nd International Teletraffic Congress (ITC22)*, Amsterdam, the Netherlands, September 2010, **Best Student Paper Award**. Acceptance Rate: 30%.

55. L. Lu, L. Cherkasova, V. de Nitto Persone, N. Mi, and E. Smirni, "AWAIT: Efficient Overload Management for Busy Multi-tier Web Services under Bursty Workloads", in *Proceedings of the 10th International Conference on Web Engineering (ICWE 2010)*, Vienna, Austria, July 2010, Lecture Notes in Computer Science 6189 Springer, pp. 81 – 97. Acceptance Rate: 20%.

56. A. Riska and E. Smirni, "Autonomic Exploration of Trade-offs between Power and Performance in Disk Drives", in *Proceedings of the International Conference on Autonomic Computing and Communications (ICAC'10)*, Washington, D.C., June 2010, pp. 131–140. Acceptance Rate: 25%.

57. G. Casale, N. Mi, and E. Smirni, "CWS: a Model-Driven Scheduling Policy for Correlated Workloads", in *Proceedings of ACM SIGMETRICS 2010*, June 2010, pp. 251–262. Acceptance Rate: 16%.

58. N. Mi, G. Casale, A. Riska, Q. Zhang, and E. Smirni, "Autocorrelation-Driven Load Control in Distributed Systems" in *Proceedings of MASCOTS'09*, London, U.K., IEEE Press, September 2009, pp. 269–278. Acceptance Rate: 20%.

59. Q. Zhang, A. Heindl, A. Stathopoulos, and E. Smirni, "Comparison of two output models for the BMAP/MAP/1 departure process", in *Proceedings of QEST'09*, Budapest, Hungary, September 2009, pp. 143–154.

60. N. Mi, A. Riska, X. Li, E. Smirni, and E. Riedel, "Restrained Utilization of Idleness for Transparent Scheduling of Background Tasks", in *Proceedings of the Joint 2009 ACM SIGMETRICS/Performance Conference*, Seattle, WA, June 2009, 205-216. Acceptance Rate: 15%.

61. A. Riska, N. Mi, G. Casale, and E. Smirni, "Feasibility Regions: Exploiting Trade-offs between Power and Performance in Disk Drives", HotMetrics'09, Seattle, WA, June 2009, *ACM Performance Evaluation Review*, Vol. 37 (3), pp. 43–48.

62. N. Mi, G. Casale. L. Cherkasova, and E. Smirni, "Injecting Realistic Burstiness to a Traditional Client-Server Benchmark", in *Proceedings of the International Conference on Autonomic Computing and Communications (ICAC'09)*, Barcelona, Spain, 2009, pp. 149-158. Acceptance Rate: 15%.

63. G. Casale and E. Smirni, "MAP-AMVA: Approximate Mean Value Analysis of Bursty Systems", in *Proceedings of the International Conference on Dependable Systems and Networks (DSN'09)*, Lisbon, Portugal, July 2009. Acceptance Rate: 25%.

64. N. Mi, G. Casale, L. Cherkasova, and E. Smirni, "Burstiness in Multi-Tier Applications: Symptoms, Causes, and New Models", *Middleware 2008*, Leuven, Belgium, December 2008, Lecture Notes in Computer Science, Volume 5346, pp. 265-286, Springer Berlin / Heidelberg, 2008. Acceptance Rate: 17%. **Best Paper Award**.

65. G. Casale, E. Z. Zhang, and E. Smirni, "KPC Toolbox: Simple Fitting Using Markovian Arrival Processes", in *Proceedings of the 5th International Conf. on Quantitative Evaluation of Systems (QEST 2008)*, pp. 83–92, St.Malo, France, IEEE Press, September 2008. **Best Student Paper Award**.

66. G. Casale, N. Mi, L. Cherkasova, and E. Smirni, "How to Parameterize Models with Bursty Workloads", HotMetrics'08, Annapolis, MD, June 2008, *Performance Evaluation Review*, Vol. 36(2), pp. 38–44. Acceptance Rate: 27%.

67. N. Mi, G. Casale, and E. Smirni, "Scheduling for Performance and Availability in Systems with Temporal Dependent Workloads", in *Proceedings of the International Conference on Dependable Systems and Networks (DSN'08)*, Anchorage, AK, 2008, pp. 336-345. Acceptance Rate: 26%.

68. N. Mi, A. Riska, E. Smirni, and Erik Riedel, "Enhancing Data Availability through Background Activities", in *Proceedings of the International Conference on Dependable Systems and Networks (DSN'08)*, Anchorage, AK, 2008, pp. 492-501. Acceptance Rate: 26%.

69. L. Cherkasova, K. Ozonat, N. Mi, J. Symons, and E. Smirni, "Anomaly? Application Change? or Workload Change?", in *Proceedings of the International Conference on Dependable Systems and Networks (DSN'08)*, Anchorage, AK, 2008, pp. 452-461. Acceptance Rate: 26%.

70. G. Casale, N. Mi, and E. Smirni, "Bound Analysis of Closed Queueing Networks with Nonrenewal Service", in *Proceedings of ACM SIGMETRICS'08*, Annapolis, MD, June 2008, pp. 13-24. Acceptance Rate: 18%.

71. N. Mi, L. Cherkasova, K. Ozonat, J. Symons, and E. Smirni, "Analysis of Application Performance and Its Change via Representative Application Signatures", in *Proceedings of the IEEE/IFIP Network Operations and Management Symposium (NOMS'08)*, Salvador–Bahia, Brazil, April 2008. Acceptance Rate: 27%.

72. Q. Zhang, L. Cherkasova, G. Mathews, W. Greene, E. Smirni, "R-Capriccio: A Capacity Planning and Anomaly Detection Tool for Enterprise Services with Live Workloads", *Middleware 2007*, Newport Beach, CA, Lecture Notes in Computer Science, Vol. (4834), Nov. 2007, pp. 244-265. Acceptance Rate: 20%.

73. Q. Zhang, L. Cherkasova, and E. Smirni, "A Regression-Based Analytic Model for Dynamic Resource Provisioning of Multi-Tier Applications", in *Proc. of the 4th IEEE International Conference on Autonomic Computing (ICAC'2007)*, Jacksonville, Florida, USA, June 2007, pp. 27. Acceptance Rate: 14%.

74. N. Mi, Q. Zhang, A. Riska, and E. Smirni, "Load Balancing for Performance Differentiation in Dual-Priority Clustered Servers", in *Proceedings of the third International Conference on Quantitative Analysis of Systems (QEST 2006)*, Riverside, CA, September 2006, pp. 385–394.

75. Q. Zhang, A. Riska, N. Mi, E. Riedel and E. Smirni, "Evaluating the Performability of Systems with Background Jobs", in *Proceedings of the International Conference on Dependable Systems and Networks (DSN'06) – PDS track* , Philadelphia, PA, June 2006, pp. 495–504. Acceptance Rate: 18%.

76. Q. Zhang, N. Mi, A. Riska and E. Smirni, "Load Unbalancing to Improve Performance under Autocorrelated Traffic", in *Proceedings of the 26th International Conference on Distributed Computing Systems (ICDCS2006)*, Lisboa, Portugal, July 2006, pp. 20 (CD-ROM). Acceptance Rate: 13.8%.

77. Q. Zhang, L. Cherkasova, and E. Smirni, "FlexSplit: A Workload-Aware, Adaptive Load Balancing Strategy for Media Clusters", in *Proceedings of Multimedia Computing and Networking 2006 (MMCN'06)*, January 2006 (CD-ROM).

78. B. Lawson and E. Smirni, "Power-aware Resource Allocation in High-end Systems via Online Simulation", in *Proceedings of the 19th ACM International Conference on Supercomputing (ICS'05)*, Cambridge, MA, June 2005, pp. 229–238. Acceptance Rate: 27.6%.

79. B. Lawson and E. Smirni, "Self-Adaptive Scheduler Parameterization via Online Simulation", in *Proceedings of the 19th IEEE International Parallel and Distributed Processing Symposium (IPDPS'05)*, Denver, CO, April 2005. Acceptance Rate: 33.5%.

80. Q. Zhang, A. Riska, E. Riedel, and E. Smirni, "Bottlenecks and their Performance Implications in E-Commerce Systems", in *Proceedings of the 9th International Workshop on Web Content Caching and Distribution (WCW2004)*, Beijing, China, Oct. 2004, C.-H. Chi, M. van Steen, and Craig Wills (eds), Springer-Verlag, Lecture Notes in Computer Science (3293), pp. 273–282.

81. A. Heindl, Q. Zhang, and E. Smirni, "ETAQA truncation models for the MAP/MAP/1 departure process", in *Proceedings of the 1st International Conference on Quantitative Evaluation of Systems (QEST'04) 2004*, Enschede, Netherlands, Sept. 2004, pp. 90-99. Acceptance Rate: 35%.

82. Q. Zhang, E. Smirni, and G. Ciardo, "Profit-driven service differentiation in transient environments", in *Proceedings of the 11th ACM/IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems* (MASCOTS 2003), Orlando, FL, Oct. 2003, pp. 230–233.

83. A. Riska, V. Diev, and E. Smirni, "Efficient fitting of long-tailed data sets into hyperexponential distributions", Internet Performance Symposium, IEEE GlobeCom 2002, November 2002, Taipei, Taiwan. Paper selected as one of the **Best Papers** of the GlobeCom 2002 Internet Performance Symposium.

84. B. Lawson, E. Smirni, and D. Puiu, "Self-adapting Backfilling Scheduling for Parallel Systems", in *Proceedings of the 2002 International Conference on Parallel Processing* (ICPP 2002), Vancouver, B.C. Canada, Aug. 2002, pp. 583-592. Acceptance Rate: 35.6%.

85. B. Lawson, E. Smirni, "Multiple-queue Backfilling Scheduling with Priorities and Reservations for Parallel Systems", in *Proceedings of the 8th Workshop on Job Scheduling Strategies for Parallel Processing*, Edinburgh, Scotland, July 2002, D. G. Feitelson et al. (eds), Springer-Verlag, Lecture Notes in Computer Science (2537), pp. 72-87.

86. A. Riska, W. Sun, E. Smirni, G. Ciardo, "AdaptLoad: effective balancing in clustered web servers under transient load conditions", *22nd International Conference on. Distributed Computing Systems*, (ICDCS 2002), Vienna, Austria, July 2002, pp. 104-111. Acceptance Rate: 18%.

87. A. Riska and E. Smirni, "M/G/1-Aggregate: exact solution of M/G/1-type Markov processes by aggregation", in Proceedings of the *2002 ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, Marina Del Rey, CA, June 2002, pp. 86-98. Acceptance Rate: 13.5%.

88. A. Riska, E. Smirni, "MAMSolver: A matrix-analytic methods tool", *12th International Conference on Modeling Tools and Techniques for Computer and Communication System Performance Evaluation*, (TOOLS 2002), London, U.K., April 2002, T. Field et al.(eds), Springer-Verlag, Lecture Notes in Computer Science (2324), pp. 205-211.

89. R. T. Mills, A. Stathopoulos, E. Smirni, "Algorithmic modifications to the Jacobi-Davidson parallel eigensolver to dynamically balance external CPU and memory load" in Proceedings of the *ACM International Conference on Supercomputing 2001*, Sorrento, Italy, June 2001, pp. 454–463 Acceptance Rate: 34%.

90. A. Riska, E. Smirni, G. Ciardo, "Analytic modeling of load balancing policies for tasks with heavy-tailed distributions", in Proceedings of the *2000 ACM Workshop on Software and Performance, WOSP 2000*, pp. 147-157, Ottawa, Canada, September 2000.

91. G. Ciardo, A. Riska, E. Smirni, "An aggregation-based solution method for M/G/1-type processes" *3rd International Meeting on Numerical Solutions of Markov Chains NSMC'99*, Sept. 1999, Zaragoza, Spain, pp. 21-40.

92. M.A Rau, E. Smirni, "Adaptive CPU Scheduling Policies for Mixed Multimedia and Best-effort Workloads", *MASCOTS'99*, College Park, MD, October 1999, pp. 252-261.

93. E. Rosti, G. Serazzi, E. Smirni, M.S. Squillante, "The impact of Input/Output on Program Behavior and Parallel Scheduling", *ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, June 1998, Madison, WI, pp. 45–56. Acceptance Rate: 18%.

94. E. Smirni, C.L. Elford, A.J. Lavery, and A.A. Chien, "Algorithmic Influences on I/O Access Patterns and Parallel File System Performance", *1997 International Conference on Parallel and Distributed Systems*, December 1997, Seoul, Korea, pp. 794-801.

95. E. Smirni and D.A. Reed, "Workload Characterization of Input/Output Intensive Parallel Applications", *the 9th International Conference on Modeling Techniques and Tools for Computer Performance Evaluation*, St. Malo, France, June 1997, Marie et. al. (Eds.), Springer-Verlag, Lecture Notes in Computer Science (1245), pp. 169-180. Paper selected as one of the **Best Papers** of Tools'97.

96. E. Smirni, R.A. Aydt, A.A. Chien, and D.A. Reed, "I/O Requirements of Scientific Applications: An Evolutionary View", *Fifth IEEE International Symposium on High Performance Distributed Computing*, Syracuse, New York, August 1996, pp. 49-59.
An extended version of this paper appeared as invited chapter in *High Performance Storage and Parallel I/O*, T. Cortes, H. Jin, and R. Buyya (Eds.), IEEE Press, 2001 [B2].

97. J. Brehm, M. Madhukar, E. Smirni, L.W. Dowdy, "PerPreT - A Performance Prediction Tool for Massively Parallel Systems", *Modeling Techniques and Tools for Computer Performance Evaluation*, H. Beilner and F. Bause (eds.), Springer-Verlag, Lecture Notes in Computer Science Vol. 977, pp. 284-298, 1995.

98. E. Smirni, C.A. Childers, E. Rosti, L.W. Dowdy, "Thread Placement on the Intel Paragon: Modeling and Experimentation", *MASCOTS'95*, 1995, pp. 226-231.

99. E. Smirni, E. Rosti, "Modeling Speedup Behavior of SPMD applications on the Intel Paragon", *International Conference on High Performance Computing and Networking*, L. Herzberger and G. Serazzi (eds.), Springer-Verlag, Lecture Notes in Computer Science Vol. 919, pp. 94-101, 1995.

100. E. Rosti, E. Smirni, G. Serazzi, L.W. Dowdy, "Analysis of Non-Work-Conserving Processor Partitioning Policies", in *Job Scheduling Strategies for Parallel Processing*, D. G. Feitelson and L. Rudolph (eds.), Springer-Verlag, Lecture Notes in Computer Science Vol. 949, pp. 165-181, 1995.

101. E. Smirni, E. Rosti, G. Serazzi, L.W. Dowdy, K.C. Sevcik, "Performance Gains from Leaving Idle Processors in Multiprocessor Systems", *1995 International Conference on Parallel Processing*, CRC Press, Vol. III, pp. 203-210, 1995.

102. T.D. Wagner, E. Smirni, A.W. Apon, M. Madhukar, and L.W. Dowdy, "The Effects of Thread Placement on the Kendall Square KSR1", Proceedings of the *8th International Parallel Processing Symposium, IPPS'94*, Cancun, Mexico, 1994, pp. 618–624.
An extended version of this paper appeared as an Oak Ridge National Lab Technical Report ORNL/TM-12462, 1994 [M2].

103. E. Rosti, E. Smirni, T.D. Wagner, A.W. Apon, and L.W. Dowdy, "The KSR1: Experimentation and Modeling of Poststore", *ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, 1993, pp. 74–85.
An extended version of this paper appeared as Oak Ridge National Lab technical report, ORNL/TM-12287, [M1].
Also appeared as a book chapter in "Multiprocessor Performance Measurement and Evaluation", pp. 292-303, L.N. Bhuyan and X. Zhang (*editors*), ISBN 0-8186-6522-X, November 1994, [B2].

B/P. Books/Proceedings Editor

1. E. Smirni, K. Avrachenkov, P. Gill, and B. Urgaonkar: Abstract Proceedings of the 2023 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems, SIGMETRICS 2023, Orlando, FL, USA, June 19-23, 2023. ACM 2023

2. Jon B. Weissman, Ali Raza Butt, Evgenia Smirni: Proceedings of the 28th International Symposium on High-Performance Parallel and Distributed Computing, HPDC 2019, Phoenix, AZ, USA, June 22-29, 2019. ACM 2019, ISBN 978-1-4503-6670-0

3. Walter Binder, Vittorio Cortellessa, Anne Koziolek, Evgenia Smirni, Meikel Poess: Proceedings of the 8th ACM/SPEC on International Conference on Performance Engineering, ICPE 2017, L'Aquila, Italy, April 22-26, 2017. ACM 2017, ISBN 978-1-4503-4404-3

4. Walter Binder, Vittorio Cortellessa, Anne Koziolek, Evgenia Smirni, Meikel Poess: Companion Proceedings of the 8th ACM/SPEC on International Conference on Performance Engineering, ICPE 2017, L'Aquila, Italy, April 22-26, 2017. ACM 2017, ISBN 978-1-4503-4899-7

I. Invited Publications

1. Evgenia Smirni, "Machine Learning for Reliability Analysis of Large Scale Systems", QEST 2020: 3-7

2. Evgenia Smirni, "Practical Reliability Analysis of GPGPUs in the Wild: From Systems to Applications", ICPE 2019: 3

3. E. Smirni, Q. Zhang, N. Mi, A. Riska, and G. Casale, "New Results on the Performance Effects of Autocorrelated Flows in Systems", in *Next Generation Software Workshop, IPDPS'07*, Long Beach, CA, March 2007.

4. E. Smirni, "Reconfigurable, Data-driven Resource Allocation in Complex systems: Practice and Theoretical Foundations", in *Next Generation Software Workshop, IPDPS'05*, Denver, CO, April 2005.

5. E. Smirni, C.L. Elford, D.A. Reed, and A.A. Chien, "Performance Modeling of a Parallel I/O System: An Application Based Approach" *8th SIAM Conference on Parallel Processing for Scientific Computing*, March 1997, CD-ROM.

6. D.A. Reed, C.L. Elford, T. Madhyastha, W.H. Scullin, R.A. Aydt, E. Smirni, "I/O, Performance Analysis, and Performance Data Immersion", *MASCOTS'96*, 1996, pp. 5-16.

7. D.A. Reed, C.L. Elford. T. Madhyastha, E. Smirni, and S.L. Lamm, "The Next Frontier: Interactive and Closed Loop Performance Steering", *1996 International Conference on Parallel Processing, Workshop on Challenges for Parallel Processing*, Chicago, Illinois, August 1996, pp. 20-31.

8. D.A. Reed, M.J. Gardner, and E. Smirni, "Performance Visualization: 2-D, 3-D, and Beyond", *IEEE International Computer Performance and Dependability Symposium*, Urbana-Champaign, Illinois, September 1996.

W. Workshop Publications (Refereed Abstracts)

1. J. Bor, G. Casale, W. Knottenbelt, E. Smirni, A. Stathopoulos, "Fitting with matrix exponential mixtures generated by discrete probabilistic scaling", ACM SIGMETRICS Performance Evaluation Review 51 (2), 15-17,2023. Special Issue on the MAMA 2023 Workshop.

2. G. Casale, E.Z. Zhang, E. Smirni, "Characterization and Synthesis of Markovian Workload Models", *GlobeCom 2007 Workshop on Future Service-Oriented Internet*, Washington, DC, Nov. 2007.

3. G. Casale, E.Z. Zhang, E. Smirni, "Characterization of Moments and Autocorrelation in MAPs", September 2007, Vol. 35(2), Sept. 2007. Special Issue on the MAMA 2007 Workshop.

4. Q. Zhang, A. Heindl, E. Smirni, "Models of the Departure Process of a BMAP/MAP/1 Queue", *Performance Evaluation Review*, September 2005, Vol. 33(2), pp. 18-20, Sept. 2005. Special Issue on the MAMA 2005 Workshop.

5. B. Lawson, C. Yue, E. Smirni, and D. Nikolopoulos, "Power-aware Resource Allocation via Online Simulation with Multiple-Queue Backfilling", *Seventh International Workshop on Performability Modeling of Computer and Communication Systems (PMCCS7)*, Torino, Italy, September 2005.

6. Q. Zhang, A. Riska, and E. Smirni, "Evaluating the performability of systems with background jobs", *Seventh International Workshop on Performability Modeling of Computer and Communication Systems (PMCCS7)*, Torino, Italy, September 2005.

7. A. Riska, E. Smirni, and G. Ciardo, "An Aggregation-based Method for the Exact Analysis of a Class pf GI/G/1-type Processes", *Performance Evaluation Review*, Vol. 31 (2), pp. 28-30, September 2003. Special Issue on the MAMA 2003 Workshop.

8. A. Riska, V. Diev, and E. Smirni, "Efficient Fitting of Long-tailed Data Sets into Phase-type Distributions", *Performance Evaluation Review*, Vol. 30 (3), pp. 6-8, December 2002. Special Issue on the MAMA 2002 Workshop.

9. G. Ciardo, E. Smirni, "Projection: An efficient solution algorithm for a class of quasi-birth-death processes", *Fourth International Workshop on Performability Modeling of Computer and Communication Systems (PMCCS4)*, Sept. 1998, Williamsburg, VA, pp. 34-38.

P. Refereed Posters/Demos

1. L. Yang, A. Schmedding, R. Pinciroli, E. Smirni, "Simulating COVID-19 containment measures using the South Korean patient data". SenSys 2020: 782-783

2. J. Xue, E. Smirni, R. Birke and L. Y. Chen, "PROST: Prediction for Resource Usages with Spatial and Temporal Dependencies", in Proceedings of the *7th ACM/SPEC International Conference on Performance Engineering*, Delft, the Netherlands, March 2016, pp. 125-126.

3. T. Scherer, J. Xue, F. Yan, R. Birke, L.Y. Chen, and E. Smirni, "PRACTISE – Demonstrating a Neural Network-based Framework for Robust Prediction of Datacenter Workloads", in Proceedings of the *8th IEEE/ACM International Conference on Utility and Cloud Computing (UCC)*, Limassol, Cyprus, December 2015, pp. 402-403.

4. F. Yan, L. Cherkasova, Z. Zhang, and E. Smirni, "Heterogeneous Cores For MapReduce Processing: Opportunity or Challenge?", in *the IEEE/IFIP Network Operations and Management Symposium, NOMS 2014*, pp. 1–4, May 2014, Krakow, Poland.

5. D. Ansaloni, L. Y. Chen, E. Smirni, A. Yokokawa, W. Binder, "Find your best match: predicting performance of consolidated workloads", in *Proceedings of ICPE 2012*, pp. 243-244.

6. D. Ansaloni, L. Y. Chen, E. Smirni, and W. Binder, "Towards Autonomic Consolidation of Heterogeneous Workloads", in *Proceedings of Middleware 2011*, Posters Track, Lisboa, Portugal, December 2011.

7. A. Caniff, L. Lu, N. Mi, L. Cherkasova, E. Smirni, " Efficient Resource Allocation and Power Saving in Multi-Tiered Systems", in *Proceedings of the 19th International World Wide Web Conference (WWW'2010)*, Posters Track, Raleigh, North Carolina, USA, April 26-30, 2010.

8. Q. Zhang, L. Cherkasova, G. Mathews, W. Greene, and E. Smirni, "R-Capriccio: A Capacity Planning Framework for Multi-tier Enterprise SErvices with Real Workloads", in *Proceedings of the Tenth IFIP/IEEE International Symposium on Integrated Management (IM 2007)*, Posters Track, Munich, Germany, May 2007.

9. N. Mi, A. Riska, Q. Zhang, E. Smirni, and E. Riedel, "Efficient management of idleness in systems", *Sigmetrics'07*, pp. 371-372, San Diego, CA., June 2011.

M. <u>Miscellanea</u>

1. W. Shin, V. Oles, A. Schmedding, G. Ostrouchov, E. Smirni, C. Engelmann, F. Wang, "OLCF Summit Supercomputer GPU Snapshots During Double-Bit Errors and Normal Operations", Oak Ridge Leadership Computing Facility (OLCF), Data Repository, 4/2023.

2. E. Rosti, E. Smirni, T.D. Wagner, A.W. Apon, and L.W. Dowdy, "The KSR1: Experimentation and Modeling of Poststore", Oak Ridge National Lab Technical Report ORNL/TM-12287, 1993.
   Shorter version of this paper appeared at *Multiprocessor Performance Measurement and Evaluation*, pp. 292-303, L.N. Bhuyan and X. Zhang (*editors*), ISBN 0-8186-6522-X, November 1994 [B1].
   Also appeared in the Proceedings of the *ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, 1993, pp. 74–85, [C23].

3. T.D. Wagner, E. Smirni, A.W. Apon, M. Madhukar, and L.W. Dowdy, "The Effects of Thread Placement on the Kendall Square KSR1", Oak Ridge National Lab Technical Report ORNL/TM-12462, 1994.
   This paper also appeared at the Proceedings of the 8th *International Parallel Processing Symposium, IPPS'94*, Cancun, Mexico, 1994, pp. 618–624, [C22].

4. R. Bunt, D. Eager, L. Golubchik, G. Kotsis, S. Majumdar, R.R. Muntz, E. Rosti, G. Serazzi, and E. Smirni. Report of the Computer Resource Management Group, International Workshop on Performance Evaluation – Origins and Directions, Schloss Dagstuhl, Wadern, Germany, 1997. Organizers: G. Haring (Wien), Ch. Lindermann (GMD-FIRST Berlin), M. Reiser (Zurich).

TUTORIALS

2002	"M/G/1-type Markov Processes: A Tutorial"
	Performance'02, with A. Riska.
2002	"Matrix-Analytic Methods for Solving M/G/1-type Markov Processes
	SIGMETRICS'02, with A. Riska.
1997	"Processor Scheduling in Parallel and Distributed Systems"
	SIGMETRICS'97, with M.S. Squillante and L.W. Dowdy.

SOFTWARE

2023	"GeoSpread: an epidemic spread modeling tool for covid-19 using mobility data"
	Available at `https://github.com/akschmedding/GeoSpread`.

2010	"KPC Toolbox: Best Recipes for Workload Fitting into MAPs".
	Available at `http://www.cs.wm.edu/MAPQN/kpctoolbox.html/`.
2003	"MAMSolver: A Matrix Analytic Methods Tool".
	Available at `http://www.cs.wm.edu/MAMSolver/`.

INVITED PRESENTATIONS

2020   Monash University, Melbourne, Australia (two invited talks).
Talk 1: "Machine Learning for Reliability Analysis of Large Scale Distributed Systems"
Talk 2: "Practical Reliability Analysis of GPGPUs in the Wild: from Systems to Applications"

2019   Athens University of Economics and Business (ASOEE), Athens Greece.
Presentation Title: "Practical Reliability Analysis of GPGPUs in the Wild: from Systems to Applications"

2019   India Performance Workshop: Performance of AI, AI for Performance, Mumbai, India.
Presentation Title: "Time Series Prediction for Management of Data Centers".

2018   EBSIS 2018 Summer School, Villars, Switzerand, July 2018, Invited Speaker.
Presentation Title: "Queuing Models for Optimizing Performance of Deep Neural Network Serving."

2017   11th Cloud Control Workshop, June 12-17, 2017, Haga Slott, 745 93 Enkping, Sweden.
Presentatiom Title: "Prediction Models for Service Responsiveness of Deep Neural Networks in a Cloud Setting".

2012   Imperial College Energy and Performance Colloquium, 29 May-June 2012, (two invited talks).
Talk 1: "How to Tame Burstiness and Save Power in Multi-Tiered Systems".
Talk 2: "Autonomic Exploration of Trade-offs between Power and Performance in Disk Drives".

2010   Universita di Roma, Tor Vergata, October 2010
Presentation Title: "Burstiness in Multi-Tiered Systems: Performance Issues and New Models".

2010   Politechnico di Milano, October 2010
Presentation Title: "Burstiness in Multi-Tiered Systems: Performance Issues and New Models".

2009   IBM Research Zurich Lab, June 2009.
Presentation Title: "Burstiness in Multi-Tiered Systems: Performance Issues and New Models".

2007   Carleton University, Ottawa, Canada, August 2007.
Presentation Title: "Performance Impacts of Autocorrelation in Systems".

2006   NCSU, Raleigh, North Carolina, December 2006.
Presentation Title: "Performance Impacts of Autocorrelation in Systems".

2005   Institute for Computer Science (ITE), Heraklion, Crete, Greece, December 2005.
Presentation Title: "The Impact of Autocorrelation in Multi-Tiered Systems".

2005   IFIP W.G. 7.3 Meeting, Juan-les-Pins, France, October 2005.
Presentation Title: "Approximate Models of the Departure Process of a BMAP/MAP/1 Queue".

2005   Carnegie-Mellon University, Department of Computer Science, Pittsburgh, PA, March 2005.
Presentation Title: "Modeling the Departure Process of a BMAP/MAP/1 Queue".

2004   University of Erlangen-Nuremberg, Department of Computer Science, Erlangen, Germany, Jan. 2004.
Presentation Title: "Approximating long-tailed data sets with PH distributions".

2003   University of Milano, Department of Informatics, Milano, Italy, Dec. 2003.
Presentation Title: "ETAQA as an Alternative to Matrix Analytic Methods".

2003   University of Pisa, Department of Mathematics, Pisa Italy, Dec. 2003.
Presentation Title: "ETAQA as an Alternative to Matrix Analytic Methods".

2003   University of Athens, Computer Science Department, Athens, Greece, June 2003.
Presentation Title: "Matrix Analytic Techniques: Theory and Practice".

2003   Dagstuhl Seminar 03201 "Probabilistic Methods in verification and Planning".
Presentation Title: "Using ETAQA for the Solution of Large, Structured Markov Chains".

2003   University of Patras, Computer Science Department, Patras, Greece, May 2003.
Presentation Title: "Approximating long-tailed data sets with PH distributions".

2003   Virginia Tech, Computer Science Department, Blacksburg, VA, January 2003.
Presentatiom Title: "Matrix Analytic Techniques: Theory and Practice".

2002   University of Patras, Computer Science Department, Patras, Greece, June 2002.

	Presentation Title: "Matrix Analytic Techniques: Theory and Practice".
2002	NSF Next Generation Software Workshop, University of Texas at Austin, Feb. 2002.
	Presentation Title: Coordinated Allocation of Multiple Resources in Distributed Systems".
2001	University of Ioannina, Computer Science Department, Ioannina, Greece, June 2001.
	Presentation Title: "Matrix Analytic Techniques: Theory and Practice".
1997	Dagstuhl Workshop "Performance Evaluation - Where are we coming from –
	where are we going to", Sept. 15 - 19, 1997, Schloss Dagstuhl, Germany.
	Presentation Title: "Coordinated Allocation of Processor and
	Input/Output Resources in Parallel Systems".
1997	*8th SIAM Conference on Parallel Processing for Scientific Computing*
	Minneapolis, MN, March 1997.
	Presentation Title: "I/O Requirements of Parallel Scientific Applications".
1996	*Workshop on Software Tools for High Performance Computing*
	Chatham, MA, October 1996.
	Presentation Title: "Parallel I/O: Problems and Solutions".

Letters of reference for tenure and promotion

1. Carnegie Mellon University

2. Denison University

3. Free University of Berlin, Germany

4. Imperial College-London

5. Louisiana State University

6. Ohio State

7. Stony Brook University

8. University of British Columbia, Canada

9. UMass-Amherst

10. University of Portland

11. University of California-Riverside

12. University of Texas at Arlington

13. University of Waterloo, Canada

14. Amherst College

15. Colorado School of Mines

16. Rutgers

TEACHING

Courses taught

Graduate	CSCI664 (704):	Advanced Operating Systems (Spring 2000, Spring 1998)
	CSCI649:	Parallel Computing (Fall 1999, Spring 2001)
	CSCI626:	Data Analysis and Simulation (every second year since Spring 2014)
	CSCI780:	Data Analysis (Spring 2006, Spring 2010, Spring 2012)
	CSCI780:	Big Data (Spring 2016)
	CSCI754:	Performance Evaluation of Computer Systems (every second year since Fall 1998)
Undergraduate	CSCI426/526:	Simulation (yearly every Fall since 2002)
	CSCI424:	Computer Architecture (Spring 2002, Spring 2008)
	CS420:	Performance Modeling Tools and Techniques (Spring 2019)
	CSCI141:	Introduction to Programming in C++ (Fall 1997, Spring 1999, Spring 2000, Spring 2001)

DEPARTMENTAL and UNIVERSITY SERVICE

Summer 2020 – 2022   Faculty Ombuds for Graduate Studies.

Fall 2020 –   Faculty Assembly.

Fall 2017 – Spring 2020   Committee on Faculty Awards, Prizes, and Professorships (CFAPP).

Fall 2013 – Spring 2016   Nominations and Elections Committee.

Spring 2008   Evaluation Committee of Dean Sanderson, William and Mary.

Spring 2007   Educational Policy Committee, College of William and Mary.

Fall 2006 –   Freshman Advisor, College of William and Mary.

Summer 2004 – Fall 2014   *Graduate Director*, Computer Science Department, College of William and Mary.

Summer 2004 – Fall 2014   *Committee on Graduate Studies (COGS)*, College of William and Mary.

Fall 2002 – 2003   *Graduate Curriculum Committee Chair*, Computer Science Department, College of William and Mary.

Spring 2001 – 2002   *Colloquium Coordinator*, Computer Science Department, College of William and Mary.

Fall 1999 – Spring 2005   *Faculty Search Committee*, Computer Science Department, College of William and Mary.

Fall 1997 – Spring 2004   *Curriculum Committee*, Computer Science Department, College of William and Mary.

Fall 1997 – 2000   *Curriculum Committee on Computational Science Program Development.* Participated in Frequent meetings with the director of the Computational Sciences Cluster and three CS faculty to design four new Computer Science courses that will also play a central role in the Computational Science Cluster at William and Mary.