

ARI TRACHTENBERG

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Professional Preparation

Education

1994-2000 UNIVERSITY OF ILLINOIS Urbana-Champaign, IL

- **Ph.D.** in computer science with CSE (January 2000). Thesis: "Error-correcting codes on graphs: lexicodes, trellises, and factor graphs", advisors: Alexander Vardy and Edward Reingold.
- **M.S.** in computer science with CSE (August 1996). Thesis: "Computational methods in coding theory" advisors: Alexander Vardy and C.L. (Dave) Liu.

1990-1994 MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA

- **S.B.** in mathematics with computer science awarded June 1994.

Recent Experience

2000 - present BOSTON UNIVERSITY, ELEC. AND COMPUTER ENGINEERING Boston, MA

- **Professor** (9/2013-on)
- **Affiliate** (2016-on) of the Department of Computer Science
- **Affiliate** (2011-on) of the Rafik B. Hariri Institute for Computing
- **Affiliate** (2008-on) of the Division of Systems Engineering
- **Assoc. Chair for MS programs** (2016-2020)
- **Assoc. Professor** with tenure (2006-2013)
- **Assoc. Chair for Graduate Studies** (2010-2012)
- **Asst. Professor** (2000-2006)

2015 - 2016 TRIPADVISOR Needham, MA
Software Engineering Contractor - Application security, as part of a sabbatical from Boston University.

2007 - 2008, 2015 MIT LINCOLN LABORATORY Lexington, MA
Contractor as part of a sabbatical from Boston University.

2013 - 2014 TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY Haifa, Israel
Visiting professor in the Faculty of Electrical Engineering in affiliation with the Technion Computer Engineering center.

1995 - 2000 UNIVERSITY OF ILLINOIS Urbana-Champaign, IL
Visiting lecturer (2000) teaching *Discrete Mathematical Structures*, **Research Assistant** (1995-1999) with A. Vardy, E. Reingold, and C.L. Liu in coding theory, **Teaching Assistant** (1997,1998).

Summers 1998, 1999 JOHNS HOPKINS UNIVERSITY Baltimore, MD
Instructor for *Introduction to the Theoretical Foundations of Computer Science* as part of the Institute for the Academic Advancement of Youth and the Center for Talented Youth.

Summer 1997 HEWLETT PACKARD LABORATORIES Palo Alto, CA
Research Intern involved in the *C* implementation of algebraic Galois field operations for elliptic curve cryptography.

1993 - 1995 MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA
Undergraduate Researcher with F. Tom Leighton on the simulation and analysis of the routing algorithm for the massively parallel *J-Machine*.

Record

Honors

- **IHSIP Fellow** (2020) in recognition of current and potential contributions to the understand of, and creation of value in, the health sector.
- **ECE Faculty service award** (2020) awarded by the BU ECE for contributions to service.
- **Distinguished Scientist Visitor** (2016) with at Ben Gurion university (Natural Sciences).
- **ECE Faculty excellence in teaching award** (2013, 2003) awarded by the BU ECE for outstanding performance in teaching.
- **Kern Faculty Fellow** (2012) awarded through the Kern Family Foundation based on an ability to excite undergraduates to innovation and the entrepreneurial “mindset”.
- **Innovative Engineering Education Faculty Fellow** (2009) awarded by the BU college of engineering to innovative educators in engineering.
- **CAREER Award** (2002) awarded by the National Science Foundation to new faculty members on the basis of plans that integrate research and education.
- **Kuck Outstanding Thesis Award** (2000) awarded at UIUC to one PhD in the Department of Computer Science per year, based on quality and impact.
- **Mavis Memorial Fund Scholarship Award** (1999) given to 12 individuals at UIUC in the College of Engineering, based on academic performance, education, and research.
- **Computational Science and Engineering Fellowship** awarded 1995-1997. **University Fellowship** awarded 1994-1995.
- **NSF and DoD Fellowship**, honorable mention 1995.

Selected Grants

9/2020 - 8/2021 DIGITAL HEALTH INITIATIVE \$24K
A. Trachtenberg, A. Devaiah, R. Canetti, G. Dennis, M. Varia - “Contact Tracing for COVID-19 and Beyond: An Accessible Cellphone Based Solution”.

7/2016 - 6/2021 NATIONAL SCIENCE FOUNDATION \$803k
A. Trachtenberg, D. Starobinski, M. Mitzenmacher - “CIF: NETS: Medium: Collaborative Research: Unifying Data Synchronization” + Research Experiences for Undergraduates (2019) + Research Experiences for Teachers (2020).

7/2010 - 7/2016 NATIONAL SCIENCE FOUNDATION \$3M
M. Crovella, S. Goldberg, S. Homer, L. Reyzin, A. Trachtenberg - “TC: LARGE: Securing the Open Softphone”.

8/2013 - 12/2014 GENERAL MOTORS ISRAEL LTD. \$333K
D. Starobinski and A. Trachtenberg - “A Hybrid Wireline-Wireless In-Vehicle Architecture for Robust, Secure and Load Balanced Communication”.

9/2012 - 9/2014 DEPARTMENT OF DEFENSE \$210K
A. Trachtenberg and D. Starobinski - "FAUST: Finite-field Algebra for Unbeatable Situational-awareness in Tactical networks (Phase II SBIR)".

8/2011 - 12/2012 GENERAL MOTORS ISRAEL LTD. \$184K
A. Trachtenberg and D. Starobinski - "Wireless Sensor Networks in an Automotive Environment".

9/2009 - 8/2012 NATIONAL SCIENCE FOUNDATION \$467K
D. Starobinski and A. Trachtenberg - "CIF: Small: Large-Scale Software Dissemination in Stochastic Wireless Networks" + Research Experiences for Undergraduates.

5/2010 - 9/2010 DoD \$6K
D. Starobinski and A. Trachtenberg, subcontract from SSCI, "FAUST: Finite-field algebra for unbeatable situational-awareness in tactical networks."

3/2009 - 2/2011 NASA GODDARD \$113K
D. Starobinski and A. Trachtenberg, subcontract from SSCI, "Self-Forming Extensible Lunar Extra Vehicular Activity Network (SELENE) Phase II."

9/2007 - 9/2010 DEUTSCHE TELEKOM \$161K
D. Starobinski and A. Trachtenberg - "Secure and Efficient Data Distribution in Varying-Topology Networks."

9/2007 - 8/2010 NATIONAL SCIENCE FOUNDATION \$292K
A. Trachtenberg and D. Starobinski - "A theory of monitoring based on identifying codes and their variants" + Research Experiences for Undergraduates.

9/2004 - 8/2007 NATIONAL SCIENCE FOUNDATION \$620K
I. Paschalidis, D. Starobinski, and Ari Trachtenberg - "NeTS-NOSS: SensorNet Architectures for Indoor Location Detection: From Resolution to Robustness" + Research Experiences for Undergraduates + Intel Equipment grant.

6/2003 - 6/2006 NATIONAL SCIENCE FOUNDATION \$350K
A. Trachtenberg and D. Starobinski - "A Scalable Middleware for Data Reconciliation in PDAs and Mobile Networks."

2/2002 - 2/2007 NATIONAL SCIENCE FOUNDATION \$364K
A. Trachtenberg - "CAREER: Practical Data Synchronization: Minimizing Communication."

Selected Publications (reverse chronological) - more at <http://people.bu.edu/trachten>

- M. A. Imtiaz, D. Starobinski, and [Trachtenberg, Ari](#). Characterizing orphan transactions in the bitcoin network. In *IEEE International Conference on Blockchain and Cryptocurrency (ICBC)*, pages 1–9, 2020. *best paper*
- R. Canetti, Y. T. Kalai, A. Lysyanskaya, R. L. Rivest, A. Shamir, E. Shen, [Trachtenberg, Ari](#), M. Varia, and D. J. Weitzner. Privacy-preserving automated exposure notification. *IACR Cryptol. ePrint Arch*, 2020(863):31, 2020
- R. Canetti, [Trachtenberg, Ari](#), and M. Varia. Anonymous collocation discovery: Harnessing privacy to tame the coronavirus. *ArXiv.org*, 2003(13670), 2020
- N. Boskov, [Trachtenberg, Ari](#), and D. Starobinski. Birdwatching: False negatives in cuckoo filters. In *CoNEXT: Proceedings of the Student Workshop*, pages 13–14, 2020
- T. Tiwari, A. Klausner, M. Andreev, [Trachtenberg, Ari](#), and A. Yerukhimovich. Location leakage from network access patterns. In *IEEE Conference on Communications and Network Security (CNS)*, pages 214–222, 2019

- T. Tiwari and [Trachtenberg, Ari](#). Alternative (ab) uses for HTTP alternative services. In *13th USENIX Workshop on Offensive Technologies (WOOT)*, 2019
- B. Song and [Trachtenberg, Ari](#). Scalable string reconciliation by recursive content-dependent shingling. In *57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, pages 623–630, 2019
- M. A. Imtiaz, D. Starobinski, [Trachtenberg, Ari](#), and N. Younis. Churn in the bitcoin network: Characterization and impact. In *IEEE International Conference on Blockchain and Cryptocurrency (ICBC)*, pages 431–439, 2019
- Y. Hu, [Trachtenberg, Ari](#), and P. Ishwar. Collaborative privacy for web applications. In *2019 57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, pages 460–469, 2019
- D. Gruss, E. Kraft, T. Tiwari, M. Schwarz, [Trachtenberg, Ari](#), J. Hennessey, A. Ionescu, and A. Fogh. Page cache attacks. In *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (CCS)*, pages 167–180, 2019
- [Trachtenberg, Ari](#). Empirical Kolmogorov complexity. In *Information Theory and Applications Workshop (ITA)*, pages 1–9, 2018
- T. Tiwari, D. Starobinski, and [Trachtenberg, Ari](#). Distributed web mining of ethereum. In *International Symposium on Cyber Security Cryptography and Machine Learning*, pages 38–54. Springer, 2018
- C. Spensky, J. Stewart, A. Yerukhimovich, R. Shay, [Trachtenberg, Ari](#), R. Housley, and R. K. Cunningham. Sok: Privacy on mobile devices—it’s complicated. *Proceedings on Privacy Enhancing Technologies (PoPETS)*, 2016(3):96–116, 2016
- M. Hashemi, Y. Cassuto, and [Trachtenberg, Ari](#). Fountain codes with nonuniform selection distributions through feedback. *IEEE Transactions on Information Theory*, 62(7):4054–4070, 2016
- M. Timchenko and [Trachtenberg, Ari](#). Distributed anonymous data collection and feedback. In *Proceedings of the 8th ACM International Systems and Storage Conference (SYSTOR)*, pages 1–1, 2015
- W. Si, M. Hashemi, L. Xin, D. Starobinski, and [Trachtenberg, Ari](#). TeaCP: a toolkit for evaluation and analysis of collection protocols in wireless sensor networks. *IEEE Transactions on Network and Service Management*, 12(2):293–307, 2015
- W. Si, D. Starobinski, M. Hashemi, M. Laifenfeld, and [Trachtenberg, Ari](#). Channel sensitivity of lifo-backpressure: Quirks and improvements. *IEEE Transactions on Control of Network Systems*, 3(2):192–205, 2015
- M. Hashemi and [Trachtenberg, Ari](#). CDP: a coded datagram transport protocol bridging UDP and TCP. In *Proceedings of the 8th ACM International Systems and Storage Conference (SYSTOR)*, pages 1–6, 2015
- [Trachtenberg, Ari](#). Say it ain’t so - an implementation of deniable encryption. In *Blackhat Asia*, 2014
- A. Kontorovich and [Trachtenberg, Ari](#). Deciding unique decodability of bigram counts via finite automata. *Journal of Computer and System Sciences*, 80(2):450–456, 2014
- M. Hashemi and [Trachtenberg, Ari](#). Near real-time rateless coding with a constrained feedback budget. In *2014 52nd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, pages 529–536, 2014
- M. Hashemi, W. Si, M. Laifenfeld, D. Starobinski, and [Trachtenberg, Ari](#). Intra-car multihop wireless sensor networking: a case study. *IEEE Communications Magazine*, 52(12):183–191, 2014
- Y. Gilad, A. Herzberg, and [Trachtenberg, Ari](#). Securing smartphones: A μ -tcb approach. *IEEE Pervasive Computing*, 13(4):72–79, 2014

- A. Klausner, [Trachtenberg, Ari](#), D. Starobinski, and M. Horenstein. An overview of the capabilities and limitations of smartphone sensors. *International Journal of Handheld Computing Research (IJHCR)*, 4(2):69–80, 2013
- J. Jin, A. Kontorovich, and [Trachtenberg, Ari](#). Determining the unique decodability of a string in linear time. In *Information Theory and Applications Workshop (ITA)*, pages 1–11, 2013
- M. Hashemi, W. Si, M. Laifenfeld, D. Starobinski, and [Trachtenberg, Ari](#). Intra-car wireless sensors data collection: A multi-hop approach. In *IEEE 77th Vehicular Technology Conference (VTC Spring)*, pages 1–5, 2013
- M. Hashemi, [Trachtenberg, Ari](#), and Y. Cassuto. Delete-and-conquer: Rateless coding with constrained feedback. In *2013 51st Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, pages 350–357, 2013
- W. Xiao, S. Agarwal, D. Starobinski, and [Trachtenberg, Ari](#). Reliable rateless wireless broadcasting with near-zero feedback. *IEEE/ACM Transactions on Networking*, 20(6):1924–1937, 2012
- K. Lin, D. Starobinski, [Trachtenberg, Ari](#), and S. Agarwal. Scheduling algorithms and bounds for rateless data dissemination in dense wireless networks. In *2012 46th Annual Conference on Information Sciences and Systems (CISS)*, pages 1–6, 2012
- A. Kontorovich and [Trachtenberg, Ari](#). String reconciliation with unknown edit distance. In *IEEE International Symposium on Information Theory Proceedings*, pages 2751–2755, 2012
- J. Jin, W. Si, D. Starobinski, and [Trachtenberg, Ari](#). Prioritized data synchronization for disruption tolerant networks. In *IEEE Military Communications Conference (MILCOM)*, pages 1–8, 2012
- N. Fazlollahi, D. Starobinski, and [Trachtenberg, Ari](#). Connected identifying codes. *IEEE transactions on information theory*, 58(7):4814–4824, 2012
- A. Klausner, [Trachtenberg, Ari](#), and D. Starobinski. Poster: Phones and robots: brains and brawn. In *Proceedings of the 9th ACM Conference on Embedded Networked Sensor Systems*, pages 361–362, 2011
- J. Jin, [Trachtenberg, Ari](#), and D. Starobinski. Priority-based synchronization of distributed data. 2011
- N. Fazlollahi, D. Starobinski, and [Trachtenberg, Ari](#). Connecting identifying codes and fundamental bounds. In *2011 Information Theory and Applications Workshop*, pages 1–7, 2011
- N. Fazlollahi, D. Starobinski, and [Trachtenberg, Ari](#). Connected identifying codes for sensor network monitoring. In *IEEE Wireless Communications and Networking Conference*, pages 1026–1031, 2011
- M. Boyle, A. Klausner, D. Starobinski, [Trachtenberg, Ari](#), and H. Wu. Poster: Gait-based smartphone user identification. In *Proceedings of the 9th international conference on Mobile systems, applications, and services*, pages 395–396, 2011
- W. Xiao, S. Agarwal, D. Starobinski, and [Trachtenberg, Ari](#). Reliable wireless broadcasting with near-zero feedback. In *2010 Proceedings IEEE INFOCOM*, pages 1–9, 2010
- [Trachtenberg, Ari](#) and C. F. Gauss. An information-theoretic approach to author order. 2010
- M. Laifenfeld, [Trachtenberg, Ari](#), and D. Starobinski. Robust localization using identifying codes. In *Localization Algorithms and Strategies for Wireless Sensor Networks: Monitoring and Surveillance Techniques for Target Tracking*, pages 321–347. IGI Global, 2009
- M. Laifenfeld, [Trachtenberg, Ari](#), R. Cohen, and D. Starobinski. Joint monitoring and routing in wireless sensor networks using robust identifying codes. *Mobile Networks and Applications*, 14(4):415–432, 2009
- R. L. E. Kirda and [Trachtenberg, Ari](#). Recent advances in intrusion detection. *Lecture Notes in Computer Science*, 5758, 2009
- A. Hagedorn, S. Agarwal, D. Starobinski, and [Trachtenberg, Ari](#). Rateless coding with feedback. In *IEEE INFOCOM 2009*, pages 1791–1799, 2009

- S. Agarwal, M. Laifenfeld, A. Hagedorn, [Trachtenberg, Ari](#), and M. Alanyali. Fair and distributed peer-to-peer allocation of a common, refillable resource. *Journal of Parallel and Distributed Computing*, 69(12):974–988, 2009
- M. Laifenfeld and [Trachtenberg, Ari](#). Identifying codes and covering problems. *IEEE Transactions on Information Theory*, 54(9):3929–3950, 2008
- A. Hagedorn, D. Starobinski, and [Trachtenberg, Ari](#). Rateless deluge: Over-the-air programming of wireless sensor networks using random linear codes. In *International Conference on Information Processing in Sensor Networks (IPSN)*, pages 457–466, 2008
- S. Agarwal, A. Hagedorn, and [Trachtenberg, Ari](#). Adaptive rateless coding under partial information. In *2008 Information Theory and Applications Workshop*, pages 5–11, 2008
- S. Agarwal, A. Hagedorn, and [Trachtenberg, Ari](#). Near optimal update-broadcast of data sets. In *2007 International Conference on Mobile Data Management*, pages 356–360, 2007
- M. Laifenfeld, [Trachtenberg, Ari](#), and T. Y. Berger-Wolf. Identifying codes and the set cover problem. In *Proceedings of the 44th Annual Allerton Conference on Communication, Control, and Computing*, 2006
- A. Hagedorn, D. Starobinski, and [Trachtenberg, Ari](#). Rateless codes for data dissemination in sensor networks. In *Proceedings of the 4th international conference on Embedded networked sensor systems*, pages 393–394, 2006
- S. Agarwal, M. Laifenfeld, [Trachtenberg, Ari](#), and M. Alanyali. Using bandwidth sharing to fairly overcome channel asymmetry. In *Information theory and applications workshop, UCSD*, 2006
- S. Agarwal, M. Laifenfeld, [Trachtenberg, Ari](#), and M. Alanyali. Fast data access over asymmetric channels using fair and secure bandwidth sharing. In *26th IEEE International Conference on Distributed Computing Systems (ICDCS'06)*, pages 58–58, 2006
- S. Agarwal, V. Chauhan, and [Trachtenberg, Ari](#). Bandwidth efficient string reconciliation using puzzles. *IEEE Transactions on Parallel and Distributed Systems*, 17(11):1217–1225, 2006
- S. Agarwal and [Trachtenberg, Ari](#). Approximating the number of differences between remote sets. In *IEEE Information Theory Workshop-ITW'06 Punta del Este*, pages 217–221, 2006
- R. Ungrangsi, [Trachtenberg, Ari](#), and D. Starobinski. An implementation of indoor location detection systems based on identifying codes. In *International Conference on Intelligence in Communication Systems*, pages 175–189. Springer, 2004
- D. Sumorok, D. Starobinski, and [Trachtenberg, Ari](#). Simulation of tinyos wireless sensor networks using opnet. *OPNETWORK 2004*, 2004
- S. Ray, D. Starobinski, [Trachtenberg, Ari](#), and R. Ungrangsi. Robust location detection with sensor networks. *IEEE Journal on Selected Areas in Communications*, 22(6):1016–1025, 2004
- [Trachtenberg, Ari](#) and A. Vardy. Full-rank tilings of \mathbb{F}_2^8 do not exist. *SIAM Journal on Discrete Mathematics*, 16(3):390–392, 2003
- D. Starobinski, [Trachtenberg, Ari](#), and S. Agarwal. Efficient PDA synchronization. *IEEE Transactions on Mobile Computing*, 2(1):40–51, 2003
- Y. Minsky, [Trachtenberg, Ari](#), and R. Zippel. Set reconciliation with nearly optimal communication complexity. *IEEE Transactions on Information Theory*, 49(9):2213–2218, 2003
- M. G. Karpovsky, L. B. Levitin, and [Trachtenberg, Ari](#). Data verification and reconciliation with generalized error-control codes. *IEEE Transactions on Information Theory*, 49(7):1788–1793, 2003
- [Trachtenberg, Ari](#), D. Starobinski, and S. Agarwal. Fast PDA synchronization using characteristic polynomial interpolation. In *Proceedings. Twenty-First Annual Joint Conference of the IEEE Computer and Communications Societies*, volume 3, pages 1510–1519, 2002
- [Trachtenberg, Ari](#). Designing lexicographic codes with a given trellis complexity. *IEEE Transactions on Information Theory*, 48(1):89–100, 2002

- Y. Minsky and [Trachtenberg, Ari](#). Scalable set reconciliation. In *In 40th Annual Allerton Conference on Communication, Control and Computing*, 2002
- S. Agarwal, D. Starobinski, and [Trachtenberg, Ari](#). On the scalability of data synchronization protocols for PDAs and mobile devices. *IEEE Network*, 16(4):22–28, 2002
- S. K. Agarwal, A. Yaar, D. Starobinski, and [Trachtenberg, Ari](#). Fast network synchronization. *ACM SIGCOMM Computer Communication Review*, 32(3):14–14, 2002
- [Trachtenberg, Ari](#). *Error-correcting codes on graphs: lexicones, trellises and factor graphs*. PhD thesis, 2000
- T. Etzion, [Trachtenberg, Ari](#), and A. Vardy. Which codes have cycle-free tanner graphs? *IEEE Transactions on Information Theory*, 45(6):2173–2181, 1999

Selected Talks

- **Ben Gurion University, course**, “Keyloggers and other applications of side-channels”, 5/2020.
- **UMass, Amherst**, “Paving a road to hell with good side-channels”, 11/2019.
- **Hebrew University**, “The side-channel problem”, 10/2018.
- **IBM Israel**, “My favorite side-channels”, 10/2018.
- **BU - Research on Tap**, “Side-Channels: The footsteps we cannot avoid”, 11/2017.
- **MITRE**, “Android-based Side-Channel Attacks”, 5/2017.
- **CyberSEED**, “Why aren’t smartphones secure - and will they ever be?”, 10/2015.
- **Workshop on Algorithms and Applications**, “Picking up the Pieces”, 10/2015.
- **New England Security Day**, “Sharing private information in public”, 9/2015.
- **MIT Lincoln Lab**, “In Defense of the Smartphone”, 2/2015.
- **Palo Alto Networks**, “Android Security?” , 9/2014.
- **Google, Cambridge**, “Say it Ain’t So: An Implementation of Deniable Encryption”, 5/2014.
- **Ben Gurion University, Distinguished Lecturer Series**, “Who pwns your phone?”, 12/2013.
- **General Motors Research Israel**, “(a few) Automobile Attack Surfaces”, 12/2013.
- **IBM Research, Haifa**, “Smartphone (In-) Security”, 10/2013.
- **Technion, TCE**, “In-Security of Smartphones”, 10/2013.
- **Jerusalem College of Technology**, “The data revealed in our footsteps”, 6/2013.
- **Ben Gurion University, CS**, “The elegant random (linear) code”, 6/2012.
- **Tel Aviv University, Eng**, “Identifying codes: from theory to practice... and back again”, 5/2011.
- **GM Research**, “Concrete cybersecurity”, 5/2011.
- **Bar Ilan University, CS**, “Non-trivial applications of trivial codes”, 5/2011.
- **InfraGard, Boston**, “Smartphone security through gait analysis”, 11/2010.
- **Tufts, ECE**, “Identifying codes: The ginsu of sensor networks?”, 11/2007.
- **MIT, Lincoln Lab**, “Using bandwidth sharing to fairly overcome channel asymmetry”, 1/2007.
- **Technion, EE**. “Mathematical approaches to efficient data reconciliation,” 11/2006.
- **Purdue, CWSA**. “Robust location detection: unconventional uses for error-correcting codes,” 3/2005.
- **AMS, sectional**, “Identifying codes and their cousins,” 10/2004.
- **MIT, LIDS**, “Mathematical reconciliation of similar data,” 10/2004.

- **Harvard, EE**, “Efficient reconciliation of distributed data: an information theoretic approach,” 1/2003.
- **IIT, CS**, “The set reconciliation problem or how to compare elephants by phone”, 10/2002.
- **Drexel, ECE**, “The ubiquitous data reconciliation problem,” 3/2002.
- **UIUC, CS theory**, “On the equivalence of data reconciliation, error-correction, and graph coloring,” 10/2001.
- **BU, CS theory**, ”Data reconciliation with nearly optimal communication complexity,” Fall 2001.
- **Northeastern, CS**, “Efficient reconciliation of unordered databases: ESP for computers,” 1/2000.

Selected Students Supervised as primary or secondary advisor.

Postdoc

- R. Cohen
- S. Qin
- M. Laifenfeld

Theses, advised and co-advised

- B. Song, “Scalable String Reconciliation”, MS, 2019.
- T. Tiwari, “Alternative abuses for alternative services”, Ugrad, 2019.
- M. Hashemi, “Intra-car Wireless Sensor Data Aggregation”, PhD., 2015.
- W. Si, “Performance and Visualization in Wireless Sensor Networks”, PhD., 2015.
- M. Timchenko, “A Framework for Anonymous Background Data Delivery and Feedback”, MS 2015.
- J. Jin, “Prioritized Data Synchronization with Applications”, MS, 2012.
- K. Lin, “Scheduling Algorithms and Bounds for Data Dissemination in Wireless Mesh Networks”, MS, 2011.
- L. Ravindranathan, “A Study of Priority Based Rateless Codes with Applications to Video Transmission”, MS, 2011.
- N. Fazlollahi, “Resource Management Algorithms for Advanced Networking Applications”, PhD, 2011.
- W. Xiao, “Reliable Data Dissemination in Dense Wireless Networks”, PhD, 2009.
- A. Hagedorn, “Rateless Codes in Wireless Sensor Networks”, MS, 2008.
- M. Laifenfeld, “Robust identifying codes and rateless codes in sensor and peer-to-peer networks: applications and theoretical results”, PhD, 2007.
- S. Agarwal, “Efficient Reconciliation of Unstructured and Structured Data over Networks”, PhD, 2005.
- V. Chauhan, “Reconciliation Puzzles”, MS, 2004.
- R. Ungrangsi, “Location detection in emergency sensor networks using robust identifying codes”, MS, 2003.
- S. Agarwal, “Data Synchronization in Mobile & Distributed Networks”, MS, 2002.

Synergistic Activities

Extramural

- Co-host for BU-Redhat Microarchitecture Workshop (2/2019).
- TPC for ESORICS (2020), CNS 2015-19 (area chair 2019), CSCML 2018-2019, CANS 2018, SSS 2017 (track/local chair), SYSTOR 2015, ISIT 2013, TPC and Pub. Chair for RAID 2008, TPC for INFOCOM 2007.
- Reviewer for book, journal and conference papers, including: *IEEE Conf. on Comm. and Network Sec.*, *Trans. on Info. Trans. on Comm., Theory, Vehic. Tech., Mobile Computing, Info. Forensics & Security*; *SIAM Journal of Discrete Math*; *ACM Symp. on Princ. of Distributed Comp.*, *Trans. on Info. and System Security*; *SSS*, *IEEE INFOCOM*, *ISIT*...

Intramural

- Coordinator of RISCs Seminar On practical Security (<https://agile.bu.edu/sos>)
- Founding member of the CISE and RISCs centers.
- Co-founder of the Lab. of Network and Info. Systems (<http://nislabs.bu.edu>)
- Developed or helped develop “Advanced Cybersecurity” (grad), “Cybersecurity” (grad/ugrad), “Advanced Data Structures” (grad/ugrad), “Advanced Coding Theory” (grad), “Applied Algorithms and Data Structures for Engineers” (3rd year), “Introduction to Software Engineering” (2nd year), “Hacking: Networks, Hardware, and Software” (1st year).

Other

- **Programming:** C++, C, Java, perl, php, python, MySQL, LaTeX, assembly, HTML, CSS...
- **Languages:** Fluent in English, Hebrew and Russian.
- **Web page:** <http://people.bu.edu/trachten>