Curriculum Vitae: Dejan Kostić

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Research Interests

Distributed Systems, Computer Networks, and Machine Learning.

Education

Ph.D. Computer Science, Duke University, July 2005. Advisor: Amin Vahdat.
M.S. Computer Science, University of Texas at Dallas, 1995.
B.S. Computer Engineering and Information Technology, University of Belgrade (ETF), 1993.

Experience

Apr 2014	- present	Chair Professor of Internetworking, KTH Royal Institute of Technology, Head of the Communication Systems Division (Jan 2018-Aug 2020) Head of the Network Systems Laboratory (Sep 2015-Dec 2018)
Nov 2014	- present	Associated with Research Institutes of Sweden as a Senior Researcher
Nov 2012	- Jun 2014	Research Associate Professor (tenured), IMDEA Networks Institute
Jan 2006	- Oct 2012	Assistant Professor, EPFL/ Director, Networked Systems Laboratory
Sep 2005	- Oct 2005	Postdoctoral scholar, UCSD
Jun 2001	- Aug 2005	Research assistant, UCSD/Duke University
May 2003	- Aug 2003	Research intern, Microsoft Research
Sep 2000	- May 2002	Teaching assistant, Duke University
Oct 1998	- Nov 1999	Senior software engineer, Make Systems, Inc.
Jun 1995	- Sep 1998	Senior programmer/analyst, Inet Technologies, Inc.
Jan 1994	- May 1995	Teaching assistant, University of Texas at Dallas

Journal Publications

1. "**Reducing the Number of Leads for ECG Imaging with Graph Neural Networks and Meaningful Latent Space**" Giacomo Verardo, Daniel F. Perez-Ramirez, Samuel Bruchfeld, Magnus Boman, Marco Chiesa, Sabine Koch, Gerald Q. Maguire Jr., and Dejan Kostić. In: Camara, O., *et al.* Statistical Atlases and Computational Models of the Heart. Workshop, CMRxRecon and MBAS Challenge Papers.. STACOM 2024. Lecture Notes in Computer Science, vol 15448. Springer, Cham.
2. "**FMM-Head: Enhancing Autoencoder-Based ECG Anomaly Detection with Prior Knowledge**", Giacomo Verardo, Magnus Boman, Samuel Bruchfeld, Marco Chiesa, Sabine Koch, Gerald Q. Maguire Jr., and Dejan Kostic. In: Wallraven, C., Liu, C. L., & Ross, A.

(eds) *Pattern Recognition and Artificial Intelligence. ICPRAI 2024.* Lecture Notes in Computer Science, vol 14892. 2025, Springer, Singapore.

3. **"Overcoming the IOTLB wall for multi-100-Gbps Linux-based networking"**, Alireza Farshin, Luigi Rizzo, Khaled Elmeleegy, and Dejan Kostić, *PeerJ Computer Science*, 2023.

4. **"Fast Server Learning Rate Tuning for Coded Federated Dropout"** Giacomo Verardo, Daniel Barreira, Marco Chiesa, Dejan Kostić and Gerald Quentin Maguire Jr., In: Goebel, R., Yu, H., Faltings, B., Fan, L. & Xiong, Z. (Eds.). *Trustworthy Federated Learning. Lecture Notes in Artificial Intelligence*, vol. 13448, pp. 85-100, 2023, Springer, Cham.

5. **"Cheetah: A High-Speed Programmable Load-Balancer Framework with Guaranteed Per-Connection-Consistency"**, Tom Barbette, Erfan Wu, Dejan Kostić, Gerald Q. Maguire Jr., Panagiotis Papadimitratos, and Marco Chiesa, *IEEE/ACM Transactions on Networking*, September 2021.

6. **"Metron: High Performance NFV Service Chaining Even in the Presence of Blackboxes"**, Georgios Katsikas, Tom Barbette, Dejan Kostić, Gerald Q. Maguire Jr., and Rebecca Steinert, ACM Transactions on Computer Systems (*TOCS*), July 2021.

7. **"Fast Deployment of Reliable Distributed Control Planes with Performance Guarantees"**, Shaoteng Liu, Rebecca Steinert, Natalia Vesselinova, and Dejan Kostić, *IEEE Access,* April 2020.

8. **"Path Persistence in the Cloud: A Study of the Effects of Inter-Region Traffic Engineering in a Large Cloud Provider's Network"**, Waleed Reda, Kirill Bogdanov, Alexandros Milolidakis, Hamid Ghasemirahni, Marco Chiesa, Gerald Q. Maguire Jr., and Dejan Kostić, *SIGCOMM Computer Communication Review (SIGCOMM CCR), April 2020.*

9. **"Software-Defined 'Hardware' Infrastructures: A Survey on Enabling Technologies and Open Research Directions"**, Amir Roozbeh, João Soares, Gerald Q. Maguire Jr., Fetahi Wuhib, Chakri Padala, Mozhgan Mahloo, Daniel Turull, Vinay Yadhav, and Dejan Kostić, *IEEE Communications Surveys & Tutorials, May 2018.*

10. **"Methodology, Measurement and Analysis of Flow Table Update Characteristics in Hardware OpenFlow Switches"**, Maciej Kuzniar, Peter Perešíni, Dejan Kostić, and Marco Canini, *Computer Networks: The International Journal of Computer and Telecommunications Networking*, *Elsevier,* 2018.

11. **"Dynamic, Fine-Grained Data Plane Monitoring with Monocle"**, Peter Perešíni, Maciej Kuzniar, and Dejan Kostić, *IEEE/ACM Transactions on Networking, 2018, Volume: 26 Issue:1.*

12. **"Profiling and Accelerating Commodity NFV Service Chains with SCC"**, Georgios Katsikas, Gerald Q. Maguire Jr., and Dejan Kostić, *The Journal of Systems & Software, Elsevier*, Volume 127 Issue C, May 2017, Pages 12-27.

13. **"SNF: Synthesizing high performance NFV service chains"**, Georgios Katsikas, Marcel Enguehard, Maciej Kuźniar, Gerald Q. Maguire Jr., and Dejan Kostić, *PeerJ Computer Science,* 2016.

14. **"Systematically Testing OpenFlow Controller Applications"**, Peter Perešíni, Maciej Kuzniar, Marco Canini, Daniele Venzano, Dejan Kostić, and Jennifer Rexford, *Computer Networks: The International Journal of Computer and Telecommunications Networking*, *Elsevier,* August 2015.

15. **"Predicting and Preventing Inconsistencies in Deployed Distributed Systems"**, Maysam Yabandeh, Nikola Knežević, Dejan Kostić, and Viktor Kuncak, *ACM Transactions on Computer Systems (**TOCS**),* Volume 28, Issue 1 (March 2010). Pages: 2-49.

16. **"Towards a Cost-Effective Networking Testbed"**. Nikola Knežević, Simon Schubert, and Dejan Kostić, *SIGOPS Operating Systems Review,* Volume 43, Issue 4 (January 2010), Pages: 66-71.

17. **"High-Bandwidth Data Dissemination for Large-Scale Distributed Systems"**, Dejan Kostić, Alex C. Snoeren, Amin Vahdat, Ryan Braud, Charles Killian, James W. Anderson, Jeannie Albrecht, Adolfo Rodriguez, and Erik Vandekieft, *ACM Transactions on Computer Systems (**TOCS**),* Volume 26, Issue 1 (February 2008), Pages: 3-61.

Conference and Workshop Publications

1. "**Queue-Mem: Energy-Efficient Hardware Storage for Advanced Network Function Acceleration**", Mariano Scazzariello, Tommaso Caiazzi, Hamid Ghasemirahni, Dejan Kostić, and Marco Chiesa, *Proceedings of the 23rd USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, May 2026. *To appear*

2. "**Cloud abstractions for AI workloads**", Marco Canini, Theophilus A. Benson, Ricardo Bianchini, Íñigo Goiri, Dejan Kostić, Peter Pietzuch, Simon Peter, *Proceedings of the 16th ACM SIGOPS Asia-Pacific Workshop on Systems (ApSys)*, October 2025.

3. "**Deriving Coding-Specific Sub-Models from LLMs using Resource-Efficient Pruning**", Laura Puccioni, Alireza Farshin, Mariano Scazzariello, Changjie Wang, Marco Chiesa, and Dejan Kostić, Proceedings of the Second International Workshop on Large Language Models for Code (**LLM4Code**), May 2025.

4. "**Automating the Detection of Code Vulnerabilities by Analyzing GitHub Issues**", Daniele Cipollone, Changjie Wang, Mariano Scazzariello, Simone Ferlin, Maliheh Izadi, Dejan Kostić, and Marco Chiesa, Proceedings of the Second International Workshop on Large Language Models for Code (**LLM4Code**), May 2025.

5. "**Priority-Aware Preemptive Scheduling for Mixed-Priority Workloads in MoE Inference**", Mohammad Siavashi, Faezeh Keshmiri Dindarloo, Dejan Kostić, and Marco Chiesa, *Proceedings of the 5th Workshop on Machine Learning and Systems (EuroMLSys)*, March 2025.

6. "**FAJITA: Stateful Packet Processing at 100 Million pps**", Hamid Ghasemirahni, Alireza Farshin, Mariano Scazzariello, Gerald Q. Maguire Jr., Dejan Kostić, and Marco Chiesa, *Proceedings of the 20th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2024.

7. "**NetConfEval: Can LLMs Facilitate Network Configuration?**", Changjie Wang, Mariano Scazzariello, Alireza Farshin, Simone Ferlin, Dejan Kostić, and Marco Chiesa, *Proceedings of the 20th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2024. ***IRTF Applied Networking Research Prize (ANRP) award!***

8. "**Reducing the number of leads for ECG Imaging with Graph Neural Networks and meaningful latent space**", Giacomo Verardo, Daniel F. Perez-Ramirez, Samuel Bruchfeld, Magnus Boman, Marco Chiesa, Sabine Koch, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 15th Statistical Atlases and Computational Modeling of the Heart (STACOM)*, October 2024.

9. "**FMM-Head: Enhancing Autoencoder-based ECG anomaly detection with prior knowledge**", Giacomo Verardo, Magnus Boman, Samuel Bruchfeld, Marco Chiesa, Sabine Koch, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 4th International Conference on Pattern Recognition and Artificial Intelligence (ICPRAI)*, July 2024.

10. "**Toward GPU-centric Networking on Commodity Hardware**", Massimo Girondi, Mariano Scazzariello, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 7th International Workshop on Edge Systems, Analytics and Networking (ACM EdgeSys 2024),* April 2024.

11. "**Deploying Stateful Network Functions Efficiently using Large Language Models**", Hamid Ghasemirahni, Alireza Farshin, Mariano Scazzariello, Marco Chiesa, and Dejan Kostić, *Proceedings of the 4th Workshop on Machine Learning and Systems (EuroMLSys)*, April 2024,

12. "**DeepGANTT: A Scalable Deep Learning Scheduler for Backscatter Networks**", Daniel F. Perez-Ramirez, Carlos Perez-Penichet, Nicolas Tsiftes, Thiemo Voigt, Dejan Kostić, and Magnus Boman, *Proceedings of the 22nd ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, 2023.

13. "**A High-Speed Stateful Packet Processing Approach for Tbps Programmable Switches**", Mariano Scazzariello, Tommaso Caiazzi, Hamid Ghasemirahni, Tom Barbette, Dejan Kostić,

and Marco Chiesa, *Proceedings of the 20th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2023.

14. "**Fast Server Learning Rate Tuning for Coded Federated Dropout**", Giacomo Verardo, Daniel Barreira, Marco Chiesa, Dejan Kostić and Gerald Quentin Maguire Jr., *International Workshop on Trustworthy Federated Learning in Conjunction with IJCAI 2022 (FL-IJCAI)*, June 2022.

15. "**Packet Order Matters! Improving Application Performance by Deliberately Delaying Packets**", Hamid Ghasemirahni, Tom Barbette, Georgios P. Katsikas, Alireza Farshin, Amir Roozbeh, Massimo Girondi, Marco Chiesa, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 19th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2022. *Community Award!*

16. "**RDMA is Turing complete, we just did not know it yet!**", Waleed Reda, Marco Canini, Dejan Kostić, and Simon Peter, *Proceedings of the 19th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2022.

17. "**LineFS: Efficient SmartNIC Offload of a Distributed File System with Pipeline Parallelism**", Jongyul Kim, Insu Jang, Waleed Reda, Marco Canini, Dejan Kostić, Youngjin Kwon, Simon Peter, and Emmett Witchel, *Proceedings of the 28th ACM Symposium on Operating Systems Principles (SOSP)*, October 2021. *Best Paper Award!*

18. "**PacketMill: Toward per-core 100-Gbps Networking**", Alireza Farshin, Tom Barbette, Amir Roozbeh, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 26th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, April 2021.

19. "**What you need to know about (Smart) Network Interface Cards**", Georgios P. Katsikas, Tom Barbette, Marco Chiesa, Dejan Kostic, and Gerald Q. Maguire Jr., *Proceedings of The Passive and Active Measurement Conference (PAM)* 2021, April 2021.

20. "**Assise: Performance and Availability via Client-local NVM in a Distributed File System**", Thomas E Anderson, Marco Canini, Jongyul Kim, Dejan Kostić, Youngjin Kwon, Simon Peter, Waleed Reda, Henry N Schuh, Emmett Witchel, Proceedings of the 14th USENIX Symposium on Operating Systems Design and Implementation (*OSDI*), November 2020.

21. "**Reexamining Direct Cache Access to Optimize I/O Intensive Applications for Multi-hundred-gigabit Networks**", Alireza Farshin, Amir Roozbeh, Gerald Q. Maguire Jr., and Dejan Kostić, Proceedings of the USENIX Annual Technical Conference (*USENIX ATC*), July 2020.

22. "**A High-Speed Load-Balancer Design with Guaranteed Per-Connection-Consistency**", Tom Barbette, Chen Tang, Haoran Yao, Dejan Kostić, Gerald Q. Maguire Jr., Panagiotis Papadimitratos, and Marco Chiesa, *Proceedings of the 17th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, February 2020.

23. "**RSS++: Load and State-Aware Receive Side Scaling**", Tom Barbette, Georgios Katsikas, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the 15th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2019.

24. "**Make the Most out of Last Level Cache in Intel Processors**", Alireza Farshin, Amir Roozbeh, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the Fourteenth European Conference on Computer Systems (EuroSys)*, March 2019.

25. "**Fast and Accurate Load Balancing for Geo-Distributed Storage Systems**", Kirill Bogdanov, Waleed Reda, Gerald Q. Maguire Jr., Dejan Kostić, and Marco Canini, *Proceedings of the ACM Symposium on Cloud Computing 2018* (*ACM SoCC*), October 2018.

26. "**Control under Intermittent Network Partitions**", Shaoteng Liu, Rebecca Steinert, Dejan Kostić, *Proceedings of the IEEE International Conference on Communications* (*ICC*), May 2018.

27. "**Metron: NFV Service Chains at the True Speed of the Underlying Hardware**", Georgios Katsikas, Tom Barbette, Dejan Kostić, Rebecca Steinert, and Gerald Q. Maguire Jr.,

Proceedings of the 15th USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), April 2018.

28. "**Flexible distributed control plane deployment**", Shaoteng Liu, Rebecca Steinert, Dejan Kostić*, Proceedings of the IEEE/IFIP Network Operations and Management Symposium SDN miniconference* (**NOMS MC SDN**), April 2018.

29. "**Rein: Taming Tail Latency in Key-Value Stores via Multiget Scheduling**", Waleed Reda, Marco Canini, Lalith Suresh, Dejan Kostić, and Sean Braithwaite, *Proceedings of the Twelfth European Conference on Computer Systems (EuroSys)*, April 2017.

30. "**Monocle: Dynamic, Fine-Grained Data Plane Monitoring**", Peter Perešíni, Maciej Kuzniar, and Dejan Kostić, *Proceedings of the 11th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2015.

31. "**The Nearest Replica Can Be Farther Than You Think**", Kirill Bogdanov, Miguel Peón-Quirós, Gerald Q. Maguire Jr., and Dejan Kostić, *Proceedings of the ACM Symposium on Cloud Computing 2015 (ACM SoCC),* August 2015.

32. "**What You Need to Know About SDN Flow Tables**", Maciej Kuzniar, Peter Perešíni, and Dejan Kostić, *Proceedings of the Passive and Active Measurement Conference (PAM)*, March 2015.

33. "**Providing Reliable FIB Update Acknowledgments in SDN**", Maciej Kuzniar, Peter Perešíni, and Dejan Kostić, *Proceedings of the 10th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2014.

34. "**ESPRES: Transparent SDN Update Scheduling**", Peter Perešíni, Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2014.

35. "**ESPRES: Easy Scheduling and Prioritization for SDN**", Peter Perešíni, Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Open Networking Summit (ONS) Research Track 2014,* March 2014.

36. "**OpenFlow Needs You! A Call for a Discussion About a Cleaner OpenFlow API**", Peter Perešíni, Maciej Kuzniar, and Dejan Kostić, Proceedings of the 2nd European Workshop on Software Defined Networks (**EWSDN**), October 2013.

37. "**NetIDE: First steps towards an integrated development environment for portable network apps**", Federico M. Facca, Holger Karl, Diego R. Lopez, Pedro Andres Aranda Gutierrez, Dejan Kostić, and Roberto Riggio, Proceedings of the 2nd European Workshop on Software Defined Networks (**EWSDN**), October 2013.

38. "**Is the Network Capable of Computation?**", Peter Perešíni and Dejan Kostić, *Proceedings of the 3rd International Workshop on Rigorous Protocol Engineering (WRiPE)*, October 2013.

39. "**OF.CPP: Consistent Packet Processing for OpenFlow**", Peter Perešíni, Maciej Kuzniar, Nedeljko Vasić, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2013.

40. "**Automatic Failure Recovery for Software-Defined Networks**", Maciej Kuzniar, Peter Perešíni, Nedeljko Vasić, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2013. (short paper)

41. "**DeepDive: Transparently Identifying and Managing Performance Interference in Virtualized Environments**", Dejan Novaković, Nedeljko Vasić, Stanko Novaković, Dejan Kostić, and Ricardo Bianchini, *Proceedings of The 2013 USENIX Annual Technical Conference*, June 2013.

42. "**A SOFT Way for OpenFlow Switch Interoperability Testing**", Maciej Kuzniar, Peter Perešíni, Marco Canini, Daniele Venzano, and Dejan Kostić, *Proceedings of the 8th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2012.

43. "**Profiling Software for Energy Consumption**", Simon Schubert, Dejan Kostić, Willy Zwaenepoel, and Kang Shin, Proceedings of the IEEE International Conference on Green Computing and Communications (**GreenCom**) November 2012.

44. "**OFTEN Testing OpenFlow Networks**", Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Proceedings of the 1st European Workshop on Software Defined Networks (EWSDN)*, October 2012.

45. "**A NICE Way to Test OpenFlow Applications**", Marco Canini, Daniele Venzano, Peter Perešíni, Dejan Kostić, and Jennifer Rexford, *Proceedings of the 9th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2012.

46. "**DejaVu: Accelerating Resource Allocation in Virtualized Environments**", Nedeljko Vasić, Dejan Novaković, Svetozar Miucin, Dejan Kostić, and Ricardo Bianchini, *Proceedings of the Seventeenth International Conference on. Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, March 2012.

47. "**Identifying and Using Energy-Critical Paths**", Nedeljko Vasić, Dejan Novaković, Satyam Shekhar, Prateek Bhurat, Marco Canini, and Dejan Kostić, *Proceedings of the 7th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2011.

48. "**Finding Almost-Invariants in Distributed Systems**", Maysam Yabandeh, Abhishek Anand, Marco Canini, Dejan Kostić, *Proceedings of the 30th IEEE Symposium on Reliable Distributed Systems (SRDS)*, October 2011, (short paper).

49. "**Automating the Testing of OpenFlow Applications**", Marco Canini, Dejan Kostić, Jennifer Rexford, and Daniele Venzano, *Proceedings of the 1st International Workshop on Rigorous Protocol Engineering (WRiPE)*, October 2011.

50. "**Sahara: Guiding the Debugging of Failed Software Upgrades**", Rekha Bachwani, Olivier Crameri, Ricardo Bianchini, Dejan Kostić, and Willy Zwaenepoel, *Proceedings of the 27th IEEE International Conference on Software Maintenance (ICSM)*, September 2011.

51. "**Insomnia in the Access (or How to Curb Access Network Related Energy Consumption)**", Eduard Goma, Marco Canini, Alberto Lopez, Nikolaos Laoutaris, Dejan Kostić, Pablo Rodriguez, Rade Stanojević, and Pablo Yague, *Proceedings of the ACM SIGCOMM 2011 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications*, August 2011.

52. "**Toward Online Testing of Federated and Heterogeneous Distributed Systems**", Marco Canini, Vojin Jovanović, Daniele Venzano, Boris Spasojević, Olivier Crameri, and Dejan Kostić, *Proceedings of the 2011 USENIX Annual Technical Conference*, June 2011, (short paper).

53. "**Fault Prediction in Distributed Systems Gone Wild**", Marco Canini, Dejan Novaković, Vojin Jovanović, and Dejan Kostić, *Proceedings of the 4th ACM SIGOPS/SIGACT Workshop on Large Scale Distributed Systems and Middleware (LADIS)*, July 2010.

54. "**Energy-Aware Traffic Engineering**", Nedeljko Vasić and Dejan Kostić, *Proceedings of The 1st Int'l Conf. on Energy-Efficient Computing and Networking (E-ENERGY)*, April 2010.

55. "**Bandwidth Adaptation in Streaming Overlays**", Simon Schubert, Frank Uyeda, Nedeljko Vasić, Naveen Cherukuri, and Dejan Kostić, *Proceedings of The Second International Conference on COMmunication Systems and NETworkS (COMSNETS)*, January 2010.

56. "**Towards a Cost-Effective Networking Testbed**". Nikola Knežević, Simon Schubert, and Dejan Kostić, *Proceedings of the 4th Workshop on Real Overlays and Distributed Systems (ROADS)*, October 2009.

57. "**Making Cluster Applications Energy-Aware**", Nedeljko Vasić, Martin Barisits, Vincent Salzgeber, and Dejan Kostić, *Proceedings of the First Workshop on Automated Control for Datacenters and Clouds (ACDC)*, June 2009.

58. "**Simplifying Distributed System Development**", Maysam Yabandeh, Nedeljko Vasić, Dejan Kostić, and Viktor Kuncak, *Proceedings of the 12th Workshop on Hot Topics in Operating Systems (HotOS XII)*, May 2009.

59. "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", Maysam Yabandeh, Nikola Knežević, Dejan Kostić, and Viktor Kuncak, *Proceedings of the 6th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2009.

60. "**One Bit Is Enough: a Framework for Deploying Explicit Feedback Congestion Control Protocols**", Nedeljko Vasić, Srinidhi Kuntimaddi, Dejan Kostić, *Proceedings of The First International Conference on COMmunication Systems and NETworkS (**COMSNETS**),* January 2009. **Best Student Paper Award.**

61. "**Handling Very Large Numbers of Messages in Distributed Hash Tables**", Fabius Klemm, Jean-Yves Le Boudec, Dejan Kostić, and Karl Aberer, *Proceedings of The First International Conference on COMmunication Systems and NETworkS (**COMSNETS**),* January 2009.

62. "**Opis: Reliable Distributed Systems in OCaml**", Pierre-Evariste Dagand, Dejan Kostić, and Viktor Kuncak, *Proceedings of **TLDI***, January 2009.

63. "**Staged Deployment in Mirage, an Integrated Software Upgrade Testing and Distribution System**", Olivier Crameri, Nikola Knežević, Dejan Kostić, Ricardo Bianchini, Willy Zwaenepoel, *Proceedings of the 21st ACM Symposium on Operating Systems Principles (**SOSP**),* October 2007.

64. "**Enabling DVD-like Features in P2P Video-on-demand Systems**", Nevena Vratonjić, Priya Gupta, Nikola Knežević, Dejan Kostić and Antony Rowstron, *Proceedings of the SIGCOMM Peer-to-Peer Streaming and IP-TV Workshop (**P2P-TV**)*, August 2007.

65. "**A High Throughput Atomic Storage Algorithm**", Rachid Guerraoui, Dejan Kostić, Ron Levy and Vivien Quema, *Proceedings of the 27th International Conference on Distributed Computing Systems (**ICDCS**),* June 2007.

66. "**Improving the Throughput of Distributed Hash Tables Using Congestion-Aware Routing**", Fabius Klemm, Jean-Yves Le Boudec, Dejan Kostić, Karl Aberer, *Proceedings of the Sixth International Workshop on Peer to Peer Systems (**IPTPS**)*, February 2007.

67. "**Maintaining High Bandwidth under Dynamic Network Conditions**", Dejan Kostić, Ryan Braud, Charles Killian, Erik Vandekieft, James W. Anderson, Alex C. Snoeren, and Amin Vahdat, *Proceedings of the 2005 **USENIX** Annual Technical Conference,* April 2005.

68. "**FUSE: Lightweight Guaranteed Distributed Failure Notification**", John Dunagan, Nicholas J. A. Harvey, Michael B. Jones, Dejan Kostić, Marvin Theimer, and Alec Wolman, *Proceedings of the 6th Symposium on Operating Systems Design and Implementation (**OSDI**)*, December 2004.

69. "**MACEDON: Methodology for Automatically Creating, Evaluating, and Designing Overlay Networks**", Adolfo Rodriguez, Charles Killian, Sooraj Bhat, Dejan Kostić, and Amin Vahdat, *Proceedings of the USENIX/ACM Symposium on Networked Systems Design and Implementation (**NSDI**),* March 2004.

70. "**Scalability in Adaptive Multi-Metric Overlays**", Adolfo Rodriguez, Dejan Kostić, and Amin Vahdat, *The 24th International Conference on Distributed Computing Systems (**ICDCS**)*, March 2004.

71. "**Bullet: High Bandwidth Data Dissemination Using an Overlay Mesh**", Dejan Kostić, Adolfo Rodriguez, Jeannie Albrecht, and Amin Vahdat, *Proceedings of the 19th ACM Symposium on Operating System Principles (**SOSP**)*, October 2003.

72. "**Using Random Subsets to Build Scalable Network Services**", Dejan Kostić, Adolfo Rodriguez, Jeannie Albrecht, Abhijeet Bhirud, and Amin Vahdat. *Proceedings of the 4th USENIX Symposium on Internet Technologies and Systems (**USITS**),* March 2003.

74. "**Scalability and Accuracy in a Large-Scale Network Emulator**", Amin Vahdat, Ken Yocum, Kevin Walsh, Priya Mahadevan, Dejan Kostić, Jeff Chase, and David Becker. *Proceedings of the 5th Symposium on Operating Systems Design and Implementation (**OSDI**)*, December 2002.

75. "**Opus: an Overlay Peer Utility Service**", Rebecca Braynard, Dejan Kostić, Adolfo Rodriguez, Jeffrey Chase, and Amin Vahdat, *Proceedings of the 5th International Conference on Open Architectures and Network Programming (**OPENARCH**),* June 2002.

76. "**Self-Organizing Subsets: From Each According to His Abilities, To Each According to His Needs**", Amin Vahdat, Jeffrey Chase, Rebecca Braynard, Dejan Kostić, and Adolfo Rodriguez. *Proceedings of the First International Workshop on Peer to Peer Systems (**IPTPS**),* March 2002.

Work Under Submission and Unpublished Technical Reports

- "**Joker: Answering What-If Deployment Questions in Virtualized Environments**", Dejan Novaković, Nedeljko Vasić, Dejan Kostić, and Ricardo Bianchini, EPFL Technical Report EPFL-REPORT-198678, January 2014.
- "**Automatic Failure Recovery for Software-Defined Networks**", Maciej Kuzniar, Peter Perešíni, Miguel Peon, Marco Canini, Nedeljko Vasić, and Dejan Kostić, January 2014.
- "**Checking for Insidious Faults in Deployed Federated and Heterogeneous Distributed Systems**", Marco Canini, Vojin Jovanović, Daniele Venzano, Gautam Kumar, Dejan Novaković, and Dejan Kostić, EPFL Technical Report EPFL-REPORT-164475, October 2011.
- "**DPOR-DS: Dynamic Partial Order Reduction in Distributed Systems**", Maysam Yabandeh and Dejan Kostić, EPFL Technical Report NSL-REPORT-2009-005, October 2009.
- "**Oasis: Concolic Execution Driven by Test Suites and Code Modifications**", Olivier Crameri, Rekha Bachwani, Tim Brecht, Ricardo Bianchini, Dejan Kostić, and Willy Zwaenepoel, EPFL Technical Report LABOS-REPORT-2009-002, March 2009.
- "**The Best of Both Worlds: Adaptivity in Two-Metric Overlays**", Dejan Kostić, Adolfo Rodriguez, and Amin Vahdat. Technical Report CS-2002-10, Duke University, May 2002.
- "**Latency versus Cost Optimizations in Hierarchical Overlay Networks**", Dejan Kostić and Amin Vahdat, Duke University Technical Report CS-2001-04, November 2001.

Refereed Posters, Demos, and Works-in-Progress Presentations

- "**Stateless CPU-aware datacenter load-balancing**", Tom Barbette, Marco Chiesa, Gerald Q. Maguire Jr., and Dejan Kostić, poster at ACM CoNEXT '20, December, 2020.
- "**Optimizing Intel Data Direct I/O Technology for Multi-hundred-gigabit Networks**", Alireza Farshin, Amir Roozbeh, Gerald Q. Maguire Jr., and Dejan Kostić, Poster at the Fifteenth EuroSys Conference (EuroSys' 20), April 2020.
- "**Kurma: Geo-Distributed Load Balancer for Back-End Storage Systems**", Kirill L. Bogdanov, Waleed Reda, Gerald Q. Maguire Jr., Dejan Kostić, and Marco Canini, poster at ACM SOSP, October 2017.
- "**Rule-Level Data Plane Monitoring With Monocle**", Peter Perešíni, Maciej Kuzniar, and Dejan Kostić, poster at ACM SIGCOMM, August 2015.
- "**Toward Automated Testing of Geo-Distributed Replica Selection Algorithms**", Kirill Bogdanov, Miguel Peón-Quirós, Gerald Q. Maguire Jr., and Dejan Kostić, poster at ACM SIGCOMM, August 2015.
- "**Software Testing Meets Networking**", Marco Canini and Dejan Kostić, Poster at the *Open Networking Summit (ONS) Research Track 2013,* April 2013.
- "**Consistent Packet Processing – Because Consistent Updates Are Not Enough**", Peter Perešíni, Maciej Kuzniar, Nedeljko Vasić, Marco Canini, Dejan Kostić, Poster at *the 10th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2013.
- "**DiCE: Online Testing of Federated and Heterogeneous Distributed Systems**", Marco Canini, Vojin Jovanović, Daniele Venzano, Dejan Novaković, and Dejan Kostić, demo at the *ACM SIGCOMM 2011 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications*, August 2011.
- "**DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems**", Vojin Jovanović, Marco Canini, Gautam Kumar, Boris Spasojević, Olivier Crameri, and Dejan Kostić, poster at *the 9th Symposium on Operating Systems Design and Implementation (OSDI)*, December 2010.
- "**Almost-Invariants: From Bugs in Distributed Systems to Invariants**", Maysam Yabandeh, Abhishek Anand, Marco Canini, Dejan Kostić, poster at the *21st ACM Symposium on Operating System Principles (SOSP)*, October 2009.
- "**Automatically Inferring Distributed System Properties**", Maysam Yabandeh, Nikola

Knežević, and Dejan Kostić, poster at the *USENIX/ACM Symposium on Networked Systems Design and Implementation (NSDI),* April 2009.

- "**Energy-aware Traffic Engineering",** Nedeljko Vasić, Dejan Kostić, poster at the *USENIX/ACM Symposium on Networked Systems Design and Implementation (NSDI),* April 2009.
- "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", Maysam Yabandeh, Nikola Knežević, Dejan Kostić, and Viktor Kuncak, works-in-progress talk and a poster at *The 8th Symposium on Operating Systems Design and Implementation (OSDI*), December 2008.
- "**Enabling Bandwidth Adaptation in Streaming Overlays**", Simon Schubert, Frank Uyeda, Dejan Kostić, and Antony Rowstron, poster at the *USENIX/ACM Symposium on Networked Systems Design and Implementation (NSDI),* April 2008.
- "**Spectrum: Overlay Network Bandwidth Provisioning",** Dejan Kostić, Nevena Vratonjić, Nikola Knežević, and Antony Rowstron, work-in-progress talk at *The 7th Symposium on Operating Systems Design and Implementation (OSDI 2006)*, November 2006.
- "**MACEDON: Methodology for Automatically Creating, Evaluating, and Designing Overlay Networks**", Adolfo Rodriguez, Chip Killian, Dejan Kostić, and Amin Vahdat, poster at *19th ACM Symposium on Operating System Principles (SOSP 2003)*, October 2003.
- "**Bullet: High Bandwidth Data Dissemination Using an Overlay Mesh**", Dejan Kostić, Adolfo Rodriguez, Jeannie Albrecht, Amin Vahdat, poster at *ACM SIGCOMM*, August 2003.
- "**Modelnet: Scalability and Accuracy in a Large-Scale Network Emulator**", Ken Yocum, Kevin Walsh, Amin Vahdat, Priya Mahadevan, Dejan Kostić, Jeff Chase, and David Becker, poster at *ACM SIGCOMM*, August 2002.
- "**ACDC: Scalable and Adaptive Two-metric Overlay**s", Dejan Kostić, Adolfo Rodriguez, and Amin Vahdat, poster at *ACM SIGCOMM*, August 2002.
- "**OPUS: An Overlay Utility Service**", Rebecca Braynard, Dejan Kostić, Adolfo Rodriguez, Jeff Chase and Amin Vahdat, poster at *18th ACM Symposium on Operating System Principles (SOSP)*, Banff, Canada, October 2001.

Honors and Awards

- IRTF Applied Networking Research Prize (ANRP) award for the NetConfEval work, 2025
- Community Award, NSDI 2022
- Best Paper Award, SOSP 2021
- Google Ph.D. Fellowship (2021) Award for my student Alireza Farshin
- Royal Swedish Academy of Engineering Sciences IVA 100 list for the SSF TCC project, 2019
- ERC Consolidator Grant, 2017
- Honorable Mention for my student Nedeljko Vasic in the 2012 EuroSys Roger Needham PhD Award competition for the best systems PhD in Europe
- ERC Starting Independent Researcher Award, 2010
- Best Student Paper Award, COMSNETS 2009
- James B. Duke Fellowship, Duke University, 2000-2004
- Clinical faculty fellowship, Duke University, 2000
- Republic of Serbia Young Talent Scholarship, 1987-1993

Open source and data releases

- Full set of software and dataset releases in the ERC ULTRA and SSF TCC projects are available at https://www.kth.se/blogs/ultra/releases/ and https://www.kth.se/blogs/tcc/releases/.
- NICE is a tool to test OpenFlow controller application for the NOX controller platform through a combination of model checking and symbolic execution. Downloadable from

https://www.kth.se/blogs/prophet/software/

- Switch benchmarking tool that measures OpenFlow switch performance. We used it to detect various issues in real devices, and reported the results in: "What you need to know about SDN flow tables", M. Kuźniar, P. Perešíni, D. Kostić, PAM 2015. Downloadable from https://www.kth.se/blogs/prophet/software/

Professional Activities

- ERC Starting Grant 2023 PE6 Panel Chair
- ERC Starting Grant 2022 PE6 Panel evaluator
- ERC Starting Grant 2021 PE6 Panel Chair
- ERC Starting Grant 2020 PE6 Panel evaluator
- ERC Starting Grant 2019 PE6 Panel member (Vice Chair)
- ERC Starting Grant 2018 PE6 Panel evaluator
- ERC Starting Grant 2017 PE6 Panel member

- Co-Chair of the Technical Program Committee for SYSTOR '23
- Co-Chair of the Technical Program Committee for EuroSys '20
- Co-Chair of ICDCS '18 "Cloud Computing and Data Centers" track
- Co-Chair of the Technical Program Committee for CoNEXT '16

- EuroSys Steering Committee 2021-2024

- Chair of the 2013 IMDEA Networks Annual Workshop on Reliable Networked Systems
- EuroSys Doctoral Workshop chair '12
- Travel grant Co-chair: EuroSys '10, '11
- Technical Program (Global) chair for Area 8: Distributed systems and algorithms, EuroPar '09
- Poster session chair for OSDI '08
- Technical Program Co-chair: EuroSys '07 Authoring Workshop
- Tutorials chair for HPSR '12
- Publications chair for SIGCOMM '09

- Technical Program Committee Member for NSDI '26, OSDI '26
- Technical Program Committee Member for NSDI '25, OSDI '25, SIGCOMM '25
- Technical Program Committee Member for ASPLOS '24, OSDI '24, SIGCOMM '24
- Technical Program Committee Member for NSDI '23, CoNEXT '23
- Technical Program Committee Member for ASPLOS '22, NSDI '22, OSDI '22, SYSTOR '22
- Technical Program Committee Member for NSDI '21, SOSP '21
- Technical Program Committee Member for NSDI '20
- Technical Program Committee Member for NSDI '19, SIGCOMM '19, USENIX ATC '19
- Technical Program Committee Member for EuroSys'18, CoNEXT'18
- Technical Program Committee Member for EuroSys'17, CoNEXT'17
- Technical Program Committee Member for OSDI '16, PAM '16, IC2E '16
- Technical Program Committee Member for NSDI '15, EuroSys '15, INFOCOM '15, CoNEXT'15, SoCC '15
- Technical Program Committee Member for NSDI '14, EuroSys '14, INFOCOM '14, HotSDN '14, DAIS '14, EWSDN '14, ENERGY '14, Multimedia '14
- Technical Program Committee Member for NSDI '13, USENIX ATC '13, HotSDN '13, CoNEXT'13, COMSNETS '13, ICDCS '13, ITC '13, HotStorage '13, ENERGY '13
- Committee Member for the 2013 EuroSys Roger Needham Award

- Technical Program Committee Member for OSDI '12, SIGMETRICS '12, COMSNETS '12, HotCloud '12, IGCC'12, IEEE P2P '12, CoNEXT'12, ENERGY '12, HotDep '12
- Technical Program Committee Member for SIGMETRICS '11, Multimedia'11, ICDE '11, ITC '11, ICDCS '11, ICCN '11
- Technical Program Committee Member for NSDI '10, IPTPS '10
- Technical Program Committee Member for ICDCS '09, COMSNETS '09, ROADS '09
- Technical Program Committee Member for OSDI '08, IWQoS '08
- Technical Program Committee Member for EuroSys '07, HotAC '07, GP2PC '07, ICDCS '07, P2P/IPTV '07
- Technical Program Committee Member for USENIX '06, AAA-IDEA '06, WWW '06, NetDB '06, GP2PC '06

- Information Director for ACM TOCS, 2003-2009

- Referee for SOSP, ACM TOCS, NSDI, ACM TON, ACM TOMCCAP, IPTPS, JTPDS, INFOCOM, JSAC, PODC, HotOS, WWW, USITS, IEEE ICDCS, FAST, MobySys, IEEE SAINT, IEEE SCC, IEEE WIAPP, WCW

- Reviewer for Research and Innovation Foundation (RIF) of Cyprus
- Reviewer for University Institute of France (Institut universitaire de France)
- Reviewer for Innovation Fund of Montenegro
- Reviewer for Georgia's Innovation and Technology Agency
- Reviewer for H2020 projects
- Reviewer for National Science Foundations of Switzerland and Luxembourg
- Reviewer for Serbian Innovation Fund
- Reviewer for Swedish Research Council

- Member of the IEEE Green Multimedia Communication Interest Group 2010-present
- Member of the Euro-Par Advisory Board 2009-present
- Member of the Association for Computing Machinery (ACM)

Current Support

- **"Sustainable and Adaptive Inferencing for Democratizing AI"**, Wallenberg Scholar (Knut and Alice Wallenberg Foundation), single-PI, 18'000'000 SEK, 2025-2029.

- **"Scalable Federated Learning"**, Vetenskaprådet (VR, Swedish Research Council), main applicant, 3'600'000 SEK, 2022-2025, with Magnus Boman (KTH), Marco Chiesa (KTH), and Sabine Koch (KI).

Past Support

- **"Increasing the Spatial Correlation of Logical Units of Data to Enable an Ultra-Low Latency Internet (ULTRA)"**, ERC Consolidator Grant, 2'000'000 EUR, 2018-2024.
- **"SEMLA: Securing Enterprises via Machine-Learning-based Automation"**, one of the co-PIs from RISE AB, total budget 9'460'401 SEK, 2023-2025, other partners: KTH (led by Marco Chiesa), Saab AB, and RedHat AB.**"AI@EDGE: A secure and reusable Artificial Intelligence platform for Edge computing in beyond 5G Networks"**, RTD budget at RISE AB 677'290 EUR, 2021-2023
- **"Time-Critical Clouds"**, Smart Systems 2015 framework of the Swedish Foundation for

Strategic Research, main applicant, total grant 27'000'000 SEK (NSLAB part 13'500'000 SEK), 2016-2022.

- "**Autonomous network resource management in disaggregated DC**", Wallenberg Autonomous Systems Program (WASP), funding my industrial student Amir Roozbeh at Ericsson. Own budget 1'000'000 SEK, 2016-2021.
- "**Coordinated control and spectrum management for 5G heterogeneous radio access networks (COHERENT)**", Horizon 2020 Grant agreement no: 671639, RTD budget at SICS with Rebecca Steinert 620'393 EUR, 2015-2017
- "**Simplifying Development and Deployment of High-Performance, Reliable Distributed Systems (PROPHET)**", ERC Starting Investigator Award, 1'450'000 EUR, 2011-2016.
- "**Behavioral Based Forwarding (BEBA)**", Horizon 2020 Grant agreement no: 644122, own RTD budget 292'500 EUR, Work Package 4 leader, 2015-2017.
- "**An integrated development environment for portable network applications (NetIDE)**", FP7 STREP (at IMDEA Networks as member of a consortium, work package four leader), own RTD budget 367'000 EUR, from Jan 2014-June 2014.
- "**Energy-Centric Networks**", 158'040 CHF, Swiss National Science Foundation, 2010-2013.
- "**The Datacenter Observatory**", Swiss National Science Foundation R'Equip (Equipment grant), 1'000'000 CHF (one of 12 co-PIs from EPFL, ETHZ, and University of Lugano), 2011.
- "**Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", 154'838 CHF, Swiss National Science Foundation, 2009-2012.
- "**A Framework for Overlay Bandwidth Awareness and Allocation**," Microsoft Research Cambridge (PhD Scholarship Programme), 100'000 EUR, 2008-2011.
- **IBM PhD Fellowship** for Nedeljko Vasic, 26'500 USD, 2009/2010.
- "**A Framework for Integrated Global Software Upgrade Deployment and Testing**", with Willy Zwaenepoel, Hasler Foundation, 288'864 CHF, 2007-2010

Patents and patent application

1. "**Network Entity and Method Performed Therein for Handling one or more Packets in a Computer Environment**", A. Roozbeh, A. Farshin, M. Chiesa, D. Kostic. PCT Application PCT/SE2023/050880. September 2023.

2. "**Hint Entity, Receiver Node, System and Methods Performed Therein for Handling Data in a Computer Environment**", A. Roozbeh, A. Farshin, M. Chiesa, D. Kostic, H. Ghasemirahni. PCT Application PCT/SE2022/051036. November 2022.

3. "**Processing Unit, Packet Handling Unit, Arrangement and Methods for Handling Packets**", A. Roozbeh, C. Padala, A. Farshin, D. Kostic, and G. Q. Maguire Jr., PCT/SE2022/050710, Jul. 2022.

4. "**Apparatus, System, and Methods for Sliced Accelerated Packet Processing at Terabit-per-second Networking**", A. Roozbeh, C. Padala, A. Farshin, M. Chiesa, T. Barbette, and D. Kostic, US Provisional patent application, May. 2022.

5. "**System and Method for Organizing Physical Queues into Virtual Queues**", A. Roozbeh, A. Farshin, and D. Kostic, PCT/EP2022/051103, Jan. 2022.

6. "**System, Method, and Apparatus for Fine-grained Control of I/O Data Placement in Memory Subsystem**", A. Roozbeh, A. Farshin, C. Padala, D. Kostic, and G. Q. Maguire Jr., PCT/SE2021/050803, Aug. 2021.

7. "**Methods and Systems for Efficient Metadata and Data Delivery between a Network Interface and Applications**", A. Roozbeh, A. Farshin, T. Barbette, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/IB2021/052976, April 2021.

8. "**Method and System for Efficent Input/Output Transfer in Network Devices**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/SE2020/051107, Nov. 2020. US Patent 12,425,351 granted.

9. "**Method and System for Efficent Input/Output Transfer in Network Devices**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/SE2020/051108, Nov. 2020. US Patent 12,341,678 granted.

10. "**Reordering and Reframing Packets**", A. Roozbeh, A. Farshin, D. Kostic, G. Q. Maguire Jr., Hamid Ghasemirahni, and Tom Barbette, PCT Application PCT/IB2020/054991, May 2020.

11. "**Efficient Loading of Code Portions to a Cache**", A. Roozbeh, A. Farshin, C. Padala, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/SE2020/050527, May. 2020.

12. "**Dynamic Deployment of Network Applications Having Performance and Reliability Guarantees in Large Computing Networks**", S. Liu, R. Steinert, D. Kostić,
    a. USA Patent Application WO/2020/149786, Jan 2020. US11290375B2 Granted

13. "**Entities, system and methods performed therein for handling memory operations of an application in a computer environment**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr.,
    a. PCT Application PCT/SE2019/050948, Oct. 2019. US12111766B2 Granted

14. "**Methods and Devices for Controlling Memory Handling**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr.,
    a. PCT Application PCT/SE2020/050161, Feb. 2019. US12111768B2 Granted

15. "**Methods and Nodes for Handling Memory**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr.,
    a. PCT Application PCT/SE2018/051311, Dec. 2018. US11714753B2 Granted

16. "**Memory Allocation in a Hierarchical Memory System**", A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr.,
    a. USA Patent Application US20210191777A1.
    b. PCT Application PCT/SE2019/050596, Jun. 2018.

17. "**Accelerating Resource Allocation in Virtualized Environments Using Workload Classes and/or Workload Signatures**", Nedeljko Vasić, Dejan Novaković, Svetozar Miucin, Dejan Kostić, and Ricardo Bianchini
    a. USA Provisional Patent Application 61/586,712, January 2012.
    b. USA Patent Application 13/411,491, March 2012.

18. "**Insomnia in the Access (or How to Curb Access Network Related Energy Consumption)**", Eduard Goma, Marco Canini, Alberto Lopez, Nikolaos Laoutaris, Dejan Kostić, Pablo Rodriguez, Rade Stanojević, and Pablo Yague
    a. USA Provisional Patent Application 61/522,968, August 2011. With Telefonica Spain.

19. "**A Method and Device for Predicting Faults in an IT System**", Marco Canini, Dejan Kostić, Dejan Novaković, Vojin Jovanović, Gautam Kumar, and Olivier Crameri,
    a. PCT application PCT/EP2011/062031, July 2011. (published)
    b. European Patent Application EP10171147, July 2010.
    c. United States Patent US8943354B2 Granted

20. "**A Method for Providing Guaranteed Distributed Failure Notification**", John Dunagan, Nicholas J. A. Harvey, Michael B. Jones, Dejan Kostić, Marvin Theimer, Alec Wolman.
    a. United States Patent 7551552, September 2004. With Microsoft. Granted

Courses Taught

- Communication System Design (CSD IK2200), KTH Masters, Fall 2025
- Networked Systems for Machine Learning (IK2221/FIK3221), KTH, Spring 2025
- Communication System Design (CSD IK2200), KTH Masters, Fall 2024

- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2023/24 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2023
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2022/23 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2022
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2021/22 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2021
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2020/21 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2020
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2019/20 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2019
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2018/19 academic year)
- Advanced Topics in Networked Systems, KTH Doctoral course, Fall 2018/Spring 2019
- Communication System Design (CSD IK2200), KTH Masters, Fall 2018
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2017/18 academic year)
- Advanced Topics in Networked Systems, KTH Doctoral course, Fall 2017/Spring 2018
- Advanced Internetworking II (IK2217), (3rd term of the 2017/18 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2017
- Advanced Topics in Networked Systems, KTH Doctoral course, Fall 2016/Spring 2017
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2016/17 academic year)
- Advanced Internetworking II (IK2217), (3rd term of the 2016/17 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2016
- Advanced Topics in Networked Systems, KTH Doctoral course, Fall 2015/Spring 2016
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220/IK3619), (4th term of the 2015/16 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2015
- Advanced Topics in Networked Systems, KTH Doctoral course, Fall 2014/Spring 2015
- Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (IK2220), (4th term of the 2014/15 academic year)
- Communication System Design (CSD IK2200), KTH Masters, Fall 2014
- Advanced Computer Networks and Distributed Systems, EPFL Masters, Fall 2012 (with Nedeljko Vasić)
- Operating systems, EPFL Bachelor program, EPFL Bachelors, Spring 2012
- Advanced Topics in Networked Systems, EPFL Doctoral School, Spring 2012
- Advanced Computer Networks and Distributed Systems, EPFL Masters, Fall 2011
- Operating systems, EPFL Bachelor program, EPFL Bachelors, Spring 2011
- Advanced Topics in Distributed Systems, EPFL Doctoral School, Fall 2010
- Operating systems, EPFL Bachelor program, EPFL Bachelors, Spring 2010
- Advanced Topics in Networked Systems, EPFL Doctoral School, Fall 2009
- Advanced Topics in Computer Systems II, EPFL Doctoral School, Spring 2009
- Operating systems, EPFL Bachelor program, EPFL Bachelors, Spring 2009
- Advanced Computer Networks and Distributed Systems, EPFL Masters, Fall 2008
- Advanced Topics in Computer Systems II, EPFL Doctoral School, Spring 2008
- Operating systems, EPFL Bachelor program, EPFL Bachelors, Spring 2008

- Advanced Computer Networks and Distributed Systems, EPFL Masters, Fall 2007
- Middleware, EPFL Masters, Summer 2007 (with Benoit Garbinato)
- Advanced Computer Networks and Distributed Systems, EPFL Masters, Winter 2006
- Topics in Distributed Systems, EPFL Doctoral School, Summer 2006

Current Doctoral Students

- Ali Banaei Mobarak Abadi, from 2025 (with Marco Chiesa as the co-advisor)
- Xiangyu Shi, from 2025 (with Marco Chiesa as the co-advisor)
- Alexandra Udrescu, from 2025 (with Marco Chiesa as the main advisor)
- Mohammad Siavashi, from 2024 (with Marco Chiesa as the main advisor)
- Changjie Wang, from 2023 (with Marco Chiesa as the main advisor)
- Giacomo Verardo, from 2020 (with Marco Chiesa as the co-advisor)
- Daniel Felipe Perez Ramirez, from 2020 (with Magnus Boman as the co-advisor)

Licentiate Students Graduated

- Giacomo Verardo, May 2024, (co-advisor Marco Chiesa)
  Title: "**Optimizing Neural Network Models for Healthcare and Federated Learning**"
- Massimo Girondi, April 2024, (co-advisor Marco Chiesa)
  Title: "**Toward Highly-efficient GPU-centric Networking**"
- Hamid Ghasemirahni, June 2021, (co-advisor Marco Chiesa)
  Title: "**Packet Order Matters! Improving Application Performance by Deliberately Delaying Packets**"
- Alireza Farshin, June 2019 (co-advisor Gerald Q. Maguire Jr.)
  Thesis title: "**Realizing Low-Latency Internet Services via Low-Level Optimization of NFV Service Chains: Every nanosecond counts!**"
- Amir Roozbeh, May 2019 (co-advisor Gerald Q. Maguire Jr.)
  Thesis title: "**Toward Next-generation Data Centers: Principles of Software-Defined "Hardware" Infrastructures and Resource Disaggregation**"
- George Katsikas, December 2016 (co-advisor Gerald Q. Maguire Jr.)
  Thesis title: "**Realizing High Performance NFV Service Chains**"
- Kirill Bogdanov, November 2016 (co-advisor Gerald Q. Maguire Jr.)
  Thesis title: "**Reducing Long Tail Latencies in Geo-Distributed Systems**"

Past Research Staff

- Shahid Mehmood, 2024-2025
- Radosav Rudić, 2015-2016
- Miguel Peon, 2013-2014
- Daniele Venzano, 2011-2013 (now at Eurecom, Nice, France)

Ph.D. Students Graduated

1. Hamid Ghasemirahni, November 2024 (co-advisor: Marco Chiesa)
   Title: "**Realizing High-Performance Stateful Network Function Chains on Commodity Hardware**".

2. Alireza Farshin, March 2023 (co-advisor Gerald Q. Maguire Jr.)
   Title: "**Realizing Low-Latency Packet Processing on Multi-Hundred-Gigabit-Per-Second Commodity Hardware: Exploit Caching to Improve Performance**" First job: RISE, Sweden

(now at Nvidia).

3. Waleed Reda, May 2022 (advising equally with Marco Canini, and then with Peter van Roy (UCLouvain) and Marco Chiesa as the co-advisors)
   Title: "**Accelerating Distributed Storage in Heterogeneous Settings**", First job: Microsoft Research, Redmond

4. Amir Roozbeh, December 2021 (co-advisor Gerald Q. Maguire Jr.)
   Title: "**Realizing Next-Generation Data Centers via Software-Defined "Hardware" Infrastructures and Resource Disaggregation**", First job: Ericsson Research, Sweden.

5. Kirill Bogdanov, November 2018 (co-advisor Gerald Q. Maguire Jr.)
   Thesis title: "**Enabling Fast and Accurate Run-Time Decisions in Geo-Distributed Systems: Better Achieving Service Level Objectives**", First job: Amazon, Switzerland.

6. George Katsikas, September, 2018 (additional advisors Gerald Q. Maguire Jr. and Rebecca Steinert)
   Thesis title: "**NFV Service Chains at the Speed of the Underlying Commodity Hardware**".
   First job: UBITECH, Greece.

7. Maciej Kuzniar, June 2016
   Thesis title: "**Measuring and Managing Switch Diversity in Software Defined Networks**".
   First job: Google Zurich, Switzerland.

8. Peter Perešíni, June 2016
   Thesis title: "**Simplifying Development and Management of Software-Defined Networks**".

9. Dejan Novaković, June 2014.
   Thesis title: "**Towards Stable Cloud Performance**". First job Swisscom, Switzerland.

10. Nedeljko Vasić, April 2011.
    Thesis title: "**Energy-Proportional and Scalable Networks**". First job: post-doc at EPFL-NSL.

11. Maysam Yabandeh, March 2011. Co-advisor: Rachid Guerraoui.
    Thesis title: "**Model Checking of Distributed Algorithm Implementations**". First job: Yahoo! Research, Barcelona.

Ph.D. Thesis Committees

- Lior Zeno, Technion, 2024
- Federico Parola, Polito, 2024
- Hassan Habibi Gharakhelli, UNSW, 2015
- Michael Kryczka, UC3M, 2013
- Nuno Santos, EPFL, 2012
- Olivier Crameri, EPFL, 2011
- Ming-yee Christopher Iu, EPFL, 2010
- Mathieu Lacage, INRIA, 2010
- Philip Frey, ETHZ, 2010
- Ron Levy, EPFL, 2007
- Sergio Mena, EPFL, 2006

Past Post-Doctoral Researchers

- Mariano Scazzariello (2023-2024, with Marco Chiesa as the co-advisor): First job: RISE AB
- Alireza Farshin (summer 2023): First job: RISE AB (now at Nvidia)
- Tom Barbette, July 2018-July 2021. First job: UC Louvain (now an Assistant Professor).
- Kirill Bogdanov, January-March 2019. First job: Amazon Zurich, Switzerland.
- George Katsikas, October 2018 – December 2018, October, 2019 – September 2020. First job: UBITECH, Greece.
- Nedeljko Vasić, April 2011 – Aug 2013. First job Swisscom, Switzerland.
- Marco Canini, Aug 2009 – Aug 2012. First job TU Berlin/Deutsche Telekom (now an Associate Professor at KAUST).

Master Theses Supervised and/or Examined (at KTH)

- Andreas Levander (Spring 2025)
- Rémi Gardette (Spring 2025)
- Enric Perpinyà Pitarch (Spring 2025)
- Mårten Björkman (Spring 2024)
- Laura Puccioni (Spring 2024)
- Berk Türetken (Spring 2024)
- Karthika Nair Satheesh (Spring 2024)
- Lizzy Tengana (Spring 2023)
- Sepehr Javid (Spring 2023)
- Chrysoula Dikonimaki (Spring 2023)
- William Stackenäs (Spring 2023)
- Pulasthi Harasgama (Spring 2022)
- Catalin Gangtalic (Spring 2021)
- Mandar Joshi (Spring 2021)
- Felix Eder (Spring 2021)
- Jonas Johansson (Spring 2021)
- Haoran Yao (Spring 2021)
- Omar Giordano (Spring 2021)
- Vinayak Tejankar (Fall 2020)
- Farhad Zareafifi (Fall 2019)
- Henrik-Bjoerseth (Fall 2019)
- Muhammad Raheem (Fall 2018)
- Michail Xirouchakis (Fall 2018)
- Abdulrahman N Bilal Mohamed (Spring 2018)
- Khalid Omer Mahgoub Saied (Spring 2018)
- Marcus Falgert (Spring 2017)
- Marcel Enguehard (Fall 2015)
- Muhammad Zeeshan Abid (Summer 2015)

Master Theses Supervised (at EPFL)

- Bogdan Prisacari (Spring 2011)
- Tangui Achraf (Spring 2011)
- Daniel Lorch (Spring 2010)
- Leandro Franco (Spring 2010)
- Michael Boksanyi (Spring 2010)
- Federico Marmori (Spring 2009)

- Robert Stachowiak (Spring 2009)
- Sukanya Krishnan (Fall 2008)
- Nikolaos Kornaros (Spring 2008)

Keynote Talks

- **"Running NFV Service Chains at the True Speed of the Underlying Hardware"**, keynote talk at IEEE NFV-SDN 2018, Verona Italy, November 2018.
- **"Energy-Proportional Networked Systems"**, keynote at the IEEE GreenCom, Besançon, France, November 2012.

Other External Talks and Panel Participations

- **"NetConfEval: Can LLMs Facilitate Network Configuration?"**, invited talk at RWTH, June 2025.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, invited talk Ericsson, February 2024.
- **"Packet Order Matters! Improving Application Performance by Deliberately Delaying Packets",** invited talk at the TU Munich Academic Salon on Time-Sensitive Networking and Deterministic Applications, October, 2022
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, invited talk at the Uppsala University, June 2021.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, invited talk at the University of Cambridge, December 2020.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, invited talk at the University of Belgrade (ETF), December 2019.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, Distinguished Lecture at Imperial College London, July 2019.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, Distinguished Lecture at TU Darmstadt, July 2019.
- **"NFV Service Chains at the True Speed of the Underlying Hardware"**, invited talk at the University of Luxembourg, July 2019.
- **"Metron: NFV Service Chains at the True Speed of the Underlying Hardware"**, University of Novi Sad, November 2018.
- **ERC 10 years celebration in Stockholm,** panel member, May 2017
- **Ericsson open day 2017,** panel member on the Next Generation Cloud, May 2017
- **"Increasing the Performance of Geo-distributed Storage Systems"**, invited talk at the Large-Scale Distributed Systems and Middleware Workshop (LADIS), Belgrade, April 2017.
- **"Increasing the Performance of Geo-distributed Systems"**, talk at HGST/Sandisk, San Jose, December 2016.
- **"Increasing the Performance of Geo-distributed Storage Systems"**, talk at the 9th Cloud Control Workshop, June 2016.
- **"Performance Debugging of Geo-distributed Storage Systems"**, invited talk at EURECOM, Nice, France, March 2016.
- **"Performance Debugging of Geo-distributed Storage Systems"**, invited talk at Uppsala University, December 2015.
- "**Online Testing of Distributed Systems**", invited talk at the Vrije University Amsterdam, January 2014.
- "**Testing of OpenFlow Networks**", invited talk at NEC Heidelberg, June 2013.
- "**Online Testing of Distributed Systems**", invited talk at the University of Alcala, Madrid, April

2013.

- **"Online Testing of Distributed Systems"**, invited talk at the KTH Royal Institute of Technology, Stockholm, Sweden, October 2012.
- **"Online Testing of Distributed Systems"**, invited talk at the Simula Research Laboratory, Oslo, Norway, October 2012.
- **"A NICE Way to Test OpenFlow Applications"**, invited talk at the SDN Workshop & Carrier Cloud Summit, June 2012.
- **"Online Testing of Distributed Systems"**, invited talk at the University of Lugano, February 2012.
- **"Online Testing of Distributed Systems"**, invited talk at the University of California at Berkeley, January 2012.
- **"Online Testing of Distributed Systems"**, invited talk at Stanford University, January 2012.
- **"Online Testing of Distributed Systems"**, invited talk at the University of Texas at Austin, January 2012.
- **"Online Testing of Distributed Systems"**, invited talk at HP Labs, Palo Alto, January 2012.
- **"Online Testing of Distributed Systems"**, invited talk at IST Austria, October 2011.
- **"Online Testing of Distributed Systems"**, invited talk at IMDEA Software, Madrid Spain, October 2011.
- **"Finding Almost-Invariants in Distributed Systems"**, presented at the 30th IEEE Symposium on Reliable Distributed Systems (SRDS), October 2011.
- **"Online Testing of Distributed Systems"**, invited talk at IMDEA Networks, Madrid Spain, September 2011.
- **"DiCE: Online Testing of Federated and Heterogeneous Distributed Systems"**, invited talk at Vrije University, Amsterdam, May 2011.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at Microsoft Research, Cambridge, February 2011.
- **"Responsive, Energy-Proportional Networks"**, invited talk at the Nano-Tera.ch Workshop/Educational Event on Green and Energy-Efficient Computing, December 2010.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at the TU Munich, November 2010.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at INRIA and University of Nice, Sophia-Antipolis, November 2010.
- **"Responsive, Energy-Proportional Networks"**, invited talk at the Green Networked and Electronic Media (NEM), October 2010.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at Microsoft Research, Redmond, October 2010.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at University of Washington, October 2010.
- **"DiCE: Predicting Faults in Heterogeneous, Federated Distributed Systems"**, invited talk at Princeton University, October 2010.
- **"Energy-Proportional Networks"**, invited talk at the 2nd IMDEA Networks Annual International Workshop on Energy Efficiency and Networking, June 2010.
- **"Energy-Proportional Networks"**, invited talk at the Politecnico di Torino (POLITO), May 2010.
- **"Reliable Networked Systems"**, presented at the Hasler Foundation Workshop, January 2010.
- **"CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems"**, invited talk at the University of Belgrade (ETF), December 2009.
- **"Reliable Networked Systems"**, invited talk at the Harvard University, December 2009.
- **"CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems"**, invited talk at the University of Novi Sad, November 2009.
- **"Towards a Cost-Effective Networking Testbed"**, presented at the 4th Workshop on Real Overlays and Distributed Systems (**ROADS**), October 2009.
- **"CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems"**,

presented at the 6th USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), April 2009.

- "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", invited talk at University of California, San Diego, December 2008.
- "**Energy-aware Traffic Engineering**," invited talk at IBM Zurich, November 2008.
- "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", invited talk at Max Planck Institute for Software Systems, November 2008.
- "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", invited talk at MSR Cambridge, November 2008.
- "**CrystalBall: Predicting and Preventing Inconsistencies in Deployed Distributed Systems**", invited talk at ETH Zurich, October 2008.
- "**Enabling Bandwidth Adaptation in Streaming Overlays**", invited talk at Yahoo Research, Barcelona, July, 2008.
- "**Enabling Bandwidth Adaptation in Streaming Overlays**", invited talk at Telefonica Research, Barcelona, July, 2008.
- "**Staged Deployment in Mirage, an Integrated Software Upgrade Testing and Distribution System**," invited talk at Microsoft Research, Redmond, December 2007.
- "**Mesh-based Data Dissemination**", invited talk at Ericsson Research, Stockholm, September 2007.
- "**High-throughput Distributed Services**", presented at the NeXTworking, Second COST-NSF workshop on Future Internet, Berlin, April 2007.
- "**A View from the Edge**," presented at the Future Internet Workshop, 2nd CoNEXT Conference, Lisbon, Dec. 2006.
- "**Mesh-based Data Dissemination**", invited talk at the University of Ioannina, October 2006.
- "**Mesh-based Data Dissemination**", invited talk at Penn-State University, Purdue, Ohio State University, University of Rochester, University of Arizona, Rutgers, EPFL, USI Lugano, Washington University St. Louis, Boston University, Virginia Tech, and Microsoft Research, March-May 2005; University of Cambridge, UK, and University of Belgrade (ETF), Dec. 2005.
- "**Maintaining High Bandwidth under Dynamic Network Conditions**", presented at the 2005 USENIX Annual Technical Conference, April 2005.
- "**FUSE: Lightweight Guaranteed Distributed Failure Notification**", invited talk at the University of California, Los Angeles, January 2005.
- "**FUSE: Lightweight Guaranteed Distributed Failure Notification**", presented at the 6th Symposium on Operating Systems Design and Implementation (OSDI 2004), December 2004.
- "**Bullet: High Bandwidth Data Dissemination Using an Overlay Mesh**", presented at the 19th ACM Symposium on Operating System Principles (SOSP 2003), October 2003.
- "**Using Random Subsets to Build Scalable Network Services**", presented at the 4th USENIX Symposium on Internet Technologies and Systems (USITS), March 2003.
- "**Using Random Subsets to Build Scalable Network Services**", invited talk at the University of North Carolina Chapel Hill, March 2003.
- "**ACDC overlay networks**", presented at North Carolina Networking Initiative 2002 meeting.

Work Experience

MakeLabs (R&D division of Make Systems, Inc.), Cary, NC   10/1998 - 11/1999
Senior Software Engineer: With the Frameworks and Visualization group, designed and implemented portions of a Network Resource Planning tool. Used tracing and object clustering to improve system performance by 30% for large ObjectStore databases on the Solaris platform. Proposed and implemented "Undo" facility on top of the ObjectStore database.

INET, Inc., Plano, TX   6/1995 - 9/1998
Senior Programmer Analyst (Team lead): As a member of the select R&D group, worked on a real-

time, distributed SS7/C7 network surveillance system (GeoProbe) that reconstructs all calls and transactions on the SS7 network.

Conducted transition of the data acquisition platform from standalone to redundant/highly available. Researched and designed transparent file replication for UNIX processes. Proposed and implemented a replicated distributed file system. Introduced locking and optimistic time stamping mechanisms into an object-oriented database.

Designed, implemented and integrated a distributed call and transaction "tracking shell" which sorts incoming signal units, creates call records, runs state machines, and exports results to other applications. Created and implemented a state machine framework for call tracking.

Departmental and University Activities

- Docent promotions committee, KTH EECS, 2024-
- Docent promotions committee, KTH ICT, 2017-2018
- I&C School Graduate school committee (EDIC), EPFL, 2009-2012
- Computer science department graduate recruitment committee, Duke University, 2000-2002
- Systems seminar coordinator, Computer science department, Duke University, 2001-2002