

## RESUME

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Full name:	Danny Raz
Identity No.	056156169
Date and place of birth:	14/12/59 - Israel
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### ACADEMIC DEGREES

1996 - Ph.D., The Weizmann Institute of Science, Israel. "On the Power of Commuting", Advisor David Harel, Department of Applied Mathematics and Computer Science, The Weizmann Institute of Science, Rehovot, Israel.

1990 - M.Sc., The Weizmann Institute of Science, Israel. "Deciding Properties of Nonregular Programs", M.Sc. thesis, Advisor David Harel, Department of Applied Mathematics and Computer Science, The Weizmann Institute of Science, Rehovot, Israel.

1988 - B.Sc., Physics, Mathematics and Computer Science, The Hebrew University of Jerusalem.

### ACADEMIC APPOINTMENTS

May 2013 – present, Full Professor, Department of Computer Science, The Technion.

June 2005 – May 2013, Associate Professor, Department of Computer Science, The Technion.

February 2001 – June 2005, Senior Lecturer, Department of Computer Science, The Technion.

October 2000 – February 2001, Lecturer, Department of Computer Science, The Technion.

### PROFESSIONAL EXPERIENCE

2017 – present, visiting scientist, Google, Israel

2015 – 2016, Director, Bell Labs Israel, Nokia Israel

2014 – 2015, Director, Bell Labs Israel, Alcatel Lucent Israel

2009-2014, visiting scientist, Google, Israel

2008-2009, visiting scientist, Google, Mountain view, CA.

2000-2001, Senior research consulter, Jigami, Israel.

1997-2000, Member of the technical staff, Bell-Laboratories.

1997, Visiting lecturer, The University of California Berkeley.

1995-1997, Post-doctoral fellow, the International Computer Science Institute, (ICSI) Berkeley.

## **RESEARCH INTERESTS**

Theory and applications of management related problems in IP networks and Cloud computing. In particular I am working in the following directions:

- Efficient Network and System Management
- Resource management in Cloud Computing
- Network Function Virtualization (NFV) and Software Defined Networks (SDN)
- Network aware services and Programmable Networks
- Theory of network and system management
- Traffic Engineering, Network location problems, and other network related optimization problems

## **TEACHING EXPERIENCE**

Advanced topic in Computer Networks - Network Functions Virtualization (NFV) spring 2016

Advanced topic in Computer Networks - Challenges in managing Large data Centers spring 2014, Technion

Advanced topic in Computer Networks – Efficient Cloud Computing fall 2011, spring 2012, spring 2013, Technion.

Advanced topic in Computer Networks - Efficient Network Management, graduate and undergraduate, fall 2001, fall 2002, fall 2003, fall 2004, fall 2005, fall 2006, fall 2008, fall2010, fall2011 , Technion.

Introduction to Computer Networks, graduate and undergraduate, fall 2000, spring 2002, summer 2002, spring 2003, spring 2004, spring 2005, spring 2006, spring 2007, spring 2010, spring 2011, fall 2012, spring 2013, spring 2014, fall 2016, winter 2017, fall 2018, fall 2019, fall 2020, fall 2021 Technion, fall 2022.

Computer Communications Project, graduate and undergraduate, spring 2002, spring 2003, spring 2004, spring 2005, spring 2006, spring 2007, spring 2009, Spring 2010, Spring 2011, spring 2012, fall 2013, fall 2014, fall 2017, fall 2018, Spring 2019, Spring 2020, Spring 2021 Technion, Spring 2022 Technion, , Spring 2023 Technion.

Computability and Complexity, graduate, fall 1996, The University of California, Berkeley.

The "Math by mail" program, 1991-1995, Youth Activity Section, The Weizmann Institute of Science.

## **TECHNION & DEPARTMENTAL ACTIVITIES**

2023 – current, Dean of the Henry and Marilyn Taub Faculty of Computer Science, Technion.

2017 – 2022, Vice Dean for Teaching, The Computer Science Department, Technion.

2016 – 2020, Member of the Technion committee for promotions ("vaada mechina")

2016 – 2017, Vice Dean for External Relations, The Computer Science Department, Technion.

2013 – 2014, Vice Dean for curriculum, The Computer Science Department, Technion.

2012 – The Technion Computer Engineering Center (TCE), 2nd Annual International TCE Conference, Conference Co-Chair.

2008-2011, Vice Dean for graduate studies, The Computer Science Department, Technion.

2009-2012, TASP - The Technion Autonomous Systems Program, Member of the Graduate Studies Committee.

2004-2007, SAMBA – The Program for Excellence Students in Computer Science, Technion Computer Science Department, Program Coordinator.

## **PUBLIC PROFESSIONAL ACTIVITIES**

### **Editorial Board Member**

2016, IEEE Trans. Network and Service Management, Special Issue on Big Data Analytics for Management, guest editor.

2012 – 2015 IEEE Transactions on Network and Service Management (TNSM), Associate editor.

2012 – 2015, The International Journal of Network Management, Member of the Editorial Advisory Board.

2006 – 2010 IEEE/ACM Transactions on Networking (ToN), Associate editor.

2000 -- 2006, The Journal of Communications and Networks (JCN), Associate editor.

2003, IEEE Journal on Selected Areas in Communications (JSAC), special issue on Internet and WWW measurement and modeling, guest editor.

### **Technical Program Committee Chair**

2021, The 14<sup>th</sup> ACM International Systems and Storage Conference (SYSTOR 21), TPC CO-Chair

2016, ACM SIGCOMM Workshop on Hot Topics in Middleboxes and Network Function Virtualization (HotMiddlebox 2016), TPC CO-Chair

2014, The 10th International Conference on Network and Service Management, CNSM 2014:TCP Co-chair

2010, The 21st Annual Joint Conference of the IEEE Computer and Communication Societies, INFOCOM 2010: Technical Program Committee Area Chair.

2009, IFIP/IEEE International Symposium on Integrated Network Management, IM 2009: TPC Co-chair.

2007, 9th IFIP/IEEE International Conference on Management of Multimedia and Mobile Networks and Services, MMNS 2006, TPC Co-chair.

### **Technical Program Committee Member**

2000, IFIP/IEEE International Symposium on Integrated Network Management, IM 2001: Program committee member.

2000, The Forth IEEE Conference on Open Architectures and Network Programming, OpenArch 2001: Program committee member.

2001, The 21st Annual Joint Conference of the IEEE Computer and Communication Societies, INFOCOM 2001: Program committee member.

2001, The third Annual International Working Conference on Active Networks IWAN 2001: Program committee member.

2002, Network Operation and Management Symposium, NOMS 2002: Program committee member.

2002, 7th IEEE Global Internet Symposium, GI 2002: Program committee member.

2002, 16th International Symposium on Distributed Computing, DISC 2002: Program committee member.

2003, IFIP/IEEE International Symposium on Integrated Network Management, IM 2003: Program committee member.

2003, The 22st Annual Joint Conference of the IEEE Computer and Communication Societies, INFOCOM 2002: Program committee member.

2003, The 6<sup>th</sup> IEEE Conference on Open Architectures and Network Programming, OpenArch 2003: Program committee member.

2004, Network Operation and Management Symposium, NOMS 2004: Program committee member.

2004, 15th IFIP/IEEE Distributed Systems: Operations and Management, DSOM 2004: Program committee member.

2005, IFIP/IEEE International Symposium on Integrated Network Management, IM 2005: Program committee member.

2005 16<sup>th</sup> IFIP/IEEE Distributed Systems: Operations and Management, DSOM 2005: Program committee member.

2005, IEEE symposium on High Performance Interconnects, HOT Interconnects 13, Program committee member

2005, IEEE Global Telecommunications Conference, GLOBECOM 2005, Program committee member.

2006, Network Operation and Management Symposium, NOMS 2006: Program committee member.

2006, 17th IFIP/IEEE Distributed Systems: Operations and Management, DSOM 2006: Program committee member.

2006, The International Workshop on Programmable and Active Networks IWAN 2006: Program committee member.

2006, IEEE symposium on High Performance Interconnects, HOT Interconnects 14, Program committee member

2007, IFIP/IEEE International Symposium on Integrated Network Management, IM 2007: Program committee member.

2007, 2nd International Workshop on Self-Organizing Systems, IWSOS 2007, Program committee member.

2007, First IEEE International Conference on Self-Adaptive and Self-Organizing Systems, SASO 2007, Program committee member.

2007 18th FIP/IEEE Distributed Systems: Operations and Management, DSOM 2007: Program committee member.

2008, Network Operation and Management Symposium, NOMS 2008: Program committee member.

2010, Network Operation and Management Symposium, NOMS 2010: Program committee member.

2010, International Conference on Network and Service Management, CNSM 2010: Program committee member.

2011, IFIP/IEEE International Symposium on Integrated Network Management, IM 2011: Program committee member.

2011, International Conference on Autonomous Infrastructure, Management and Security, AIMS 2011, Program committee member.

2011, SIGCOMM 2011, Technical Program Committee member.

2011, International Conference on Network and Service Management, CNSM 2011: Program committee

member.

2012, 6th International Conference on Autonomous Infrastructure, Management and Security: AIMS 2012, Program committee member.

2012, Workshop on Management of Cloud Systems: MoCS 2012, Program committee member.

2012, Network Operation and Management Symposium, NOMS 2012: Program committee member.

2012, International Conference on Network and Service Management, CNSM 2012: Program committee member.

2013, IFIP/IEEE International Symposium on Integrated Network Management, IM 2013: Program committee member.

2013, International Conference on Network and Service Management, CNSM 2013: Program committee member.

2014, Network Operation and Management Symposium, NOMS 2014: Program committee member.

2015, International Conference on Network and Service Management, CNSM 2015: Program committee member.

2015, IFIP/IEEE International Symposium on Integrated Network Management, IM 2015: Program committee member.

2016, International Conference on Network and Service Management, CNSM 2016: Program committee member.

2017, International Conference on Network and Service Management, CNSM 2017: Program committee member.

2018, Network Operation and Management Symposium, NOMS 2018: Program committee member.

2018, International Conference on Network and Service Management, CNSM 2017: Program committee member.

2018, IEEE Conference on Network Function Virtualization and Software Defined Networks, NFV-SDN'18: Program committee member.

2019, IFIP/IEEE International Symposium on Integrated Network Management, IM 2019: Program committee member.

2019, International Conference on Network and Service Management, CNSM 2019: Program committee member.

2019, the IEEE Conference on Network Softwarization, NetSoft 2019: Program committee member.

2020, Network Operation and Management Symposium, NOMS 2020: Program committee member.

2020, the IEEE Conference on Network Softwarization, NetSoft 2020: Program committee member.

2020, International Conference on Network and Service Management, CNSM 2020: Program committee member.

2021 International Conference on Network and Service Management, CNSM 2021: Program committee member.

2021, the IEEE Conference on Network Softwarization, NetSoft 2021: Program committee member.

2021 IFIP/IEEE International Symposium on Integrated Network Management, IM 2021: Program committee member.

2022 ,IEEE/IFIP Network Operations and Management Symposium, NOMS 2022: Program committee member.

2022, the 18th International Conference on Network and Service Management, CNSM 2022: Program committee member.

2023 ,IEEE/IFIP Network Operations and Management Symposium, NOMS 2023: Program committee member.

2024 ,IEEE/IFIP Network Operations and Management Symposium, NOMS 2024: Program committee member.

2025 ,IEEE/IFIP Network Operations and Management Symposium, NOMS 2024: Program committee member.

### **Other professional activities**

2004 -2007 The Communication-Computer committee of the Planning and Budgeting Committee (VATAT) of the Israeli Council for Higher Education: committee member.

### **HONORS**

2021, Intel Syllaboost 2021 Award

2020, CCGrid, Best paper award

2019, IEEE Infocom Best poster award

2016, Yanai Prize for Excellence in Academic Education, Technion

2013, IBM Faculty Award, IBM

2012, IBM Faculty Award, IBM

2012, IEEE Infocom Best paper runner-up award.

2011, IBM Faculty Award, IBM

2006, IBM Faculty Award, IBM

2004, The Mariel and David Jacknow Award for Excellence in Teaching - Technion

2002, Outstanding lecturer (top 5%) Technion.

1998, Michael Landau Award (Mifal Hapayis Fund) for Young Scientist.

1995, The Rueff-Wormser Postdoctoral Fellowship.

1995, The John F. Kennedy Prize for outstanding achievements, The Feinberg Graduate School.

1993, The Clore Scholarship, The Clore Scholars Program.

## **GRADUATE STUDENTS**

### **Completed Theses**

1. Roni Ram (M.Sc. graduation 11/2002, currently at IBM Haifa)
2. Evgeny Panman (M.Sc. graduation 6/2003, currently at Xeround)
3. David Breitgand (in Hebrew U.)  
(PhD. with Danny Dolev HUJI, graduation 10/2003, currently at IBM Haifa)
4. Rami Cohen (M.Sc. graduation 4/2004, continue to PhD)
5. Vladimir Getselevich (M.Sc. graduation 4/2004, currently with Magnifis)
6. Alexander Dvorkin (M.Sc. graduation 9/2004)
7. Alina Naimark (M.Sc. graduation 10/2004, relocated to the US)
8. Constantine Elster (M.Sc. graduation 11/2004, currently with Qualcomm)
9. Saar Pilosof (M.Sc. graduation 9/2005, currently at Israel Angels)
10. Asaf Henning (M.Sc. graduation 11/2005, currently at Ceragon Networks)
11. Dudu Amzallag (PhD. with Seffi Naor, graduation 11/2007,
12. Gabriel Scalosub (PhD. with Seffi Naor, graduation 11/2007, Currently in BGU)
13. Arie Orlovsky (M.Sc., graduation 9/2007, currently with Booz & Company)
14. Rami Cohen (PhD. graduation 12/2007, currently Empow)
15. Mahameed Aez-Alden (M.Sc. with Reuven Cohen, graduation 2/2009,  
currently in Dune)



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|-----|---------------------------|---|
| 16. | Gilad Kutiel              | (M.Sc. with David Breitgand, graduation 10/2011,<br>currently PhD student Technion)     |
| 17. | Asaf Israel               | (M.Sc., graduation 9/2013, currently Microsoft Research.                                |
| 18. | Assaf Rappaport           | (M.Sc., graduation 4/2013, currently CEO of the Microsoft Israel<br>Development Center) |
| 19. | Amir Nahir                | (PhD. with Ariel Orda, graduation 4/2014, currently Amazon)                             |
| 20. | Zlotnik Alexander         | (M.Sc. graduation 1/2014)   |
| 21. | Alexander Nus             | (M.Sc. graduation 6/2015)   |
| 22. | Jalil Moraney             | (M.Sc. graduation 11/2015 continue to PhD)  |
| 23. | Gal Cohen                 | (M.Sc. graduation 01/2017)  |
| 24. | Galia Shabtai             | (PhD. with Yuval Shavitt in TAU, graduation 03/2020)                                    |
| 25. | Yehonatan Rubin           | (M.Sc. graduation 03/2020)  |
| 26. | Jalil Moraney             | (PhD. graduation 02/2021)   |
| 27. | Dor Harris                | (PhD. graduation 10/2022)   |
| 28. | Yaron Fairstein           | (PhD. With Seffi Naor, graduation 08/2022)  |
| 29. | David Naori               | (PhD. graduation 02/2023)   |
| 30. | <b>Theses in Progress</b> |   |
| 31. | Pe'er Sagiv               | (M.Sc. expected graduation 05/2025)   |

## RESEARCH GRANTS

1. Global Throughput Maximization via Fair Local Resource Allocation, BSF, \$56k, with Prof. J. Byers of BU, 2001-2004
2. On the Placement of Distribution and Service Centers for Rich Media Messaging, Magnet through STRIMM consortium, \$75k each year, 2001-2005
3. Active Creation, Delivery and Management of Efficient Context Aware Services, Fifth program of the EC (European Commission Research Directorates), EU250k, Sep 2002 – Feb 2005

4. Access Methodologies and Architectures for Broadband Networks, Ministry of Science, \$100k, November, 2002,- December 2005, with Prof. S. Naor, Prof. A. Orda, Prof. A. Segall, Prof. R. Rom, Dr. Y. Shavitt.
5. The cell Planning Problem, Magnet through REMON consortium, \$50k each year, 2004-2007, with Prof. Naor and Prof. Bar Yehuda.
6. Multimedia Routing on wireless Grid, Magnet through ISRC consortium, \$50k, 2006-2007.
7. Bio-Inspired Networking, BioNet Project, the Sixth Program of the EC (European Commission Research Directorates), EU200k, Feb 2006 – Feb 2009, with Prof. Cohen.
8. Maximizing utilization in copper based access networks, Magnet through iSMART, \$50k each year, 2005-2006, with Prof. Cohen.
9. Efficient management of the Next Internet, Seventh program of the EC (European Commission Research Directorates) part of 4WARD project, EU350k, Jan 2008 – July 2010, with Prof. Cohen.
10. Developing protocols and architectures for distributed and centralized cognitive Networks, Magnet through CORNET, 50k\$ a year 2010-2013, with Prof. Cohen.
11. Efficient Scalable and Adaptive Internet Solutions, Seventh program of the EC (European Commission Research Directorates) part of SAIL project, EU450k, Aug 2010 – Feb 2013, with Prof. Cohen.
12. Efficient Cloud Based Services, Israel Science Foundation, 2011-2014, 46k\$ a year, with Prof. Orda and Prof. Chen.
13. Effective Cloud Monitoring , Seventh program of the EC (European Commission Research Directorates) part of CloudWave: Agile Service Engineering for the Future Internet project, EU450k, Sept 2012 – Sept 2015.
14. Optimization of Optical Cloud Network through Network Programmability , Magnet through NEPTON, 240K NIS 2018-2019, with Prof. Cohen.
15. Efficient management of 5G networks using Machine Learning. , Magnet through WIN 5G, 440K NIS 2020-2023, with Prof. Cohen.
16. Quick Monitoring, Magnet through ENTM, 896K NIS, 2021-2024, with Prof. Cohen.

## **PUBLICATIONS**

### **Theses**

D. Raz, "On the Power of Commuting", Ph.D. thesis, Advisor David Harel, Department of Applied

Mathematics and Computer Science, The Weizmann Institute of Science, Rehovot, Israel, 1996.

D. Raz, "Deciding Properties of Nonregular Programs", M.Sc. thesis, Advisor David Harel, Department of Applied Mathematics and Computer Science, The Weizmann Institute of Science, Rehovot, Israel, 1990.

## Journal Papers

### Published:

1. D. Harel, D. Raz, "Deciding Properties of Nonregular Programs", **SIAM J. of Computing**, 22, No. 4, pp 857--874, 1993.
2. D. Harel, D. Raz, "Deciding Emptiness for Stack Automata on Infinite Trees", **Information and Computation**, 113, pp 278-299, 1994.
3. D. Raz, "Length Considerations in Context-free Languages", **Theoretical Computer Science**, 183(1):21-32, 30 August 1997.
4. P. Krishnan, D. Raz, and Y. Shavitt, "The Cache Location Problem", **IEEE/ACM Transactions on Networking (ToN)**, 8(5), pp. 568-582, October 2000.
5. D. Raz, and Y. Shavitt, "Active Networks for Efficient Distributed Network Management", **IEEE Communications Magazine**, 38(3):138--143, March 2000.
6. J. Jiao, S. Naqvi, D. Raz, B. Sugla, "Towards Efficient Monitoring", **IEEE Journal on Selected Areas in Communications (JSAC)**, special issue on recent advances in network management and operations, 5(18), pp. 723 -- 732, May 2000.
7. D. Raz, Y. Shavitt, "Optimal Partition of QoS requirements with Discrete Cost Functions", **IEEE Journal on Selected Areas in Communications (JSAC)**, 18(12):2593--2602, December 2000.
8. J. Kornblum, D. Raz, and Y. Shavitt. "The Active Process Interaction with its Environment", **Computer Networks**, 36(1):21--34, June 2001.
9. D. Raz, and Y. Shavitt. "Towards Efficient Distributed Network Management", **Journal of Network and Systems Management**, 9(3):347--361, September 2001.
10. P. Francis, S. Jamin, C. Jin, Y. Jin, D. Raz, Y. Shavitt, and L. Zhang. "IDMaps: A Global Internet Host Distance Estimation Service", **IEEE/ACM Transactions on Networking, (ToN)** October 2001.
11. D. H. Lorenz, D. Raz, "A Simple Efficient Approximation Scheme for the Restricted Shortest Path Problem", **Operational Research Letters (ORL)**, 28(5), pp. 213—219, June 2001.
12. E. Cronin, S. Jamin, C. Jin, A Kurc, D. raz, and Y. shavitt. "Constrained Mirror Placement on the Internet", **IEEE Journal on Selected Areas in Communications (JSAC)**, 20(7):1369--1382, September 2002.

13. D. Raz, and Y. Shavitt "New Models and Algorithms for Active Networks ", **Computer Networks**, special issue on Programmable Networks, 38(3):311--326, February 2002.
14. M. Dillman, and D. Raz. "Efficient Reactive Monitoring", **IEEE Journal on Selected Areas in Communications (JSAC)**, 20(4):668--676, May 2002.
15. D. Breitgand, D. Raz, and Y. Shavitt. "SNMP GetPrev: An Efficient Way To Access Data in Large MIB Tables" (Invited Paper), **IEEE Journal on Selected Areas in Communications (JSAC)** , 20(4):656--667, May 2002.
16. D. Raz, Y. Shavitt, and L. Zhang, "Distributed Council Election", **IEEE/ACM Transactions on Networking (ToN)**, Volume 12 , Issue 3, pp. 483-492, June 2004.
17. Y. Bartal, J. Byers, and D. Raz, "Global Optimization using Local Information with Applications to Flow Control ", **SIAM Journal of Computing**, Vol. 33, No. 6, pp. 1261–1279, September 2004.
18. C. Chekuri, A. Gupta, A. Kumar, J. Naor, and D. Raz, "Building Edge-Failure Resilient Networks", **Algorithmica**, 43(1-2):17-41, 2005
19. D. Breitgand, D. Raz, and Y. Shavitt, "The Traveling Miser Problem", **IEEE/ACM Transactions on Networking (ToN)**, Volume 14 Issue 4, pp. 711—724, August 2006.
20. Prasad Sinha, D. Raz and Nidhan Choudhuri, "Estimation of Network Distances using Off-line Measurements", **Elsevier Computer Communications Journal**, Volume 29, Number 16, pages 3295-3305, 2006.
21. Reuven Cohen, Liran Katzir, and D. Raz, "An Efficient Approximation for the Generalized Assignment Problem", **Information Processing Letters**, Vol. 100, No. 4, pp. 162-166, October 2006.
22. D. H. Lorenz, A. Orda, D. Raz, Y. Shavitt, "Efficient QoS Partition and Routing of Unicast and Multicast", **IEEE/ACM Transactions on Networking (ToN)**, Vol. 14, Issue 6, pages 1336 – 1347, December 2006.
23. R. Cohen, and D. Raz, "Context Distribution System Through Brokers and Simple APIs", **International Journal of Internet Protocol Technology (IJIPT)** special issue on Context in Autonomic Communication and Computing, - Vol. 2, No.1 pp. 18 – 29, 2007.
24. S. Leonardi, and D. Raz, "Approximating Total Flow Time on Parallel Machines ", **J. Comput. Syst. Sci.** 73(6): 875-891, 2007.
25. Rami Cohen, Dror Rawitz, and D. Raz, "Time-dependent multi-scheduling of multicast", **ACM Trans. Algorithms** 6, 1, Article, December 2009.
26. David Breitgand, Rami Cohen, Amir Nahir, and D. Raz, " On Cost-Aware Monitoring for Self-Adaptive Load Sharing", **IEEE Journal on Selected Areas in Communications (JSAC)**, special issue of J-SAC on "Recent Advances in Autonomic Communications", 28, 1, January 2010.
27. Mhameed Aezladen, Reuven Cohen, D. Raz, "Efficient Location-Based Decision Supporting Content

- Distribution to Mobile Groups", accepted, **IEEE/ACM Transactions on Networking (ToN)**, December 2011.
28. Ori Rottenstreich, Rami Cohen, D. Raz and Isaac Keslassy, "Exact Worst-Case TCAM Rule Expansion", accepted, **IEEE Transactions on Computers**, 62(6): 1127-1140 2013.
  29. David Amzallag, Reuven Bar-Yehuda, D. Raz, and Gabriel Scalosub, "Cell Selection in 4G Cellular Networks", Accepted, **IEEE Transactions on Mobile Computing**, **IEEE Trans. Mob. Comput.** 12 (7): 1443-1455 2013.
  30. Rami Cohen, D. Raz, "Cost Effective Resource Allocation of Overlay Routing Relay Nodes", **IEEE/ACM Transactions on Networking (ToN)** 22(2): 636-646 2014.
  31. Amir Nahir, Ariel Orda, Danny Raz, "Workload Factoring: A Game-Theoretic Perspective", **IEEE/ACM Transactions on Networking (ToN)** 23(6): 1998-2009 2015.
  32. Amir Nahir, Ariel Orda, Danny Raz, "Replication-Based Load Balancing", **IEEE Trans. Parallel Distrib. Syst.** 27(2): 494-507 2016.
  33. Emilie Danna, Avinatan Hassidim, Haim Kaplan, Alok Kumar, Yishay Mansour, Danny Raz, Michal Segalov: "Upward Max-Min Fairness". **J. ACM** 64(1): 2:1-2:24, 2017.
  34. Shabtai, Galia, Raz, Danny, Shavitt, Yuval, "Risk Aware Stochastic Placement of Cloud services", **IEEE/ACM Transactions on Networking (ToN)** 29(2): 805-820 (2021).
  35. R. Ben-Basat, G. Einziger, S. L. Feibish, J. Moraney, B. Tayh and D. Raz, "Routing-Oblivious Network-Wide Measurements," in **IEEE/ACM Transactions on Networking (ToN)**, 29(6): 2386-2398 (2021).
  36. Kathy Barabash, David Breitgand, Etai Lev-Ran, Dean H. Lorenz, Danny Raz, "A case for an open customizable cloud network", **Comput. Commun. Rev.** 52(2): 56-62 (2022)
  37. Yaron Fairstein, Ariel Kulik, Joseph (Seffi) Naor, Danny Raz, Hadas Shachnai, "An almost optimal approximation algorithm for monotone submodular multiple knapsack", **J. Comput. Syst. Sci.** 125: 149-165 (2022)
  38. Tomer Voronov, Danny Raz, Ori Rottenstreich, "A Framework for Anomaly Detection in Blockchain Networks With Sketches", **IEEE/ACM Transactions on Networking (ToN)** 32(1): 686-698 (2024)

## Books

Author:

1. Cheng Jin, Sugih Jamin, D. Raz, and Yuval Shavitt, "Building Scalable Internet Services: Theory and Practice", Kluwer Academic Publishers, Boston, November 2003.
2. D. Raz, Arto Tapani Juhola, Joan Serrat-Fernandez, and Alex Galis, "Fast and Efficient Context-Aware services", WILEY, June 2006.

## Editor:

1. Dilip Krishnaswamy, Tom Pfeifer, D. Raz (editors), "Real-Time Mobile Multimedia Services: 10th IFIP/IEEE International Conference on Management, of Multimedia and Mobile Networks and Services, MMNS 2007", Springer, Lecture Notes in Computer Science, 2007.
2. Dongsu Han, Danny Raz (editors) Proceedings of the ACM SIGCOMM Workshop on Hot topics in Middleboxes and Network Function Virtualization, HotMiddlebox@SIGCOMM 2016, Florianopolis, Brazil, August, 2016.
3. Bruno Wassermann, Michal Malka, Vijay Chidambaram, Danny Raz: SYSTOR '21: The 14th ACM International Systems and Storage Conference, Haifa, Israel, June 14-16, 2021. ACM 2021,

## Book Chapters:

1. A Chapter on: "Algorithmic Aspects of Overlay Networks", in " Peer-to-Peer-Systems and Applications", Ralf Steinmetz and Klaus Wehrle Editors, Springer-Verlag, August 2005.
2. With David Amzallag, A chapter: "Resource Allocation Algorithms for Next Generation Cellular Networks", in "Algorithms for Next Generation Networks", Graham Cormode and Marina Thottan Editors, Springer, January 2010.
3. With Rolf Stadler, Constantine Elster, Mads Dam, A chapter: "In-Network Monitoring", in "Algorithms for Next Generation Networks", Graham Cormode and Marina Thottan Editors, Springer, January 2010.
4. With Deepak Kanwar, A chapter: "The Future of Network Operations", in The Future X Network: A Bell Labs Perspective, Marcus K. Weldon Editor, October 2015.

## Patents

1. P. Krisnan, D. Raz, and Y. Shavitt, " Method and apparatus for locating caches in a network to optimize performance ", **US 6,502,175**, issued December 31, 2002.
2. D. Raz, Y. Shavitt, " Method And Apparatus For Efficient Network Management Using An Active Network Mechanism", **US 6,529,515**, issued March 4, 2003.
3. B. Dennison, D. Raz, and B. Sugla, "Payload address translation", **US 6,581,108**, issued June 6, 2003.
4. P. Krisnan, D. Raz, and B. Sugla " Adaptive Re-Ordering of Data Packets Filter Rules", **US 6,606,710**, issued August 12, 2003.
5. D. Raz, "Using Content Delivery Infrastructure to Fight Denial of Service Attacks", **US 7,251,692**, issued Jul 31, 2007.
6. P. Sinha, Y. Shavitt, R. Ramjee, D. Raz, and S. Kasera, "Fair Sharing of Multi-Access Channels", **US 7,317,686**, issued Jan 8, 2008.

7. D. Raz, N. Rajkumar, L. Bent, B. Whitehead, D. Zongker, "Determining placement of user data to optimize resource utilization for distributed systems", **US 7,984,151**, issued July 19, 2011.
8. M. Dilman and D. Raz. " Method and apparatus for efficient Reactive monitoring\_", Application Number: 09/813,415, submitted, October 2001.

## **Other publications**

1. D. Raz, J. Schoenwaelder, and B. Sugla, " An SNMP application Level Gateway for Payload Translation ", Internet RFC2962, 2000, the IETF (The Internet Engineering Task Force) September 2000.
2. D. Raz, " Context-Free Languages are not Closed Under Interior and Frontier", Bulletin of the EATCS, 57, pp 219--221, 1995.

## **Conferences**

### **Invited Talks and Tutorials**

1. D. Raz, Tutorial: Active Network Techniques in Network Management. IEEE/IFIP Network Operations and Management Symposium, NOMS 2000.
2. D. Raz, Tutorial: Active Network Techniques in Network Management. IFIP/IEEE International Symposium on Integrated Network Management, IM 2001.
3. D. Raz, Tutorial: Efficient Network and Traffic Monitoring. IEEE/IFIP Network Operations and Management Symposium, NOMS 2006.
4. D. Breitgand, D. Raz, Tutorial: Cloud Resource Management, The 8<sup>th</sup> International Conference on Network and Service Management, CNSM 2012.
5. D. Raz, Keynote: When NFV Meets SDN: A Short Circuit or Sparkling Fireworks? ManSDN/NFV 2014.
6. D. Raz, Keynote: Network and Cloud optimization: it's all about the model, The 1st International Workshop on Software-Driven Flexible and Agile Networking, SWFAN 2016.
7. D. Raz, Keynote: Slicing Clouds and Networks: A System's Perspective, The First International Workshop on Resource Slicing for Future Clouds and Networks, RS-FCN 2018.

### **Refereed Papers in Conference Proceedings**

1. D. Harel, D. Raz, "Deciding Properties of Nonregular Programs", 31th IEEE Symp. Found. Comput. Sci. (FOCS), pp. 652--661, 1990.
2. D. Raz, "Deciding Multiplicity Equivalence for Certain Context-free Languages ", Proc. Conf. Developments in Language Theory, (R. Rozenberg, A. Salomaa editors,) World Scientific, pp.

18--29, 1994.

3. D. Raz, " On Slender Context-free Languages", Proc. of the 12th Symp. on Theoretical Aspects of Computer Science, (STACS '95). Lecture Notes in Computer Science, Vol. 900, Springer-Verlag, Berlin, 1995.
4. S. Leonardi, and D. Raz, " Approximating Total Flow Time on Parallel Machines ", Proc. of the 29th ACM symposium on theory of computing, (STOC97), pp. 110--119, 1997.
5. Y. Bartal, J. Byers, and D. Raz, " Global Optimization using Local Information with Applications to Flow Control ", Proc. of the 38th Ann. IEEE Symp. on Foundations of Computer Science (FOCS97), pp. 303--312, October 1997.
6. M. Adler, Y. Bartal, J. Byers, M. Luby and D. Raz, " A Modular Analysis of Network Transmission Protocols", In Proc. of the 5th Israeli Symp. on Theory of Computing and Systems, June 1997.
7. Y. Bartal, J. Byers, M. Luby and D. Raz, " On the Importance of FEC in Bulk Transmission Multicast ", Proc. of the 3rd Symp. on Computers and Communications, (ISCC98), pp. 135--142, June 1998.
8. P. Krisnan, D. Raz, and Y. Shavitt, " Transparent En-Route Cache location for Regular Networks ", DIMACS Workshop on Robust Communication Networks: Interconnection and Survivability, 18-20 November 1998.
9. J. Jiao, S. Naqvi, D. Raz, B. Sugla, " Monitoring Rapidly-Changing Environments ", Sixth IFIP/IEEE International Symposium on Integrated Network Management (IM 99), Boston, MA, 24 - 28 May 1999.
10. D. Raz, and Y. Shavitt, " An Active Network Approach for Efficient Network Management", The First International Working Conference on Active Networks (IWAN99), July 1999, Berlin, Germany, LNCS 1653, pp. 220 -- 231.
11. D. Raz, Y. Shavitt, " Optimal Partition of QoS requirements with Discrete Cost Functions ", IEEE INFOCOM'2000, March 2000, Tel-Aviv, Israel.
12. S. Jamin, C. Jin, Y. Jin, D. Raz, Y. Shavitt, L. Zhang, " On the Placement of Internet Instrumentation ", IEEE INFOCOM'2000, March 2000, Tel-Aviv, Israel.
13. D. Raz, B. Sugla, " Economically Managing Multiple Private Data Networks ", IEEE/IFIP NOMS'2000, April 2000, Honolulu, Hawaii.
14. D. H. Lorenz, A. Orda, D. Raz, Y. Shavitt, "Efficient QoS Partition and Routing of Unicast and Multicast", Eighth International Workshop on Quality of Service (IWQoS 2000), Pittsburgh, June, 2000.
15. J. Kornblum, D. Raz, and Y. Shavitt. "The Active Process Interaction with its Environment", The second International Working Conference on Active Networks (IWAN2000), October



- 2000, Japan.
16. M. Dilman and D. Raz. "Efficient Reactive Monitoring", INFOCOM 2001, April 2001.
  17. S. Jamin, C. Jin, A Kurc, D. raz, and Y. shavitt. "Constrained Mirror Placement on the Internet", INFOCOM 2001, April 2001.
  18. D. Raz, and Y. Shavitt "New Models and Algorithms for Active Networks ", Proc. of the IEEE symposium on Open Architectures (OpenArch 2001), 2001.
  19. D. Breitgand, D. Raz, and Y. Shavitt, "SNMP GetPrev: An Efficient Way To Access Data in Large MIB Tables", Seventh IFIP/IEEE International Symposium on Integrated Network Management (IM 01), Seattle, WA, May 2001.
  20. Y. Bartal , M. Charikar , and D. Raz, "Approximating min-sum k-Clustering in Metric spaces", Thirty-Third Annual ACM Symposium on the Theory of Computing (STOC01), July 2001.
  21. D. Breitgand, D. Raz, and Y. Shavitt, "The Traveling Miser Problem", Proceedings of INFOCOM 2002, June 2002, New York, NY, USA.
  22. Reuven Cohen, Liran Katzir, and D. Raz, "Scheduling Algorithms for a Cache Pre-Filling Content Distribution Network", Proceedings of INFOCOM 2002, June 2002, New York, NY, USA.
  23. C. Chekuri, A. Gupta, A. Kumar, J. Naor, and D. Raz, "Building Edge-Failure Resilient Networks", IPCO, Integer Programming & Combinatorial Optimization, May 2002.
  24. Sanjeev Khanna, Joseph Naor, D. Raz, "Control Message Aggregation in Group Communication Protocols", ICALP 2002, 135-146.
  25. S. Pilosof, R. Ramjee, D. Raz, Y. Shavitt, and P. Sinha. "Understanding TCP fairness over Wireless LAN.", IEEE INFOCOM 2003, April 2003, San Francisco, CA, USA
  26. D. H. Lorenz, A. Orda, D. Raz, "Optimal Partition of QoS Requirements for Many-to-Many Connections", IEEE INFOCOM 2003, April 2003, San Francisco, CA, USA.
  27. D. Breitgand, D. Dolev, D. Raz, and G. Shaviner "Facilitating Efficient and Reliable Monitoring through HAMSA", in Proceedings of Integrated Management (IM) 2003, Colorado Springs, USA.
  28. D. Breitgand, D. Dolev, D. Raz, "Accounting Mechanism for Membership Size-Dependent Pricing of Multicast Traffic". The 3rd International Workshop on Internet Charging and QoS Technologies, ICQT 2003, Munich, Germany. Proceedings. Lecture Notes in Computer Science 2816 Springer, 276-286, 2003.
  29. R. Cohen and D. Raz, " An Open and Modular Approach for a Context Distribution System",

- IEEE/IFIP Network Operations and Management Symp., NOMS 2004, pp 365-379, April 2004.
30. R. Cohen, D. Rawitz, and D. Raz "Time Dependent Multi Scheduling of Multicast", 12th Annual European Symposium, Bergen, Norway, ESA 2004, pp. 216-227, September 2004.
  31. Itai Dabran Philippe Klein and D. Raz, "Efficient handling of Multimedia Attachments", 7'th International Workshop on Management of Multimedia Networks and Services (MMNS 2004), San Diego CA, pp. 115-126, October 2004.
  32. A.Henning , and D. Raz, "Efficient Management of Transcoding and Multicasting Multimedia Streams", The Ninth IFIP/IEEE International Symposium on Integrated Network (IM 2005),Nice, France, pp. 425-438, May 2005. 33.
  33. Constantine Elster, D. Raz, and Ran Wolff, " Autonomous End to End QoS Monitoring", Accepted, IEEE/IFIP Workshop on End-to-End Monitoring Techniques and Services (E2EMON 2005),Nice, France, May 2005.
  34. Prasun Sinha, Yuval Shavitt, Ramachandran Ramjee, D. Raz, and Sneha Kasera, "FairMAC: Fair Sharing of Multi-Access Channels in WLAN Hotspots", In Proc of IEEE ICCCN (Fourteenth International Conference on computer Communications and Networks), 2005.
  35. D. Amzallag, M. Livschitz, J. Naor, and D. Raz. Cell Planning of 4G Cellular Networks: Algorithmic Techniques, and Results. Proceedings of the 6th IEE International Conference on 3G & Beyond (3G 2005), London, UK, 501-506, 2005.
  36. R. Cohen, and D. Raz, "The Internet Dark Matter - on the Missing Links in the AS Connectivity Map", IEEE INFOCOM 2006.
  37. F.A. Kuipers, A. Orda, D. Raz and P. Van Mieghem, A comparison of exact and  $\epsilon$ -approximation algorithms for constrained routing, Proc. of IFIP Networking 2006, Coimbra, Portugal, May 2006.
  38. D. Amzallag, J. Naor, and D. Raz. Coping With Interference: From Maximum Coverage to Planning Cellular Networks. Proceedings of the 4th Workshop on Approximation and Online Algorithms (WAOA), LNCS 4368, Zurich, Switzerland, 29-42, 2006.
  39. Itai Dabran and D. Raz, "On the power of Cooperation in Multimedia Caching", the 9'th International Workshop on Management of Multimedia Networks and Services (MMNS 2006), Dublin, Irland, October 2006.
  40. Arie Orlovsky and D. Raz, "Decentralized Enforcement of Security Policies for Distributed Computational Systems", to be published, The 22nd Annual ACM Symposium on Applied Computing, Security Track, 2007.

41. Rami Cohen, D. Raz - " Acyclic Type of Relationships Between Autonomous Systems", IEEE Infocom 2007.
42. David Amzallag, Joseph (Seffi) Naor, D.Raz - " Algorithmic Aspects of Access Network Design in B3G/4G Cellular Networks ", IEEE Infocom 2007.
43. D. Amzallag, T. Armarnik, M. Livschitz, and D. Raz. Multi-Cell Slots Allocation in OFDMA Systems. Proceedings of the 16th IST Mobile & Wireless Communications Summit (MobileSummit 2007), Budapest, Hungary, 2007.
44. David Breitgand, Rami Cohen, Amir Nahir, and D. Raz, "Cost aware adaptive load sharing," in The 2nd International Workshop on Self-Organizing Systems (IWSOS 2007), English Lake District, UK, September 2007, Poster version appears in ICAC 2007.
45. David Breitgand, Rami Cohen, Amir Nahir and D. Raz, "On Fully Distributed Adaptive Load Balancing", the 18th FIP/IEEE Distributed Systems: Operations and Management, DSOM 2007.
46. D. Amzallag, R Bar-Yehuda, D. Raz, D. and G. Scalosub, "Cell Selection in 4G Cellular Networks", IEEE Infocom 2008.
47. Constantine Elster, and D. Raz, "Covering All Bases with a Short Blanket: A Dynamic Monitoring Resource Allocation Scheme", 1st IEEE Workshop on AUTOMATED NETWORK MANAGEMENT (ANM'08), April 2008.
48. J. Naor, D. Raz and G. Scalosub "Homogeneous Interference Game in Wireless Networks", In *Proceedings of the 4th International Workshop on Internet and Network Economics (WINE)*, pp. 514-521, 2008.
49. Mhameed Aezladden, Reuven Cohen, D. Raz, "Locally vs. Globally Optimized Flow-Based Content Distribution to Mobile Nodes" , IEEE Infocom 2009.
50. J. Naor, D. Raz and G. Scalosub "Toward Optimal Utilization of Shared Random Access Channels", IEEE Infocom 2009.
51. R Cohen, D. Raz, " Simple Efficient TCAM Based Range Classification ", IEEE Infocom 2010, Miniconference.
52. R. Cohen, D. Raz, "Cost Effective Resource Allocation of Overlay Routing Relay Nodes", IEEE Infocom 2011.
53. D. Breitgand, G. Kutiel, and D. Raz, "Cost-Aware Live Migration of Services in the Cloud", Workshop on Hot Topics in Management of Internet, Cloud, and Enterprise Networks and Services (Hot-ICE '11).
54. Ariel Orda, Amir Nahir, D. Raz, "Workload Factoring with the Cloud: A Game-Theoretic Perspective", to be presented, IEEE Infocom 2012, Orlando, Florida, March 2012, Miniconference.

55. Tzvika Hartman, Avinatan Hassidim, Haim Kaplan, D. Raz, Michal Segalov, "How to Split a Flow", IEEE Infocom 2012, Orlando, Florida, March 2012.
56. Emilie Danna , Avinatan Hassidim, Haim Kaplan, Alok Kumar, Yishay Mansour, D. Raz, Michal Segalov, "Upward Max Min Fairness", **Best Paper Runner-up award**, IEEE Infocom 2012, Orlando, Florida, March 2012.
57. Ofer Biran, Antonio Corradi, Mario Fanelli, Luca Foschini, Alexander Nus, Danny Raz, Ezra Silvera, "A Stable Network-Aware VM Placement for Cloud Systems", CCGrid 2012, February 2012.
58. Amir Nahir, Ariel Orda, and D. Raz, "Distributed Oblivious Load Balancing Using Prioritized Job Replication", The 8<sup>th</sup> International Conference on Network and Service Management, CNSM 2012, Las Vegas, USA, October 2012.
59. Amir Nahir, Ariel Orda, and D. Raz, "Schedule First, Manage Later: Network-aware Load Balancing", *accepted, IEEE Infocom '13*, Mini-conference, Turin, Italy, April 2013.
60. Rami Cohen, Liane Lewin-Eytan, Joseph (Seffi) Naor, and D. Raz, "Almost Optimal Virtual Machine Placement for Traffic Intense Data Center", *accepted, IEEE Infocom '13*, Mini-conference, Turin, Italy, April 2013.
61. Avinatan Hassidim, D. Raz, Michal Segalov, Ariel Shaqed, " Network Utilization: The Flow View ", *accepted, IEEE Infocom '13*, Turin, Italy, April 2013.
62. Assaf Israel, and D. Raz, "Cost Aware Fault Recovery in Clouds", IFIP/IEEE International Symposium on Integrated Network Management, IM 2013 Ghent, Belgium, May 2013.
63. Yossi Kanizo, D. Raz and Alexander Zlotnik, "Efficient Use of Geographically Spread Cloud Resources", *accepted, IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, CCGrid 2013 Delft, the Netherlands, May 2013.*
64. Assaf Rappaport and D. Raz, "Update Aware Replica Placement", The 9th International Conference on Network and Service Management (CNSM 13), Zurich, Switzerland, October 2013.
65. David Breitgand, Amir Epstein, Alex Glikson, Assaf Israel, and D. Raz, "Network Aware Virtual Machine and Image Placement in a Cloud", The 9th International Conference on Network and Service Management (CNSM 13), Zurich, Switzerland, October 2013.
66. Rami Cohen, Liane Lewin-Eytan, Joseph (Seffi) Naor, and D. Raz, "On the Effect of Forwarding Table Size on SDN Network Utilization", IEEE Infocom '14, Toronto, Canada, April 2014.
67. Alexander Nus and Danny Raz, "Migration plans with minimum overall migration time", IEEE/IFIP Network Operations and Management Symposium, NOMS, May 2014.
68. Dario Bruneo, Thomas Fritz, Sharon Keidar-Barner, Philipp Leitner, Francesco Longo,

Clarissa Marquezan, Andreas Metzger, Klaus Pohl, Antonio Puliafito, Danny Raz, Andreas Roth, Eliot Salant, Itai Segall, Massimo Villari, Yaron Wolfsthal, Chris Woods, " CloudWave: where Adaptive Cloud Management Meets DevOps", Proceedings of the Fourth International Workshop on Management of Cloud Systems (MoCS) 2014.

69. Edith Cohen, Avinatan Hassidim, Haim Kaplan, Yishay Mansour, Danny Raz and Yoav Tzur, "Probe scheduling for efficient detection of silent failures", *Perform. Eval.* 79: 73-89 2014.
70. Liane Lewin-Eytan, Joseph, Rami Cohen and Danny Raz, "Near Optimal Placement of Virtual Network Functions", *Infocom 2015, Hong Kong, April 2015.*
71. Siqi Shen, Alexandru Iosup, Assaf Israel, Walfredo Cirne, Danny Raz and Dick Epema, " An Availability-on-Demand Mechanism for Datacenters", *CCGrid 2015, China, May 2015.*
72. Amir Nahir, Ariel Orda, Danny Raz, "Reversing the supermarket: A distributed approach for handling elasticity in the cloud", *IEEE/IFIP Network Operations and Management Symposium, NOMS 2016: 87-95*
73. Jalil Moraney, Danny Raz, "Efficient detection of flow anomalies with limited monitoring resources", *CNSM 2016: 55-63*
74. Danny Raz, Itai Segall, Maayan Goldstein: Multidimensional resource allocation in practice. *SYSTOR 2017: 1:1-1:10*
75. M. C. Luizelli, D. Raz, Y. Sa'ar, and J. Yallouz, "The actual cost of software switching for nfv chaining," in 2017 IFIP/IEEE Symposium on Integrated Network and Service Management, *IM 2017*
76. H. Feng, J .Llorca, A. Tulino, D. Raz and A. Molisch, "Approximation algorithms for the nfv service distribution problem", *Infocom 2017, Atlanta GA, May 2017.*
77. Galia Shabtai, Danny Raz, and Yuval Shavitt. "Risk Aware Stochastic Placement of cloud Services: The Case of Two Data Centers" *Algocloud, September 2017, Vienna, Austria.*
78. Galia Shabtai, Danny Raz, and Yuval Shavitt, "Risk Aware Stochastic Placement of cloud Services: The Multiple Data Center Case", *Algocloud, September 2017, Vienna, Austria.*
79. Maayan Goldstein, Danny Raz and Itai Segall. Experience Report: Log-based Behavioral Differencing, in *The 28th International Symposium on Software Reliability Engineering (ISSRE) Toulouse, France October 2017.*
80. Marcelo Caggiani Luizelli, Danny Raz, Yaniv Sa'ar, Optimizing NFV Chain Deployment Through Minimizing the Cost of Virtual Switching, *Infocom 2018, Honolulu, April 2018.*
81. Dor Harris, Joseph Naor, Danny Raz, "Latency Aware Placement in Multi-access Edge Computing", *NetSoft 2018, Montreal, Canada June 2018.*
82. Ran Ben-Basat, Gil Einziger, Shir Landau Feibish, Jalil Moraney, Danny Raz, "Network-wide routing-oblivious heavy hitters", *ANCS 2018, Ithaca, NY, July 2018.*

83. Yaron Fairstein, Seffi Naor, Danny Raz, “Algorithms for Dynamic NFV Workload”, WAOA 2018, Helsinki, Finland, August 2018.
84. Jalil Moraney, Danny Raz, “On the Practical Detection of the Top-k Flows”, CNSM 2018 Rome, Italy, November 2018.
85. Galia Shabtai, Danny Raz, Yuval Shavitt, “A Relaxed FPTAS for Chance-Constrained Knapsack”, ISAAC 2018, Taiwan, December 2018.
86. Ran Ben Basat, Gil Einziger, Junzhi Gong, Jalil Moraney, Danny Raz, “q-MAX: A Unified Scheme for Improving Network Measurement Throughput”, Internet Measurement Conference 2019: 322-336
87. Ran Ben Basat, Gil Einziger, Jalil Moraney, Danny Raz, “q-MAX: A Unified Way to Improve Network Measurement Throughput”, INFOCOM best poster award, 2019: 1011-1012
88. David Naori, Danny Raz, “Online Multidimensional Packing Problems in the Random-Order Model”, ISAAC 2019: 10:1-10:15
89. Haim Kaplan, David Naori, Danny Raz, “Competitive Analysis with a Sample and the Secretary Problem”, SODA 2020: 2082-2095.
90. Yaron Fairstein, Dor Harris, Joseph Naor, Danny Raz, “NFV Placement in Resource-Scarce Edge Nodes”, CCGrid 2020, May 2020. **Best paper award.**
91. Jalil Moraney, Danny Raz, “On the Practical Detection of Hierarchical Heavy Hitters”, IFIP Networking 2020, June 2020.
92. Ran Ben Basat, Xiaoqi Chen, Gil Einziger, Shir Landau Feibish, Danny Raz, Minlan Yu, “Routing Oblivious Measurement Analytics”, IFIP Networking 2020, June 2020.
93. David Naori, Danny Raz, “Online placement of virtual machines with prior data”, Infocom 2020, (July 2020).
94. Yaron Fairstein, Ariel Kulik, Joseph (Seffi) Naor, Danny Raz, Hadas Shachnai, “A  $(1-\epsilon)$ -Approximation for the Monotone Submodular Multiple Knapsack Problem”. ESA 2020: 44:1-44:19
95. Yaron Fairstein, Ariel Kulik, Joseph (Seffi) Naor, Danny Raz, “General Knapsack Problems in a Dynamic Setting”, APPROX-RANDOM 2021: 15:1-15:18
96. Jalil Moraney, Danny Raz, “On the Practical Detection of Heavy Hitter Flows”. IM 2021: 268-276.
97. Oren Katz, Dror Rawitz, Danny Raz, “Containers Resource Allocation in Dynamic Cloud Environments”, Networking 2021: 1-9.
98. Tomer Voronov, Danny Raz, Ori Rottenstreich: Scalable Blockchain Anomaly Detection with Sketches”, Blockchain 2021: 1-10.
99. Dor Harris, Danny Raz, ”Dynamic VNF Placement in 5G Edge Nodes”, NetSoft 2022: 216-

224.

100. Jalil Moraney, Danny Raz, "Efficient Resource-Constrained Monitoring", NOMS 2022: 1-6.
101. Dor Harris, Danny Raz, Peer Sagiv, "Bandwidth resource allocation in integrated access and backhaul networks, ", 5G-MeMZ@SIGCOMM 2022: 1-7.
102. Haim Kaplan, David Naori, Danny Raz, , "Online Weighted Matching with a Sample", SODA 2022: 1247-1272.
103. Haim Kaplan, David Naori, Danny Raz, "Almost Tight Bounds for Online Facility Location in the Random-Order Model", SODA 2023: 1523-1544
104. Yonatan Katz, Danny Raz, "Cold Start for Cloud Anomaly Detection", NOMS 2023: 1-8
105. Dor Harris, David Naori, Danny Raz: "Online Utilization Maximization in Resource Allocation with Minimum Service Guarantees". CNSM 2023: 1-9
106. Rasoul Behraves, David Breitgand, Dean H. Lorenz, Danny Raz, "A Practical Near Optimal Deployment of Service Function Chains in Edge-to-Cloud Networks", INFOCOM 2024: 751-760

### **Participation in organizing conferences**

1. The Third IEEE Conference on Open Architectures and Network Programming, OpenArch 2000, March 2000, Tel-Aviv, Israel. General Chair and program committee member.
2. DIMACS Workshop on Internet and WWW Measurement, Mapping and Modeling, February 13-15, 2002, Rutgers NJ, USA. Co-organizer.
3. 9th IFIP/IEEE International Conference on Management of Multimedia and Mobile Networks and Services, MMNS 2006, October-November 2007, San Jose, Ca, USA, Technical Program Committee Co-chair.
4. The 11th IFIP/IEEE International Symposium on *Integrated Network Management*, IM 2009, New York city, Technical Program Committee Co-chair.
5. The 2nd Annual International TCE Conference June 6-7, 2012 Haifa, ISRAEL, Organizers & Chairperson.
6. 2014, The 10th International Conference on Network and Service Management, CNSM 2014:TCP Co-chair.
7. 2016, ACM SIGCOMM Workshop on Hot Topics in Middleboxes and Network Function Virtualization, HotMiddlebox 2016: TPC CO-Chair
8. 2018, The First International Workshop on Resource Slicing for Future Clouds and Networks (RS-FCN 2018) – steering committee member.

9. 2021, The 14<sup>th</sup> ACM International Systems and Storage Conference (SYSTOR 21), TPC CO-Chair
10. 2021, ACM SIGCOMM 2021, Workshop Co-Chair
11. 2022, ACM SIGCOMM 2022, Poater Co-Chair