

Curriculum Vitae: Dejan Kostić



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Research Interests

Distributed Systems, Computer Networks, Operating Systems, and Mobile Computing.

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. **"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.
2. **"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.
3. **"Fast Deployment of Reliable Distributed Control Planes with Performance Guarantees"**, Shaoteng Liu, Rebecca Steinert, Natalia Vesselinova, and Dejan Kostić, *IEEE Access*, April 2020.
4. **"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.
5. **"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, Mozghan Mahloo, Daniel Turull, Vinay Yadhav, and Dejan Kostić, *IEEE Communications Surveys & Tutorials*, May 2018.
 6. **"Methodology, Measurement and Analysis of Flow Table Update Characteristics in Hardware OpenFlow Switches"**, Maciej Kuzniar, Peter Perešini, Dejan Kostić, and Marco Canini, *Computer Networks: The International Journal of Computer and Telecommunications Networking*, Elsevier, 2018.
 7. **"Dynamic, Fine-Grained Data Plane Monitoring with Monocle"**, Peter Perešini, Maciej Kuzniar, and Dejan Kostić, *IEEE/ACM Transactions on Networking*, 2018, Volume: 26 Issue:1.
 8. **"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.
 9. **"SNF: Synthesizing high performance NFV service chains"**, Georgios Katsikas, Marcel Enguehard, Maciej Kuźniar, Gerald Q. Maguire Jr., and Dejan Kostić, *PeerJ Computer Science*, 2016.
 10. **"Systematically Testing OpenFlow Controller Applications"**, Peter Perešini, Maciej Kuzniar, Marco Canini, Daniele Venzano, Dejan Kostić, and Jennifer Rexford, *Computer Networks: The International Journal of Computer and Telecommunications Networking*, Elsevier, August 2015.
 11. **"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.
 12. **"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.
 13. **"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

14. **"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. *To appear*.
15. **"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'22), June 2022.
16. **"Packet Order Matters! Improving Application Performance by Deliberately Delaying Packets"**, Hamid Ghasemirahni, Tom Barbette, Georgios P. Katsikas, Alireza Farshin, Amir Roozbeh, Massimo Gironi, 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!**
17. **"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.

18. **"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!**
19. **"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.
20. **"What you need to know about (Smart) Network Interface Cards"**, Georgios P. Katsikas, Tom Barbette, Marco Chiesa, Dejan Kostić, and Gerald Q. Maguire Jr., *Proceedings of The Passive and Active Measurement Conference (PAM)* 2021, April 2021.
21. **"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.
22. **"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.
23. **"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.
24. **"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.
25. **"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.
26. **"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.
27. **"Control under Intermittent Network Partitions"**, Shaoteng Liu, Rebecca Steinert, Dejan Kostić, *Proceedings of the IEEE International Conference on Communications (ICC)*, May 2018.
28. **"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.
29. **"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.
30. **"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.
31. **"Monocle: Dynamic, Fine-Grained Data Plane Monitoring"**, Peter Perešini, Maciej Kuzniar, and Dejan Kostić, *Proceedings of the 11th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2015.
32. **"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.

33. **"What You Need to Know About SDN Flow Tables"**, Maciej Kuzniar, Peter Perešini, and Dejan Kostić, *Proceedings of the Passive and Active Measurement Conference (PAM)*, March 2015.
34. **"Providing Reliable FIB Update Acknowledgments in SDN"**, Maciej Kuzniar, Peter Perešini, and Dejan Kostić, *Proceedings of the 10th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2014.
35. **"ESPRES: Transparent SDN Update Scheduling"**, Peter Perešini, Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2014.
36. **"ESPRES: Easy Scheduling and Prioritization for SDN"**, Peter Perešini, Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Open Networking Summit (ONS) Research Track 2014*, March 2014.
37. **"OpenFlow Needs You! A Call for a Discussion About a Cleaner OpenFlow API"**, Peter Perešini, Maciej Kuzniar, and Dejan Kostić, *Proceedings of the 2nd European Workshop on Software Defined Networks (EWSN)*, October 2013.
38. **"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 (EWSN)*, October 2013.
39. **"Is the Network Capable of Computation?"**, Peter Perešini and Dejan Kostić, *Proceedings of the 3rd International Workshop on Rigorous Protocol Engineering (WRiPE)*, October 2013.
40. **"OF.CPP: Consistent Packet Processing for OpenFlow"**, Peter Perešini, Maciej Kuzniar, Nedeljko Vasić, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2013.
41. **"Automatic Failure Recovery for Software-Defined Networks"**, Maciej Kuzniar, Peter Perešini, Nedeljko Vasić, Marco Canini, and Dejan Kostić, *Proceedings of the Workshop on Hot Topics in Software Defined Networking (HotSDN)*, August 2013. (short paper)
42. **"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.
43. **"A SOFT Way for OpenFlow Switch Interoperability Testing"**, Maciej Kuzniar, Peter Perešini, Marco Canini, Daniele Venzano, and Dejan Kostić, *Proceedings of the 8th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT)*, December 2012.
44. **"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.
45. **"OFTEN Testing OpenFlow Networks"**, Maciej Kuzniar, Marco Canini, and Dejan Kostić, *Proceedings of the 1st European Workshop on Software Defined Networks (EWSN)*, October 2012.
46. **"A NICE Way to Test OpenFlow Applications"**, Marco Canini, Daniele Venzano, Peter Perešini, Dejan Kostić, and Jennifer Rexford, *Proceedings of the 9th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2012.
47. **"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.
48. **"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.
49. **"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).
50. **"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.
 51. **"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.
 52. **"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.
 53. **"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).
 54. **"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.
 55. **"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.
 56. **"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.
 57. **"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.
 58. **"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.
 59. **"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.
 60. **"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.
 61. **"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.**
 62. **"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.
 63. **"Opis: Reliable Distributed Systems in OCaml"**, Pierre-Evariste Dagand, Dejan Kostić, and Viktor Kuncak, *Proceedings of TLDI*, January 2009.
 64. **"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.
 65. **"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.
66. **"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.
 67. **"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.
 68. **"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.
 69. **"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.
 70. **"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.
 71. **"Scalability in Adaptive Multi-Metric Overlays"**, Adolfo Rodriguez, Dejan Kostić, and Amin Vahdat, *The 24th International Conference on Distributed Computing Systems (ICDCS)*, March 2004.
 72. **"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.
 73. **"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. **"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 Perešini, 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 Perešini, 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 Perešini, 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 Overlays"**, 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

- Community Award, NSDI '22
- Best Paper Award, SOSP '21
- 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. Perešini, 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 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 '23, CoNEXT '23, ICDCS '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 University Institute of France (Institut universitaire de France)
- 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

- **"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).
- **"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
- **"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.

Past Support

- **"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

1. **"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.
2. **"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.
3. **"Apparatus, System, and Methods for Sliced Accelerated Packet Processing at Terabit-per-second Networking"**, A. Roozbeh, C. Padala, A. Farshin, M. Chiesa, T. Barbettet, and D. Kostic, US Provisional patent application, May. 2022.
4. **"System and Method for Organizing Physical Queues into Virtual Queues"**, A. Roozbeh, A. Farshin, and D. Kostic, PCT/EP2022/051103, Jan. 2022.
5. **"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.
6. **"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.
7. **"Method and System for Efficient Input/Output Transfer in Network Devices"**, A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/SE2020/051107, Nov. 2020.
8. **"Method and System for Efficient Input/Output Transfer in Network Devices"**, A. Roozbeh, A. Farshin, D. Kostic, and G. Q. Maguire Jr., PCT Application PCT/SE2020/051108, Nov. 2020.
9. **"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.
10. **"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.
11. **"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.
12. **"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.
13. **"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.
14. **"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.
15. **"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.
16. **"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.

17. **"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.
18. **"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.
19. **"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.

Courses Taught

- 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 Post-Doctoral Researchers

- Mariano Scazzariello (with Marco Chiesa as the co-advisor)

Current Doctoral Students

- Massimo Girondi (with Marco Chiesa as the co-advisor)
- Giacomo Verardo (with Marco Chiesa as the co-advisor)
- Daniel Felipe Perez Ramirez, from 2020 (with Magnus Boman as the co-advisor)
- Akhila Rao, from 2020 (with Magnus Boman as the main academic advisor)
- Hamid Ghasemi, from 2019 (co-advisor Marco Chiesa)
- Alireza Farshin, from 2017 (co-advisor Gerald Q. Maguire Jr.)

Licentiate Students Graduated

- 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 (secondary advisor Gerald Q. Maguire Jr.)
Thesis title: **“Realizing High Performance NFV Service Chains”**
- Kirill Bogdanov, November 2016 (secondary advisor Gerald Q. Maguire Jr.)
Thesis title: **“Reducing Long Tail Latencies in Geo-Distributed Systems”**

Past Research Staff

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

Ph.D. Students Graduated

1. 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**"
2. Amir Roozbeh, December 2021 (secondary advisor Gerald Q. Maguire Jr.)
Title: "**Realizing Next-Generation Data Centers via Software-Defined “Hardware” Infrastructures and Resource Disaggregation**"
First job: Ericsson Research, Sweden.
3. Kirill Bogdanov, November 2018 (secondary 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.
4. 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.
5. Maciej Kuzniar, June 2016
Thesis title: "**Measuring and Managing Switch Diversity in Software Defined Networks**".
First job Google Zurich, Switzerland.
6. Peter Perešini, June 2016
Thesis title: "**Simplifying Development and Management of Software-Defined Networks**".
7. Dejan Novaković, June 2014.
Thesis title: "**Towards Stable Cloud Performance**". First job Swisscom, Switzerland.
8. Nedeljko Vasić, April 2011.
Thesis title: "**Energy-Proportional and Scalable Networks**". First job: post-doc at EPFL-NSL.
9. 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

- 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

- 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)

- 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

- **"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 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