

February 26, 2021

**EDUCATION:**

Ph.D. in Computer Science, Courant Institute of Mathematical Sciences, New York University.

Master of Science, Fairleigh Dickinson University, NJ.

B.Sc. (with distinction) in Mathematics, Tel-Aviv University, Israel.

**RESEARCH INTERESTS:**

Database systems, Distributed systems, Mobile and wireless computing, Intelligent Transportation, Connetcomics.

**ACADEMIC APPOINTMENTS:**

2005 - Present: University of Illinois at Chicago, Department of Computer Science, *Richard and Loan Hill Professor*.

2004 - Present: University of Illinois at Urbana Champaign, Department of Computer Science, *Affiliate Professor*.

2000 - Present: University of Illinois at Chicago, College of Engineering, *Director of the Mobile Information Systems Research Center*.

2006 - 2015: University of Illinois at Chicago, *Director of the NSF sponsored PhD program in Computational Transportation Science*.

1999 - Present: University of Illinois at Chicago, Department of Computer Science, *Professor*.

1991 - 1999: University of Illinois at Chicago, Department of Electrical Engineering and Computer Science, *Associate Professor*, tenured in 1993.

1990 - 1991: Columbia University, Department of Computer Science, *Research Scientist*

1989 - 1990: Columbia University, Department of Computer Science, *Associate Research Scientist*

1987 - 1989: THE TECHNION - Israel Institute of Technology, *Senior Assistant Professor of Computer Science* (intermediate level in the Israeli academic system)

1985 - 1987: THE TECHNION - Israel Institute of Technology, *Assistant Professor of Computer Science*

**VISITING SCHOLAR APPOINTMENTS:**

Aug. 1998, Aalborg University in Denmark

July 2011, University of Valenciennes et Hainaut-Cambresis in France

Sept.-Dec. 2012 Microsoft Research Asia in Beijing, China

June 2015, University of Melbourne, Australia

Jan. 2020 - Dec. 2020, Peking University, China

July. 2020 - June 2021, George Mason University

**INDUSTRIAL APPOINTMENTS:**

2006 - present: Pirouette Software, Inc. *Founder, Chairman, President, Chief Scientist*

2016 - present: Waitbot, Inc. *Chief Scientist*

2000 - 2005: Mobitrac, Inc. *Founder, Chief Scientist*

1981 - 1985: AT&T BELL LABORATORIES *Member of Technical Staff*

1979 - 1981: AMERICAN BROADCASTING CO. *Project Leader*

## **HONORS:**

### **Professional Societies and Institutional:**

Fellow of the Association of Computing Machinery (ACM) "For his pioneering research in moving object databases and for his fundamental contributions to research in distributed systems" (2001)

Fellow of The American Association for the Advancement of Science (AAAS) "For his trailblazing work in Moving Objects Databases, and for fundamental contributions to distributed and mobile systems" (2009)

Fellow of the Institute of Electrical and Electronics Engineers (IEEE) "For contributions to mobile data management" (2012).

Senior member, IEEE, (2000)

University Scholar for 2009-2012, University of Illinois System (Chicago, Springfield, Urbana-Champaign).

UIC College of Engineering Faculty Research Award, (Apr. 01, Apr. 06).

### **Award winning papers:**

Best vision-paper award, "Understanding the Human Brain Via its Spatio-temporal Properties (Vision Paper)", the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS 2018).

Best vision-paper award, "Autonomous car and ride sharing: flexible road trains (Vision Paper)", the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS 2016).

Best student-paper award, "Thought Chart: Tracking Dynamic EEG Brain Connectivity with Unsupervised Manifold Learning", International Conference on Brain Informatics and Health (BIH 2016).

Best paper runner-up award, "Large-Scale Dynamic Taxi Ridesharing Service", the 29th IEEE International Conference on Data Engineering (ICDE 2013).

Best paper award, "Uncertain Range Queries for Necklaces", 11th International Conference on Mobile Data Management (MDM 2010).

Best papers award, "Communication Reduction for Floating Car Data-Based Traffic Information Systems", The Second International Conference on Advanced Geographic Information Systems, Applications, and Services (Geoprocessing 2010).

Best paper award, "Opportunistic Resource Exchange in Inter-vehicle Ad Hoc Networks", Fifth IEEE International Conference on Mobile Data Management (MDM 2004).

### **Distinguished and Keynote Lectures:**

ACM Distinguished Lecturer, 1991-1996, 2001-2003.

Keynote Speaker, IASED International Conference on Transport and Smart Cities(ICoTSC 2021), Frankfurt, Germany, Sept. 2021.

Keynote Speaker, The Eighth International Conference on Big Data Analytics (BDA 2020), Sonipat, India, Dec. 2020.

Distinguished Speaker, Indo-US Workshop on Big Data Analysis for Transportation Engineering Systems, IIT Madras, Chennai, India, Dec. 2016.

Invited speaker, Iowa Dept. of Transportation biennial "Innovation in Transportation Conference: Are You Ready for the Future?", Aug. 2016.

Keynote speaker, The the first ACM SIGSPATIAL 2014 PhD Symposium, Dallas TX, Nov. 2014.

Keynote speaker, The 7th ACM SIGSPATIAL International Workshop on Computational Transportation Science, Dallas TX, Nov. 2014.

Invited speaker, The 20th International Symposium on Temporal Representation and Reasoning (TIME'13), Pensacola, FL (Sept. 2013).

Distinguished Speaker, Peking University (Oct. 2012)

Keynote speaker, the 13th International Conference on Mobile Data Management (MDM), Bengaluru, India, July 2012.

Keynote speaker, Mobilware 2010, The Third International ICST Conference on MOBILE Wireless MiddleWARE, Operating Systems, and Applications, Chicago, IL (July 2010).

Computer Science Distinguished Speaker, Iowa State University (Nov. 2010)

Keynote speaker, EuroSDR & ISPRS Hannover Workshop on Geosensor Networks, Hannover, Germany (Feb. 2008).

Plenary Speaker, Workshop on Advanced Research in Geospatial Information Technologies for Transportation (GIS-T), Washington DC (Sept. 2007).

Keynote speaker, International Workshop on Managing Context Information and Semantics in Mobile Environments (MCISME), Nara, Japan, (May 2006).

Keynote speaker, The Fifth International Workshop on Web and Wireless Geographical Information Systems (W2GIS 2005), Lausanne, Switzerland (Dec. 2005).

Keynote speaker, The 2004 IEEE International Conference on Networking, Sensing and Control (ICNSC 2004), Taipei, Taiwan (Mar. 2004).

Keynote speaker, The Second International Workshop on Databases, Information Systems, and Peer-to-Peer Computing (DBISP2P 2004), Toronto, Canada, (Aug. 2004).

Keynote speaker, Second International Conference on Mobile Data Management (MDM 2001), Hong Kong, Jan. 2001.

Aether Distinguished Speaker, University of Maryland, Baltimore County, (Oct. 2000, Dec. 2011)

## **PROFESSIONAL ACTIVITIES:**

### **Editorships:**

Specialty Chief Editor, Smart Technologies and Cities, Frontiers in Sustainable Cities (<https://www.frontiersin.org/journals/sustainable-cities>) Jan. 2020 - present.

Editor in Chief, Future Transportation, MDPI, Nov. 2020-present.

Associate Editor, Springer Journal of Big Data Analytics in Transportation, July 2018 - present.

Member of the Editorial Board, MDPI Big Data and Cognitive Computing (<https://www.mdpi.com/journal/BDCC>), Feb. 2020 - Present.

Member of the Editorial Board, MDPI Sustainability (<https://www.mdpi.com/journal/sustainability>), Sustainable Transportation Section, Aug. 2019-Present.

Member of the Editorial Board, IEEE Transactions on Mobile Computing, Jan. 2007 - Dec. 2011.

Member of the Editorial Board, Journal of Spatial Information Science (<http://www.josis.org/>), July 2009-Present.

Member of the Editorial Board, J. Ross Publishing Transportation Letters: The International Journal of Transportation Research, Dec. 2008 - 2011.

Member of the Editorial Board, The International Journal of Next-Generation Computing (IJNGC), Jan. 2010 - May 2016.

Member of the Editorial Board, ACM Transactions on Spatial Algorithms and Systems (TSAS), Apr. 2013 - May 2020.

Member of the Editorial Board, ACM/URSI/Baltzer Wireless Networks Journal, Jan. 1997 - 2010.

Member of the Editorial Board, Hindawi Journal of Computer Networks and Communications, Dec. 2011 - 2015

Member of the Editorial Board, IARIA International Journal on Advances in Intelligent Systems, 2012 - present

Member of the Editorial Board, International Journal of Computational & Neural Engineering (IJCNE), 2016-present.

Member of the ACM SIGMOD Digital Review Editorial Board, <http://data.cs.washington.edu/digrev/credits.htm>

Member of the Advisory Board, MDPI Challenges (<https://www.mdpi.com/journal/challenges/editors>), May 2020 - Present.

Editorial Advisory Board Member, Bentham Science Publishers, Recent Advances In Computer Science And Communications, 2007-present.

Editorial Advisory Board Member, "Mobile Peer-to-Peer Computing for Next Generation Distributed Environments: Advancing Conceptual and Algorithmic Applications", B.-C. Seet (ed.), IGI Global Publishing, 2009.

Editorial Advisory Board Member, "Advances in Vehicular Ad-Hoc Networks: Developments and Challenges", M K. Watfa (ed.), IGI Global Publishing, 2010.

Editorial Advisory Board Member, "Vague Spatial and Spatiotemporal Data Handling: Improving Geographic Information Systems and Object Databases", M. Schneider (ed.), IGI Global Publishing, Mar. 2010.

Associate Editor, International Journal of Internet Technology and Secured Transactions (IJITST), Aug. 2005 - present.

Field Editor, "Spatial Aspects of Mobile Computing", Encyclopedia of Geographic Information Science, Springer, Jan. 2008.

Field Editor for "Mobile and Ubiquitous Data Management", Encyclopedia of Database Systems, published by Springer, 2008, 2nd edition 2018.

Guest editor, ACM/Baltzer Journal on Special Topics in Mobile Networks and Applications, Special Issue on data management issues in mobile and wireless computing, Vol. 2(2), Sept. 1997.

Guest co-editor, Kluwer Academic Publishers, Mobile Networks and Applications, Special Issue on Satellite-based Information Services, 2002.

Guest co-editor, Kluwer Academic Publishers, Mobile Networks and Applications, Special Issue on Mobile and Wireless Data Management, 2003.

Guest co-editor, special issue on Urban Computing of the ACM Transactions on Intelligent Systems and Technology (ACM TIST), 2015.

#### **Miscellaneous:**

Founder and Chief Scientist of Mobitrac, a venture-funded company. Mobitrac's product is an infrastructure software package for location-based services. Raised venture capital, and transferred the technology from UIC. The company appears in i-Street's 2001 "Chicago's top 50 emerging tech companies," had over 20 employees, and listed major companies such as Fedex among it clients. The company was acquired by Fluensee Co. in 2006.

Founder and Chairman of Pirouette Software Inc., a high tech startup company specializing in mobile computing. The company received STTR and SBIR commercialization grants from NASA and NSF.

Review Panelist for Computing Sciences at Lawrence Berkeley National Lab, Aug. 2009.

Member of Advisory Board of the Integrated Media Systems Center, a graduated NSF Engineering Research Center (ERC) at the University of Southern California, 2012-present.

#### **Expert Consulting:**

Consultant to Argonne National Laboratory, 1994-1995.  
Consultant to US Army Research Laboratories, 1996.  
Consultant to George Mason University, 1996.  
Consultant to NASA's Center of Excellence on Space Data and Information Sciences, 1996-1998.  
Consultant to The High Performance Database Research Center at Florida International University, 1998-2000.  
Advisory committee member, NSF Center of Research Excellence in Science and Technology, at Florida A&M University, 1999.  
Director of the Mobile Information Systems Center, College of Engineering at UIC.  
Consultant to DARPA, "Model the Planet" program, 2006.  
Expert witness legal consultant for Proskauer representing British Telecommunications PLC (plaintiff) v. Google Inc (defendant) C.A. No.: 11-1249(LPS), Delaware. Wrote three reports, was deposed, prepared for trial, case settled.(2013-2014).  
Expert witness legal consultant for J.R. Williams Law LLC representing Fidlar Technologies (plaintiff) v. LPS Real Estate Data Solutions, Inc. Wrote a report, was deposed, case settled. (2014-2015).  
Expert witness legal consultant for Wilson, Sonsini, Goodrich and Rosati representing Good Technology Corp.(plaintiff and counter-defendant) v. MobileIron, Inc. Case No. 5:15-cv-01694-PSG (N.D. Cal.), case settled. (2015)

#### **Conference Activities:**

Program Committee co-Chairman, First International Workshop on Satellite-based Information Services, Rye, NY, Nov., 1996.  
General co-Chairman, Second ACM International Workshop on Satellite-based Information Services, Budapest, Hungary, Oct., 1997.  
General co-Chairman, IEEE Knowledge and Data Engineering Exchange Workshop, Chicago, IL, Nov., 1999.  
Program Committee co-Chairman, The Third International Conference on Mobile Data Management, Singapore, Jan. 02.  
Program Committee co-Chairman, The Second ACM International Workshop on Mobile Commerce, Atlanta, GA, Sept., 2002.  
Program Committee co-Chairman, The Sixth IEEE International Conference on Mobile Data Management, Cyprus, May, 2005.  
Program Committee Area Chair for "Ubiquitous Data Management and Mobile Databases", The 22nd International Conference on Data Engineering (ICDE) Atlanta, GA, Apr. 2006.  
Corporate Sponsor Chair, ACM SIGMOD Conference, Chicago, IL, June 2006.  
General co-Chair, 16th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS), Irvine, CA, Nov. 2008.  
Program Committee Chairman, First International Workshop on Computational Transportation Science, Dublin, Ireland, July, 2008.  
General Chair, 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS), Seattle, WA, Nov. 2009.  
Workshop Organizer, Dagstuhl Seminar 10121 on Computational Transportation Science, Dagstuhl, Germany, Mar. 2010.  
Best paper award committee, 18th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS), San Jose, CA, Nov. 2010.  
Advisory Chair, The Seventh International Conference on Wireless and Mobile Communications (ICWMC), Luxembourg, June 2011.

Advisory Chair, The Third International Conference on Resource Intensive Applications and Services (INTENSIVE), Venice, Italy, May 2011.

Advisory Chair, The Third International Conference on Advances in P2P Systems (AP2PS), Lisbon, Portugal, Nov. 2011.

General Chair, ACM SIGKDD International Workshop on Urban Computing (UrbComp), Beijing, China, Aug. 2012.

Invitational Workshop Organizer, Computing Community Consortium workshop "From GPS and Virtual Globes to Spatial Computing-2020", Washington DC, Sept. 2012

Workshop Organizer, Shonan Seminar on "Social Issues in Computational Transportation Science", Japan, Dec. 2012.

Workshop Organizer, Dagstuhl Seminar 13512 "Social Issues in Computational Transportation Science", Dagstuhl, Germany, Dec. 2013.

General co-Chair, The 14th IEEE International Conference on Mobile Data Management (MDM), Milan, Italy, June 2013.

Advisory board member, The 3rd International Conference on Advanced Computing, Networking, and Informatics (ICACNI), Orissa, India, June 2015.

General co-Chair, ACM SIGKDD International Workshop on Urban Computing (UrbComp), Aug. 2013, 2014, 2015, 2016, 2017, 2018, 2019.

Steering Committee member, International Workshop on Computational Transportation Science (IWCTS), 2009-2015.

Steering Committee member, The 3rd International Workshop on Human Mobility Computing and Privacy (HuMoComP), June 2015.

International Advisory Committee member, International Conference on Computational Intelligence in Data Mining (ICCIDM), Dec. 2015.

Program Committee co-Chairman, The 21st International Conference on Mobile Data Management (MDM), Versailles, France, June 2020.

General Chair, 2020 International Conference on Transport and Smart Cities(ICoTSC 2020), Madrid, Spain, October 2020.

Member of the program committee for the following conferences:

- DPDS'88, Int. Symposium on Databases in Parallel and Distributed Systems (1988).
- DPDS'90, 2nd Int. Symp. on Databases in Parallel and Distributed Systems (1990).
- RIDE-TQP'92, 2nd International Workshop on Research Issues on Data Engineering: Transaction and Query Processing.
- PODS'93, 12th ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems.
- DOOD'93, Symposium on Deductive and Object Oriented Databases.
- RIDE-ADS'94, 4th International Workshop on Research Issues on Data Engineering: Active Database Systems.
- MOBIDATA'94, Workshop on Mobile and Wireless Information Systems.
- NGITS'95, 2nd International Workshop on Next Generation Information Technologies and Systems.
- PDIS'91,96, 1st and 4th International Conference on Parallel and Distributed Information Systems.
- APADS'96, Advances in Parallel and Distributed Systems Conference.
- NGITS'97, 3rd International Workshop on Next Generation Information Technologies and Systems, Jerusalem Israel, July 97.
- ICDCS'97, 17th Intl. Conference on Distributed Computing Systems.
- WOSBIS'97, 2nd ACM International Workshop on Satellite-based Information Services, Budapest Hungary, Oct. 97.

- HICSS'98, 31st Hawaii International Conference on System Sciences, Minitrack on Distributed Heterogeneous Information Services. Jan. 98
- IADT'98 International Workshop on Issues and Applications of Database Technology, Berlin Germany, July 98.
- SAC'98, ACM Symposium on Applied Computing, Database Technology Track, Atlanta, GA, Feb. 98.
- MDDS'98 International Workshop on Mobility in Databases and Distributed Systems, Vienna Austria, Aug. 98.
- WOSBIS'98, 3rd ACM International Workshop on Satellite-based Information Services, Dallas, TX Oct. 98.
- TeleGeo'99 First International Workshop on Telegeoprocessing, Lyon, France, May 1999.
- SSD'99, Symposium on Spatial Databases, Hong Kong, China, July, 99.
- NGITS'99, 4th International Workshop on Next Generation Information Technologies and Systems, Zikhron-Yaakov, Israel, July 99.
- MDDS'99 International Workshop on Mobility in Databases and Distributed Systems, Florence Italy, Aug. 99.
- MobiDE'99 International Workshop on Data Engineering for Wireless and Mobile Access, Seattle, Washington, Aug. 99
- STDBM'99 Workshop on Spatio-Temporal Database Management, Edinburgh, Scotland, Sept. 99.
- ACM GIS'99 7th ACM International Symposium on Geographic Information Systems, Kansas City, MO, Nov. 99.
- WNMC'00, Workshop on Wireless Networks and Mobile Computing in conjunction with The 20th International Conference on Distributed Computing Systems, Taipei, Taiwan, Republic of China, April 2000.
- TeleGeo'00 Second International Workshop on Telegeoprocessing, Nice, France, May 2000.
- Special Sessions on "Mobile Database Technology", In conjunction with ADBIS-DASFAA-2000 Symposium on Advances in Databases and Information Systems.
- XV Brazilian Symposium on Databases, Oct. 2000.
- International Workshop on Advanced Spatial Data Management (ASDM 2000), Greenwich, UK, Sept. 2000
- ACM GIS'00 8th ACM International Symposium on Geographic Information Systems, Washington, DC, Nov. 2000.
- IS2000 International Conference on Information Society in the 21 Century: Emerging Technologies and New Challenges, Fukushima, Japan, November 5-8, 2000.
- The 2nd International Conference on Mobile Data Management, Hong Kong, Jan. 2001.
- 2nd ACM MobiDE'01 International Workshop on Data Engineering for Wireless and Mobile Access, Santa Barbara, CA, May 2001.
- 4th International Workshop on Mobility in Databases and Distributed Systems (MDDS'01), Munich, Germany, Sept. 2001.
- 1st ACM Mobile Commerce Workshop, Rome, Italy, July, 2001
- ACM GIS'01 9th ACM International Symposium on Geographic Information Systems, Atlanta, GA, Nov. 2001.
- 3rd International Conference on Mobile Data Management, Singapore, Jan. 02.
- Software Technology Minitrack on " Peer-2-Peer Ecommerce Systems and Applications" of the 35th Hawaii International Conference on Software Systems, Hawaii, on Jan. 2002.
- NGITS'02, 5th International Workshop on Next Generation Information Technologies and Systems, Israel, June, 02.
- TeleGeo'02 Third International Workshop on Telegeoprocessing, France, July 2002.

- 5th International Workshop on Mobility in Databases and Distributed Systems (MDDS'02), Aix-en-Provence, France, Sept, 2002.
- GIScience 2002, Second International Conference on Geographic Information Science, Boulder, CO, Sept., 2002
- 4th International Conference on Mobile Data Management, Melbourne, Australia, Jan. 03.
- Hawaii International Conference on System Sciences, Peer-to-Peer e-Commerce Systems and Applications in the Software Technology Track, Hawaii, Jan. 2003.
- MobiDe'03, The 3rd ACM International Workshop on Data Engineering for Wireless and Mobile Access, San Diego, CA, Sept. 2003
- DASAA'04, Conference on Database Systems for Advanced Applications, Jeju island, Korea, Feb. 2004.
- Hawaii International Conference on System Sciences, Peer-to-Peer e-Commerce Systems and Applications in the Software Technology Track, Hawaii, Jan. 2004.
- CCNC'04 IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2004.
- HICSS'05, 38th Hawaii International Conference on System Sciences, Minitrack on Peer-to-Peer Infrastructures and Applications Jan. 2005.
- ACM Symposium for Applied Computing, Ubiquitous Computing Applications track, Nicosia, Cyprus, Mar. 2004.
- ICDCS'04 24th IEEE International Conference on Distributed Computing Systems, Tokyo, Japan, March 2004.
- IADIS International Conference on Applied Computing, Lisbon, Portugal, March 2004.
- International Workshop on Pervasive Information Systems, Heraklion, Crete, Greece, Mar. 2004.
- MDDS'04, 7th International Workshop on Mobility in Databases and Distributed Systems, Zaragosa, Spain, Sept., 2004.
- PDMST'04, First International Workshop on P2P Data Management, Security and Trust, Zaragosa, Spain, Sept., 2004.
- ACM GIS'04, 12th ACM International Symposium on Advances in Geographic Information Systems, Washington DC, Nov. 2004.
- ICDCS'05 25th IEEE International Conference on Distributed Computing Systems, Columbus, OH, June 2005.
- DBISP2P'04 2nd International Workshop on Databases, Information Systems, and Peer-to-Peer Computing, Toronto, Canada, Aug. 2004.
- CCNC'05 IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2005.
- NetDB'05 1st International Workshop on Networking Meets Databases, Tokyo, Japan, Apr. 2005.
- SME'05 1st Workshop on Semantics in Mobile Environments, Ayia Napa, Cyprus, May 2005.
- MobiDe'05, The 4th ACM International Workshop on Data Engineering for Wireless and Mobile Access, Baltimore, MD, June 2005.
- DBISP2P'05 3rd International Workshop on Databases, Information Systems, and Peer-to-Peer Computing, Trondheim, Norway, Aug. 2005.
- MDDS'05, 8th International Workshop on Mobility in Databases and Distributed Systems, Copenhagen, Denmark, Aug., 2005.
- ACM GIS'05, 13th ACM International Symposium on Advances in Geographic Information Systems, Bremen, Germany, Nov. 2005.
- W2GIS'05, The 5th International Workshop on Web and Wireless GIS, Lausanne, Switzerland, Dec. 2005.



- CCNC'06 IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2006.
- HICSS'05, 06, The 38th, 39th Hawaii International Conference on System Sciences, Minitrack on Peer-to-Peer Infrastructures and Applications Jan. 2005, 2006.
- IADIS (International Association for Development of the Information Society) Applied Computing Conference, San Sebastian, Spain, February 2006.
- NetDB'06, 2nd IEEE International Workshop on Networking Meets Databases, Atlanta, GA, April 2006.
- IRMA'06, Information Resources Management Association International Conference, Washington, DC, May 2006.
- MCISME'06, International Workshop on Managing Context Information and Semantics in Mobile Environments, Nara, Japan, May 9-12, 2006.
- ICDCS'06, 26th IEEE International Conference on Distributed Computing Systems, Lisboa, Portugal, July 2006.
- P2P/DAKS'06, Workshop on P2P Data and Knowledge Sharing, Lisboa, Portugal, July 2006.
- l-Commerce'06, Location-based Mobile Commerce Workshop, Aug. 2006.
- DBISP2P'06 4th International Workshop on Databases, Information Systems, and Peer-to-Peer Computing, Seoul, Korea, Sept. 2006.
- Mobility 2006, the 3rd IEE Mobility Conference, Bangkok, Thailand, October 2006.
- W2GIS'06, The 6th International Symposium on Web and Wireless GIS, Hong Kong, China, Dec. 2006.
- CCNC'07 IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2007.
- IRMA'07 18th Annual IRMA International Conference, Managing Worldwide Operations and Communications with Information Technology, Vancouver, BC, Canada, May 2007.
- DISN'07 International Workshop on Data Intensive Sensor Networks, Mannheim, Germany, May, 2007
- MCISME'07 Second International Workshop on Managing Context Information and Semantics in Mobile Environments, Mannheim, Germany, May, 2007
- MCCSIS'07, IADIS Multi Conference on Computer Science and Information Systems, Lisbon, Portugal, July 2007.
- Mobility Conference 2007, The International Conference on Mobile Technology, Systems, and Applications, Singapore, Sept. 2007
- DG/SUM'07 ISSNIP/ISPRS joint international workshop on distributed geoinformatics and sensing, ubiquity, and mobility, Melbourne, Australia, Sept. 2007.
- DBISP2P'07 The 5th International Workshop on Databases, Information Systems, and Peer-to-Peer Computing, Vienna, Austria, Sept. 2007.
- MOBIQUITOUS'07 The 4th Annual International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Philadelphia, PA, Aug. 2007.
- W2GIS'07, The 7th International Symposium on Web and Wireless GIS, Cardiff, Wales, UK, Nov. 2007.
- CCNC'08, IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2008.
- WWW'08, World Wide Web Conference, Mobility Track, Beijing, China, Apr. 2008
- DS2ME'08, First International Workshop on Data and Services Management in Mobile Environments, Cancun, Mexico, Apr. 2008.
- MMSDE'08, First International Workshop on Mining Multimedia Streams in large-scale Distributed Environments, Cancun, Mexico, Apr. 2008.

- ROSOC-M'08, International Workshop on the Role of Services, Ontologies, and Context in Mobile Environments, Beijing, China, Apr. 2008.
- SeNTIE'08, International Workshop on Sensor Network Technologies for Information Explosion Era, Beijing, China, Apr. 2008.
- ACM-SIGMOD'91,99,05,08, ACM International Conference on Management of Data, 1991, 1999, 2005, 2008.
- WOWMOM'08, The 9th IEEE International Symposium on a World of Wireless, Mobile, and Multimedia Networks, Newport Beach, CA, June 2008.
- MCCSIS'08, IADIS Multi Conference on Computer Science and Information Systems, Wireless Applications and Computing, Amsterdam, Holland, July, 2008.
- DBISP2P'08 The 6th International Workshop on Databases, Information Systems, and Peer-to-Peer Computing, Auckland, New Zealand, Aug. 2008.
- VINT'08 The First International Workshop on Wireless Vehicular Networking, Maui, Hawaii, Nov. 2008.
- VON'08 The First IEEE International Workshop on Vehicular Networking, Yilan, Taiwan, Dec. 2008.
- W2GIS'08, The 8th International Symposium on Web and Wireless GIS, Shanghai, China, Dec. 2008.
- IVCS'09 IEEE Intelligent Vehicular Communication Systems, CCNC 2009- Satellite Workshop, Las Vegas, Nevada, Jan. 2009.
- EDBT'09 the 12th International Conference on Extending Database Technology, St. Petersburg, Russia, Mar. 2009.
- INTENSIVE'09 The First International Conference on Resource Intensive Applications and Services, Valencia, Spain, Apr. 2009.
- ISA'09 The First International Workshop on Indoor Spatial Awareness, Taipei, Taiwan, May 2009.
- RoSOC'09 International Workshop on the Role of Services, Ontologies, and Context in Mobile Environments, Taipei, Taiwan, May 2009.
- SENTIE'09 2nd International Workshop on Sensor Network Technologies for Information Explosion Era, Taipei, Taiwan, May 2009.
- MDMD'09 The 1st International Workshop on Managing Data with Mobile Devices, Milan, Italy, May 2009.
- NGITS'09 The 7th conference on Next Generation Information Technologies and Systems, Haifa, Israel, June 2009.
- WAC'09 IADIS International Conference Wireless Applications and Computing, Algarve, Portugal, June 2009.
- WOWMOM'09 The 10th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, Kos, Greece, June 2009.
- TIME'09 Temporal Representation and Reasoning, Brixen-Bressanone, Italy, July 2009.
- WINSYS'09 The International Conference on Wireless Information Networks and Systems, Milan, Italy, July 2009.
- ICSIS'09 The 24th International Symposium on Computer and Information Sciences, Northern Cyprus, Turkey, Sept. 2009.
- AP2PS 2009, 2010, 2011 The 1st, 2nd, 3rd International Conference on Advances in P2P Systems.
- W2GIS'09 The 9th International Symposium on Web & Wireless Geographical Information Systems, Maynooth, Ireland, Dec. 2009.
- IADIS (International Association for Development of the Information Society) International Conference on Applied Computing, 2009, 2010, 2011, 2012, 2013
- VON 2009, 2012 The 2nd and 3rd IEEE International Workshop on Vehicular Networking.
- CCNC 2009, 2010, 2012 IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada.

- INTENSIVE 2010 The 2nd International Conference on Resource Intensive Applications and Services, Cancun, Mexico, Mar. 2010.
- UDM 2010 The 2nd International Workshop on Ubiquitous Data Management, Tsukuba, Japan, Apr., 2010.
- , SENTIE 2010 The 3rd IEEE International Workshop on Sensor Network Technologies for Information Explosion Era, Kansas City, KS, USA, May 2010.
- M-PDMST 2010 International Workshop on Mobile P2P Data Management, Security and Trust, Kansas City, KS, USA, May 2010.
- WAC 2010, 2011 IADIS International Conference Wireless Applications and Computing.
- VLDB 1993, 1996, 1998, 2000, 2002, 2003, 2005, 2010, 2012, The 19th, 22nd, 24th, 26th, 28th, 29th, 31st, 36th and 38th International Conference on Very Large Databases.
- CollaborateCom 2010, 2011, 2012, 2013, 2014 The 6th, 7th, 8th, 9th, 10th International Conference on Collaborative Computing: Networking, Applications and Worksharing.
- INTENSIVE 2011, 2012 The 3rd and 4th International Conference on Resource Intensive Applications and Services.
- CIKM'96,02,11, the 3rd, 9th, 20th International Conference on Information and Knowledge Management, 1996, 2002, 2011.
- SRDS'11, The 30TH INTERNATIONAL SYMPOSIUM ON RELIABLE DISTRIBUTED SYSTEMS, MADRID, SPAIN, OCTOBER, 2011.
- ICNC'12, International Conference on Computing, Networking and Communications, (Consumer Communications and Home Networks Symposium), Maui, Hawaii, Jan. 2012.
- APC-2012 International Workshop on Advances in Pervasive Computing, Chennai, India, Aug. 2012.
- IADIS INTERNATIONAL CONFERENCE of THEORY AND PRACTICE IN MODERN COMPUTING, 2012, 2013.
- IMMoa 2012, 2013 the 2nd, 3rd International Workshop on Information Management for Mobile Applications.
- AP2PS'12 The Fourth International Conference on Advances in P2P Systems, Barcelona, Spain, September 2012
- HealthGIS'12 The First ACM SIGSPATIAL International Workshop on the Use of GIS in Public Health, Redondo Beach, CA, Nov. 2012.
- MoMM'12 The 10th International Conference on Advances in Mobile Computing and Multimedia, Bali, Indonesia, Dec. 2012.
- ICDE 1986, 2004, 2005, 2007, 2009, 2010, 2011, 2014 The 2nd, 20th, 21st, 23rd, 25th, 26th, 27th, 30th International Conference on Data Engineering.
- ICNS 2012, 2015 The 8th and 11th International Conference on Networking and Services.
- MobiWIS 2014, 2015, The 11th, 12th International Conference on Mobile Web Information Systems.
- MoMM 2015, The 13th International Conference on Advances in Mobile Computing and Multimedia, Brussel, Belgium, Dec. 2015.
- ICSITech 2015, The International Conference on Science in Information Technology (ICSITech), Yogyakarta, Indonesia, Oct. 2015.
- MobiWis 2015, The 12th International Conference on Mobile Web and Intelligent Information Systems, Rome, Italy, Aug. 2015.
- CoCoNet 2015, The 2015 International Conference on Computing and Network Communications, Kerala, India, Dec. 2015.
- ICSNC 2015, 2016, The 10th, 11th, International Conference on Systems and Networks Communications.
- KES-InMed 2016, Innovative Technology in Mental Healthcare, the 4th International KES Conference on Innovation in Medicine and Healthcare.

- ICACCI 2015, 2016 The 4th, 5th International Conference on Advances in Computing, Communications and Informatics.
- MCSMS 2016, The 2nd International Workshop on Mobile Cloud Computing systems, Management, and Security.
- DATA 2014, 2015, 2016, 2017 The 3rd, 4th, 5th, 6th International Conference on Data Management Technologies and Applications.
- ICWMC 2008, 2009, 2010, 2011, 2012, 2015, 2016, 2017 The 4th, 5th, 6th, 7th, 8th, 11th, 12th, 13th International Conference on Wireless and Mobile Communications.
- ICDAMI 2017, The 1st IEEE International Conference on Data Management, Analytics and Innovation
- ICAT2E 2017, The 2017 International Conference on Advanced Technologies Enhancing Education
- CSICT 2017 The 2017 International Conference on Computer Science and Information Communication
- SMART 2013, 2017 The Second and Sixth International Conference on Smart Systems, Devices and Technologies.
- ICCGI 2015, 2016, 2017, The 10th, 11th, 12th International Multi-Conference on Computing in the Global Information Technology.
- ICDT 2013, 2014, 2016, 2017, 2018 The 8th, 9th, 11th, 12th, 13th International Conference on Digital Telecommunications.
- SPACOMM 2016, 2017, 2018 The 8th, 9th, 10th International Conference on Advances in Satellite and Space Communications.
- i-Society 2006, 2010, 2018, International Conference on Information Society.
- ISUT 2017, 2018 1st and 2nd International Workshop on Intelligent and Sustainable Urban Transportation (in conjunction with ISCC).
- IEEE CIC 2015, 2016, 2017, 2018 The 1st, 2nd, 3rd, 4th IEEE International Conference on Collaboration and Internet Computing.
- TPMC 2015, 2016, 2017, 2018 The 4th, 5th, 6th, 7th International Conference Theory and Practice in Modern Computing.
- ICCI 2018 International Conference on Computational Intelligence, Birla Institute of Technology, India.
- ALLDATA 2015, 2016, 2017, 2018, 2019 The 1st, 2nd, 3rd, 4th, 5th International Conference on Big Data, Small Data, Linked Data and Open Data.
- GEOProcessing 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019 The 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th International Conference on Advanced Geographic Information Systems, Applications, and Services.
- MDM 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2017, 2018, 2019: The 4th, 5th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 15th, 16th, 18th, 19th, 20th IEEE International Conference on Mobile Data Management.
- AICCC2019, 2nd International Conference on Artificial Intelligence and Cloud Computing.
- AC 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018, 2019 the IADIS (International Association for Development of the Information Society) 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 15th, 16th International Conference on Applied Computing.
- ACM GIS 2006, 2007, 2008, 2011, 2012, 2013, 2014, 2015(senior member), 2016(senior member), 2017(senior member), 2018(senior member), 2019 (senior member): the 14th, 15th, 16th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems.
- IWCTS 2016, 2017, 2018, 2019 The 9th, 10th, 11th, 12th International Workshop on Computational Transportation Science.
- GISTAM 2015, 2016, 2017, 2018, 2019, 2020 The 1st, 2nd, 3rd, 4th, 5th, 6th International Conference on Geographical Information Systems Theory, Applications and Management.
- ICEIS 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 the 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd International Conference on Enterprise Information Systems.

- EWGT 2020, 23rd European Working Group on Transportation 2020.
- Georich 2014, 2015, 2016, 2017, 2018, 2020 1st, 2nd, 3rd, 4th, 5th, 6th International ACM SIGMOD Workshop on Managing and Mining Enriched Geo-spatial Data.
- BIS 2020, 23rd International Conference on Business Information Systems.
- Globecom2018, 2019, 2020 SAC EH 2018, 2019, 2020 IEEE Global Communications Conference: Selected Areas in Communications: E-Health
- MobiHealth 2010, 2011, 2014, 2015, 2016, 2017, 2020 The 1st, 2nd, 4th, 5th, 6th, 7th, 9th International EAI Conference on Wireless Mobile Communication and Healthcare
- Mobile Cloud 2016, 2017, 2018, 2019, 2020, 2021 The 4th, 5th, 6th, 7th, 8th, 9th IEEE International Conference on Mobile Cloud Computing, Services, and Engineering.
- SSTD 2001, 2003, 2005, 2009, 2011, 2013, 2015, 2017, 2019, 2021 The 7th, 8th, 9th, 11th, 12th, 13th, 14th, 15th, 16th, 17th International Symposium on Spatial and Temporal Databases.

Referee, invited panelist, and site visitor for the following funding agencies:

- NASA.
- National Science Foundation.
- Israel Science Foundation.
- Research Grants Council, Hong Kong, China.
- Kentucky Science and Engineering Foundation.
- U.S. Army Corps of Engineers
- National Research Foundation, Singapore.
- Research Council in Italy.
- Austria Science Fund.
- Czech Science Foundation
- Joint Programming Initiative Urban Europe
- National Natural Science Foundation of China (NSFC)
- The Netherlands Organisation for Scientific Research (NWO, the Dutch Research Council)

Referee for the following Journals:

- Journal of the ACM
- ACM Transactions on Database Systems
- Journal of Computer and System Sciences
- Information and Control
- Distributed Computing
- Journal of Logic Programming
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Intelligent Transportation Systems
- International Journal on Parallel Programming
- Information and Computation
- Information Processing Letters
- Information Systems - An International Journal
- Journal of Systems Integration
- Journal of Parallel and Distributed Computing
- VLDB Journal
- Geoinformatica

- Elsevier, Transportation Research Part B, C
- AI communications

Invited oral presentations (excluding paper-presentations at refereed conferences).

Topics included: Computational Transportation Science, Mobile Peer-to-Peer systems, Moving Objects Databases, Concurrency control, Management of replicated data, Distributed database protocols, Parallelism in knowledge bases, Communication-network management, Mobile computing, Active databases.

- IBM T.J. Watson Research Center (May 84, June 88, Aug. 90, Jan. 91)
- AT&T Bell Laboratories (June 86 and Mar. 89)
- University of California, Santa Barbara (Feb. 87)
- Tel Aviv University in Israel (May 85)
- New York University (Feb. 87)
- Bellcore (Feb. 88)
- SUNY at Stony Brook (Feb. 88)
- University of Beer Sheva in Israel (Mar. 88)
- Hebrew University in Israel (Jan. 86, Nov. 88)
- University of Texas at Austin (Dec. 88)
- University of Maryland (Dec. 88)
- George Mason University (Dec. 88)
- IBM Almaden Research Center (Mar. 89)
- University of Mannheim, West-Germany (July 89)
- University of California, Riverside (Jan. 91)
- NEC Computing and Communication Research Laboratory, Princeton NJ (May 91)
- Matsushita Information Technology Laboratory, Princeton NJ (Jan. 92)
- Kansas State University (Apr. 92)
- University of Illinois at Urbana-Champaign (Oct. 92)
- Northwestern University (Dec. 92)
- Sixth Congress on Computer Science Applications, Puerto Rico (Apr. 93)
- Underwriters Laboratories Inc., Northbrook, IL Keynote Speaker (Feb. 95)
- US Army Cecom Division (Mar. 95)
- Purdue University (Apr. 95)
- NASA, Center of Excellence in Space Data and Information Systems (Oct. 95, Aug. 97)
- ACM Conference on Strategic Directions in Computer Science Research, Boston MA (June 1996)
- University of Stuttgart in Germany (June 96)
- University of Karlsruhe in Germany (June 96)
- University of Freiburg in Germany (June 96)
- Central University of Venezuela (Jan. 97)
- Dagstuhl Invitational Seminar in Germany (June 97)
- Bilkent University in Turkey (July 97)
- NASA Goddard Space Flight Center (Aug. 97)
- Army Research Labs in Aberdeen MD (Aug. 97)
- Army Research Labs in Adelphi MD (Nov. 97)
- The ARL Federated Laboratory Symposium and Technology Exposition, College Park, MD (Feb. 99).
- Workshop on Data Replication in Low Bandwidth Military Environments, Fort Leavenworth, KS (Apr. 99).
- University of Arizona, Tucson, AZ (Apr. 99)

- Washington University, St. Louis, MO (Apr. 99)
- University of California, Irvine (Apr. 99)
- 14th Brazilian Symposium on Databases, Florianopolis, Brazil, invited tutorial presentation (Oct. 99)
- ACM-SIGMOD'00, International Conference on Management of Data, Dallas, TX, tutorial presentation on Moving Objects Databases, (May 2000)
- NSF-ARO Workshop on Algorithmic Issues in Modeling Motion, Duke Univ., Durham, NC (Aug. 2000)
- GIScience 2000: First International Conference on Geographic Information Science, Savannah, Georgia, (Oct. 2000)
- University of Maryland, Baltimore County, Aether Distinguished Speaker (Oct. 00)
- Purdue University (Nov. 00)
- University of Maryland, Baltimore County (Feb.01)
- NSF Workshop on Context-Aware Mobile and Pervasive Data Management, Providence, RI (Jan. 02)
- University of Waterloo, Canada (June 02)
- DIMACS Workshop on Algorithmic Issues in Modeling Motion, Rutgers Univ., Piscataway, NJ (Nov. 02)
- Research Workshop on Action-Oriented Approaches in Geographic Information Science, Holden, Maine (Nov. 02).
- MDM03 - The 4th International Conference on Mobile Data Management, Melbourne, Australia, tutorial presentation (Jan.2003).
- SST'D'03 The 8th International Symposium on Spatial and Temporal Databases, Santorini Island, Greece, tutorial presentation (July, 2003).
- University of Illinois at Urbana-Champaign (Dec. 2003, Apr. 2004).
- Dagstuhl Invitational Seminar in Germany (Oct. 2004)
- Air Force Research Labs, Wright Patterson Air Force Base (Dec. 2004)
- Penn State University (Dec. 2004).
- Ben Gurion University, Israel (May 2005).
- Dagstuhl Invitational Seminar in Germany (Oct. 2005)
- IBM Israel, Haifa Research Lab (Dec. 2005)
- INRIA, France (Apr. 2006)
- University of Zaragoza, Spain (Apr. 2006)
- Illinois Institute of Technology, Chicago, IL (Apr. 2006)
- University of Tokyo, Japan (May 2006)
- GeoPkdd, Workshop on Knowledge Discovery for Sustainable Mobility, Amsterdam, Holland (Sept. 2006)
- Technion, Israel Institute of Technology, Haifa, Israel (Nov. 2006).
- Politecnico di Milano, Italy (Dec. 2006).
- NASA Ames Research Center, San Jose, CA (Jan. 2007).
- ICWMC'07 the Third International Conference on Wireless and Mobile Communications (ICWMC), Guadeloupe, French Caribbean, Tutorial presentation on "Mobile P2P Databases" (Mar. 2007).
- University of Tel Aviv, Israel (Feb. 08)
- Loyola University, Chicago, IL (Apr. 08)
- Dagstuhl Invitational Seminar 08421: Uncertainty Management in Information Systems, Germany, "Uncertainty in Moving Object Databases" (Oct. 2008)
- National University of Ireland at Maynooth, StratAG Sensor Strand Kick-off Meeting, "IGERT: Graduate Program in Computational Transportation Science" (Nov. 2008).

- Florida International University "Information Technology and Intelligent Transportation - A Marriage Made in Heaven" (Jan. 09).
- University of Illinois at Urbana-Champaign, "Information Technology and Intelligent Transportation - A Marriage Made in Heaven" (Mar. 09).
- Invitational Workshop on Research Directions in Situational-aware Self-managed Proactive Computing in Wireless Adhoc Networks, "MOBI-DIK: An Approach to Querying Data in a Mobile Ad Hoc Network" (Mar. 09).
- Chicago State University, "Information Technology and Intelligent Transportation - A Marriage Made in Heaven" (Apr. 09).
- Marquette University, Wisconsin, "Information Technology and Intelligent Transportation - A Marriage Made in Heaven" (Apr. 09).
- Dagstuhl Invitational Seminar 10121: Computational Transportation Science, Germany, "Computational Transportation Science – Issues and Questions" (Mar. 2010)
- Navteq Corporation, Chicago, IL, "Moving Objects Databases in Computational Transportation Science" (Mar. 2010)
- Second Invitational Workshop on Research Directions in Situational-aware Self-managed Proactive Computing in Wireless Adhoc Networks, "Spatio-temporal Information in Intelligent Transportation Systems" (May 2010).
- Mobilware 2010, The Third International ICST Conference on MOBILE Wireless MiddleWARE, Operating Systems, and Applications, Chicago, IL "Computing Challenges in Intelligent Transportation Systems" (July 2010).
- University of California at Berkeley, "The IGERT PhD program in Computational Transportation Science" (Nov. 2010).
- Iowa State University, CS Distinguished Lecture, "Silence of the labs: Why Are We Still Commuting the Way We Did 40 Years Ago?" (Nov. 2010).
- Invited Speaker, French School on Ambient Intelligence in Lille, "Silence of the labs: Why Are We Still Commuting the Way We Did 40 Years Ago?" (July 2011).
- Northwestern University, Transportation Center Seminar, "Ranking of Information in Intelligent Transportation Systems" (Nov. 2011).
- University of Maryland Baltimore County, CS Distinguished Lecture, "Silence of the labs: Why Are We Still Commuting the Way We Did 40 Years Ago?" (Dec. 2011).
- Technion, Israel Institute of Technology, Computer Science Colloquium, "How Your Smartphone Can Use Game-Theory to Valet-park Your Car" Jan. 2012.
- Keynote speaker, the 13th International Conference on Mobile Data Management (MDM), Bengaluru, India, "Data Management in Intelligent Transportation Systems", July 2012.
- Microsoft Research Asia, "New Research Directions in Urban Computing", Oct. 2012.
- Hong Kong Society for Transportation Studies, "Data Management in Intelligent Transportation Systems", Oct. 2012.
- Distinguished Speaker, Peking University, Beijing, China "New Research Directions in Intelligent Transportation", Oct. 2012.
- Shonan Seminar on Social Issues in Computational Transportation Science, "Competition in Intelligent Transportation", Japan, Dec. 2012.
- University of Illinois at Urbana Champaign, CyberInfrastructure and Geospatial Information (CIGI) Laboratory, "New Research Directions in Intelligent Transportation", Mar. 2013.
- Argonne National Lab., "The IGERT PhD Program in Computational Transportation Science", IL, USA May 2013.
- Northwestern University, "How a Smartphone Can Use Spatio-temporal Matching to Park Your Car", Evanston, IL, May 2013.



- Tel Aviv University, "Crowdsourcing and Spatio-temporal Competition in Vehicular Parking", Israel, May 2013.
- Invited speaker, The 20th International Symposium on Temporal Representation and Reasoning (TIME'13), "Spatio-temporal Competition for Transportation Resources", Pensacola, FL, Sept. 2013.
- Keynote speaker, The the first ACM SIGSPATIAL 2014 PhD Symposium, "What to Research in Spatial Information and How to Do So", Dallas, TX, Nov. 2014.
- Keynote speaker, The 7th ACM SIGSPATIAL International Workshop on Computational Transportation Science, "The Opportunities and Challenges in Temporary Geospatial Information", Dallas, TX, Nov. 2014.
- National ICT Australia (NICTA) Research Center, "Spatio-temporal Search for Transportation Resources", Sydney, Australia, June 2015.
- University of Melbourne, "Spatio-temporal Search for Transportation Resources", Melbourne, Australia, June 2015.
- The UNIVERSITY OF CHICAGO CONVENING ON URBAN DATA SCIENCE, "A Peer-to-Peer Marketplace for Spatio-Temporal Transportation Resources and Truthfulness of its Users", Chicago, IL, Apr. 2016.
- NSF Workshop on Food-Energy-Water Research Cyberinfrastructure, "Information Platforms for Managing Information about Flows of Food, Energy, Water", Scottsdale, AZ, May 2016.
- The 7th Workshop on Realistic models for Algorithms in Wireless Networks (WRAWN'16), Computation in Intelligent Transportation, July 2016, Chicago, IL.
- Workshop on Innovation in Transportation: Role of data analytics and social network, Information Technology for ITS, Aug. 2016, IA state Univ., Ames IA.
- INNOVATIONS IN TRANSPORTATION CONFERENCE, "Finding Transportation Resources by Mining Social Data", Ames, Iowa, Aug. 2016.
- Distinguished Speaker, Indo-US Workshop on Big Data Analysis for Transportation Engineering Systems, "Big data for new and existing transportation solutions", IIT Madras, Chennai, India, Dec. 2016.
- Post-MDM KAIST Workshop, "Emerging Urban Mobility Services", Daejeon, South Korea, June 2017.
- Sun-Yat-Sen University, "Big data for new and existing transportation solutions", Guangzhou, China, June 2017.
- Invited speaker, The 7th International Symposium on High Confidence Software, "Novel Concepts in Smart City Computing, and their Applications in Neuroscience", Peking University, Beijing, China, Dec. 2017.
- University of Versailles, "Novel Concepts in Ridesharing and their Application to Neuro-Science", France, June 2018.
- University of Zaragoza, "Novel Concepts in Urban Computing and their Application to Neuro-Science", Spain, July 2018.
- Invited speaker, 111 Project Annual Meeting and Annual Meeting of Key Lab. of High Confidence Software Technologies, "Spatio-temporal Resources in the Autonomous-vehicles Era", Peking University, Beijing, China, Dec. 2018.
- Invited speaker, Interdisciplinary Research Program on Urban Mobility, Institut Pascal, "Spatio-temporal Resources in the autonomous-vehicles era", University Paris Saclay, France, Oct. 2019 (<https://ipa-user.universite-paris-saclay.fr/node/54>)
- Invited speaker, The 9th International Symposium on High Confidence Software and 111 Project Annual Meeting, "Consciousness, AI, and Coordination: What is the relationship?", Peking University, Beijing, China, Dec. 2019.
- Invited speaker, Nanjing University of Aeronautics and Astronautics, "Resource-search and navigation by autonomous-vehicles", Nanjing, China, Dec. 2019.

Plenary Panel co-chair, ICDE'01 IEEE International Conference on data Engineering, 2001, Heidelberg, Germany, Apr. 01.

Invited Panelist or Workshop speaker at the following events:

- The IEEE International Conference on Data Engineering (ICDE) 1994, Houston, TX.
- The International Workshop on Next Generation Information Technology and Systems (NGITS) 1997, Israel.
- National Science Foundation Workshop "Toward T3 Tetherless Communications", Denver CO (Nov. 1998)
- The International Conference on Mobile Data Management (MDM) 2001, Hong Kong.
- The IEEE Symposium on Computers and Communications (ISCC) 2003, Antalya, Turkey.
- Panel on "Mobile Peer-to-Peer Computing: Challenges, Metrics and Applications", The 6th International Conference on Mobile Data Management (MDM) 2005, Ayia Napa, Cyprus.
- Panel on "Data Intensive Mobile Sensor Networks: Killer Applications and Grand Deterrents", The 7th International Conference on Mobile Data Management (MDM) 2006, Nara, Japan.
- Panel on "Model the Planet", Defense Advanced Research Projects Agency (DARPA), 2006, Washington DC.
- Panel on "The Future of Ubiquitous Computing" at Mobiquitous 2008: The Fifth Annual International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Dublin, Ireland, July 2008.
- Panel on "New and emerging technologies in portable devices", Portable 2008: the 2nd IEEE International Interdisciplinary Intersociety Conference on Portable Information Devices, Garmisch-Partenkirchen, Germany, Aug. 2008.
- Panel on "Computational Transportation Science Open Problems and Future Directions", the Second International Workshop on Computational Transportation Science, Seattle, WA, Nov. 2009.
- Panel on "Pervasive Data in Transportation", workshop at the 90th annual meeting of the Transportation Research Board, Washington DC, Jan. 2011.
- Indo-US Workshops on Developing a Research Agenda in Pervasive Communications and Computing Collaboration (PC3), New Delhi, India, Mar. 2011.
- Dagstuhl Invitational Seminar 12331: Mobility Data Mining and Privacy, Germany, Aug. 2012.
- Panel on "The Future of Urban Computing" at The 2nd ACM SIGKDD International Workshop on Urban Computing (UrbComp 2013) Chicago, IL, Aug. 2013.
- Panel on "Automated Mobility: How environment awareness technologies will drive intelligent transportation of the future", 30th International Conference on Data Engineering (ICDE), Apr. 2014.
- The 3rd ACM SIGKDD International Workshop on Urban Computing (UrbComp 2014) "Spatio-temporal urban resources, their pricing, and truthfulness", NYC, NY, Aug. 2014.
- Dagstuhl Invitational Seminar 16091: Computational Challenges in Cooperative Intelligent Urban Transport, Germany, Mar. 2016.
- Panel on "Advanced Query Answering Techniques over Big Mobile Data", at the 17th IEEE International Conference on Mobile Data Management (MDM), June 2016.
- Panel on "The Future of Computing", The 7th International Symposium on High Confidence Software, Peking University, Beijing, China, Dec. 2017.
- Panel on "Cyber-Physical-Human Systems: Principles and Practices", 111 Project Annual Meeting and Annual Meeting of Key Lab. of High Confidence Software Technologies, Peking University, Beijing, China, Dec. 2018.
- Panel on "Future of Software Research", The 9th International Symposium on High Confidence Software and 111 Project Annual Meeting, Peking University, Beijing, China, Dec. 2019.

## STUDENTS:

Served on the Ph.D. committee of students at the Technion, Columbia University, the University of Illinois at Chicago, National University of Singapore, Florida International University, Univ. of Jyvaskyla in Finland, Aalborg University in Denmark (Dingming Wu), Aarhus University in Denmark (Manohar Kaul).

Graduate Students Advised: Technion- Simona Cohen, Aya Ozeri, Amir Milo. Columbia University- Hasanat Dewan, Akira Kawaguchi (currently Assoc. Prof. at The City College of New York), Kui Mok. UIC- Padmaja Nalluri, Chakravarty Satish Gadiraju, Shyama Somarajan, Cheuk H. Ng, Nikolaos Y. Athanopoulos, Harish Butani, Prasad Vani Karcherla, Xiaojing Ge, Kailash Narayanan, Ramya S. Raj, Binu Kamal, Liqin Jiang (last known position at Epocrates, Inc.), Ana Lelescu (last known position at the IBM Almaden Research Center), Ashwin Raj, Kai-hua Xiang, Guolong Li, Jorge A. Levera Gomez, Hai Lin, Meng Jin, Bizy Kuzhiyil, Damian Sabas Roqueiro, Swathi Rayaprolu, Chenhui Mo, Fenghua Chen, Juhong Liu, Pawel Czarnota, Yixiu Huang (last known position at Bank of America), Huabei Yin, Hu Cao (last known position Microsoft Co.), Goce Trajceviski (currently at Northwestern Univ.), Daniel Ayala, Piotr Szczurek (currently at Lewis University), Joel Booth, Sol Ma, Leon Stenneth, Melanie Boivineau (visiting from Univ. of Nantes, France), Adrien Tharrault (visiting from Univ. of Nantes, France), Ting Zhong (visiting from China), Sergio Ilarri (faculty at the Univ. of Zaragoza, Spain), Divya Nanduri, Sri Sai Lalitha Pulla, Deepika Panguluru, Manish Lasod, Raja Krishnan, Dharmesh Jagadish, Sarath Subramanian, Pavan Tej, Dheeraj Rampally, Silvia Joseph, Anusha Vannela (last known position Software Engineer, Continental Automotive Systems), Ashish Kudva, Aakanksha Patangay, Maneesh Janyavula, Roland Varriale, Manogna PUCHHALAPALLI, Vijay BHOJWANI, Mithila NAYAK, Srinivas DHRUVAKUMAR, Anudeep Burugula, Naga Vutukuri, BalaKrishna Ramidi, Pavan Jaya, Pavan Narasimha, Qing Guo, Sandeep Sasidharan, Luca Foti, Marco Mele, Marco Miglionico, Giovanni Monna, Gautam, Mohit Adwani, Xhimi Hypi.

Postdoctoral Students Advised: Bo Xu (currently at Nokia/Here Research), Amos Baranes, Joon-Min Gil (visiting from Korea), Hyung-Ju Cho (visiting from Korea), Dongkyoo Shin (visiting from Korea), Xinjuan Zhu (visiting from China), Jose Antonio Rodriguez Mondejar (visiting from Comillas Pontifical University, Madrid, Spain), Xun Pu (visiting from China), Xiaojun Wu (visiting from China).

#### RESEARCH GRANTS AND GIFTS:

UIC Discovery Partners Institute Seed Funding Program, J. Lin (PI), R. Molokie (co-PI), O. Wolfson (co-PI), *MY-AIR: Monitoring Your Air-pollution Risk: A Mobile App*, \$100,000, May 2019 - Nov. 2020.

National Science Foundation Grant 1748172, supplement to Grant IIS-1213013, O.Wolfson (PI) *A Traffic Analysis Perspective on Connectomics*, \$76,410, Aug., 2017 - Sept., 2019.

National Science Foundation Grant IIP-1534138, Yu Nie (PI), O. Wolfson (co-PI), J. Schummer (Co-PI), J. Lin (Co-PI), A. Stathopoulos (Co-PI), *PFI:BIC - Smart CROwdsourced Urban Delivery (CROUD) System*, \$1,000,000, Sept. 2015 - Aug. 2020.

National Science Foundation Grant IIS-1213013, O.Wolfson (PI), B.Xu (co-PI), I. Cruz (co-PI), *III: Large: Collaborative Research: Moving Objects Databases for Exploration of Virtual and Real Environments*, \$1,166,599, Oct., 2012 - Sept., 2019.

National Science Foundation Grant IIP-1315169, to Pirouette Software owned by Wolfson, C. Naiman (PI), *SBIR Phase 1: "Parking Assistant Software for Smart-phones and Car Navigation Systems."*, \$149,999, July 1st, 2013 - Dec. 31st, 2013.

National Science Foundation Grant CCF-1216096, B. Dasgupta (PI), J. Lin (co-PI), O. Wolfson (co-PI), *ICES: Small: Collaborative Research: Dynamic Parking Assignment Games*, \$200,000, Sept., 2012 - Aug., 2015.

National Science Foundation Grant DGE-0549489, O. Wolfson (PI), P. Thakuriah, A. Ouksel, P. Nelson, R. Sloan (co-PI's), *IGERT: Graduate Program in Computational Transportation Science*, \$3,098,888, June 2006 - May 2015.

National Science Foundation Grant IIS-0957394, O. Wolfson (PI), J. Lin (co-PI), *The IntelliDrive Database Management System*, \$100,000, Sept. 2009 - Aug. 2010.

US Department of Transportation, Research and Innovative Technologies Administration, A. Shabana (PI), M. Issa, C. Foster, J. Leigh, O. Wolfson (co-PI's), *National University Rail Center*, \$163,975, Jan. 2012 - Jan. 2016.

Illinois Department of Transportation, through UTC-METSI, O. Wolfson (PI), *Intelligent Transportation on Mobile Devices*, \$25,000, July 2013 - June 2014.

National Science Foundation Grant IIS-1338260, O. Wolfson (PI), *US-Based Students Support to Attend the IEEE International Conference on Mobile Data Management 2013 (IEEE MDM 2013)*, \$20,000, Apr. 2013 - Mar. 2015.

NASA STTR Award NNA06AA25C, O. Wolfson (PI), *MOBI-DIC: MOBIle DIssemination of loCal information in Peer-to-Peer Wireless Networks*, \$99,940, 1/06-1/07 (15% success rate). Grant to Pirouette Software, subcontract to UIC.

National Science Foundation Grant OII-0611017, O. Wolfson (PI), *STTR Phase I: Feasibility of Mobile Peer-to-Peer Search on Hand-held Devices*, \$99,982, 7/06-6/07 (12% success rate). Grant to Pirouette Software, subcontract to UIC.

National Science Foundation Grant IIS-0847680, O. Wolfson (PI), B. Xu (co-PI), *SGER: Feasibility of Decentralized Search in Mobile P2P Databases*, \$100,000, Sept. 2008 - Feb. 2010.

Hitachi Co., Japan, O. Wolfson (PI), *Computational Transportation Science*, \$50,000, Sept. 2006 - Aug. 2017.

Accenture Co., O. Wolfson (PI), \$76,000, Nov. 2006, unrestricted gift.

National Science Foundation Grant 0513736, O. Wolfson (PI), *SEI(IIS): MotionEye: Querying and Mining Large Datasets of Moving Objects*, \$286,855, 7/05-6/09.

National Science Foundation Grant 0326284, M. Cruz (PI), A. Ouksel, O. Wolfson (co-PI's), *ITR Collaborative Research: Context-Aware Computing with Applications to Public Health Management*, \$1,200,000, 9/03-8/09.

National Science Foundation Grant 0330342, A. Nehorai (PI), M. Dutta, O. Wolfson, M. Zafran (co-PI's), *SENSORS: Collaborative Research: Biochemical Sensors and Data Processing for Security Applications*, \$540,000, 9/03-8/06.

National Science Foundation Grant ITR-0086144, O. Wolfson (Principal Investigator), Bo Xu (co-PI) *ITR: Real-time Capture, Management and Reconstruction of Spatio-Temporal Events*, \$673,837, 9/00-9/04. This ITR project is in collaboration with UCLA, University of Maryland, and UC Irvine, and \$673K is UIC's share.

National Science Foundation Grant NSF-0209190, O. Wolfson (Principal Investigator) *Geographic Management of Data in Infrastructureless Environments*, \$147,000, 8/02-8/05.

Defense Advanced Research Projects Agency, Cooperative Agreement No. N66001-97-2-8901, S. Dao (PI), R. Muntz, O. Wolfson, L. Zhang (co-PI's), *Semantic Multicast: Intelligently Sharing Collaborative Sessions*, \$2,824,626, 6/97 - 12/00.

National Science Foundation Grant CCR-0070738, O. Wolfson (Principal Investigator), *Dynamic Negotiating Agents in Mobile Computing*, \$66,203, 9/1/00 - 8/31/03.

National Science Foundation Grant CCR-9816633, O. Wolfson (Principal Investigator), C. Yu (co-PI), *Design of an Adaptable Dynamic Wireless Network Architecture Using Intelligent Agents*, \$194,020, 9/1/98 - 8/31/02.

National Science Foundation Grant CCR-9803974, P. Sistla, O. Wolfson, C. Yu, *Triggers and Queries in Distributed Software Systems for Moving Objects*, \$260,000, 8/1/98 - 7/31/02.

National Science Foundation Grant IRI-9712967, O. Wolfson (Principal Investigator), *Adaptive Data Replication in Distributed Systems*, \$216,693, 10/1/97 - 9/30/00.

National Science Foundation Grant EIA-0000516, O. Wolfson (Principal Investigator), *CISE Postdoctoral Research Associateships in Experimental Computer Science - Data Replication in Peer to Peer Broadcast Networks*, \$66,000, 10/00-9/02.

Army Research Laboratories Grant DAAL01-96-2-0003, via the Federated Labs Consortium, O. Wolfson (Principal Investigator), *A Spatio-Temporal System for Tracking Moving Objects*, \$50,000, 3/26/01 - 6/30/01.

Army Research Laboratories Grant DAAL01-96-2-0003, via the Federated Labs Consortium, Ouri Wolfson (Principal Investigator), *Performance and Functionality of Spatio-temporal Databases*, \$50,000, 5/1/00 - 12/31/00.

Army Research Laboratories Grant DAAL01-96-2-0003, via the Federated Labs Consortium, mod 34, Ouri Wolfson (Principal Investigator), *Data Replication in Databases Distributed Over Wireless Networks*, \$50,000, 4/27/99 - 12/31/99.

Army Research Laboratories Grant DAAL01-96-2-0003 mod 18, via the Federated Labs Consortium, Ouri Wolfson (Principal Investigator), *Issues in Distributed Databases for Moving Objects*, \$50,000, 3/20/98 - 9/30/98.

National Science Foundation Grant INT-9812325 (travel grant), Ouri Wolfson (Principal Investigator), *U.S. - Greece Cooperative Research: Dynamic Data Allocation in Distributed Systems*, \$12,000, 2/15/99 - 1/31/02.

Army Research Laboratories Grant DAAL01-96-2-0003 via the Federated Labs Consortium, Ouri Wolfson (Principal Investigator), *Database Update Policies for Moving Objects*, \$40,000, 6/15/97 - 12/31/97.

Informix Co., Ouri Wolfson (Principal Investigator), *Modeling and Querying Moving Objects*, software grant, \$58,000, Jan. 97.

National Science Foundation Grant IRI-9408750, Ouri Wolfson (Principal Investigator), *Dynamic Data Allocation in Mobile Computing*, \$188,000, 10/1/94 - 3/31/98.

National Science Foundation Grant CDA-9617465, J. Solworth (PI), J. Lobo, P. Sistla, O. Wolfson, C. Yu (co-PI's), *CISE Research Instrumentation: A Data Intensive Distributed Computing System*, \$120,000, 2/15/97 - 1/31/98.

National Science Foundation R. Hollebeek PI, *Academic Research Infrastructure Grant: Development of the National Scalable Cluster Project, a Wide Area Scalable Infrastructure for Data Intensive Computing*, \$2,000,000, of which Wolfson's share is \$25,000, 2/15/97 - 2/31/00.

Hughes Research Laboratories, Ouri Wolfson (Principal Investigator), *WIRELESS-VIEW*, \$20,000, 11/07/96, unrestricted.

NATO, grant CRG-960648, Ozgur Ulusoy and Ouri Wolfson, *Time-Cognizant Trigger Processing in Mobile Distributed Systems*, travel grant, \$8,400, 7/1/96-6/30/00.

Hughes Research Laboratories, Ouri Wolfson (Principal Investigator), *WIRELESS-VIEW: Accessing online databases from mobile computers*, \$10,000, 12/21/95, unrestricted.

Hughes Research Laboratories. Ouri Wolfson (Principal Investigator), *Caching in Mobile Computing*, \$10,000, 12/16/94, unrestricted.

National Science Foundation Grant IRI-9224605, R. Grossman PI, T. DeFanti O. Wolfson A. Lifshits A. Para co-PI's, *Computing with Persistent Stores of Scientific Objects*, \$401,000, 8/1/93 - 1/31/97.

Air Force Office of Scientific Research Grant F49620-93-1-0059, Ouri Wolfson (Principal Investigator), *Active Heterogeneous Databases for Monitor and Control*, \$277,500, 11/15/92 - 11/14/95, (P. Sistla and C. Yu co-PI's).

University of Illinois Campus Research Board, Ouri Wolfson (Principal Investigator), *Dynamic Data Allocation in Mobile Computing*, \$12,000, 7/1/94 - 6/30/95.

National Science Foundation Grant IRI-9003341, Ouri Wolfson (Principal Investigator), *Distributed Processing of Rule-Programs in Knowledge-Bases*, \$248,800, 8/15/90 - 7/1/93, (Y. Yemini and A. Silberschatz co-PI's)

National Science Foundation (CISE) Grant CDA-90-24735, *A Server-Based Computing Infrastructure*, equipment grant, with 17 other researchers at Columbia University, \$3,278,680, 6/1/1991- 5/31/1996.

New York State Science and Technology Foundation, Centers for Advanced Technology (CAT) Program, Grant NYSTF CU91053, Ouri Wolfson (Principal Investigator), *Incremental Rule Processing in Knowledge Bases*, \$20,000, 7/1/91 - 6/30/92.

New York State Science and Technology Foundation, Centers for Advanced Technology (CAT) Program, Grant NYSTF CU01207901, Ouri Wolfson (Principal Investigator), *Enhancing Performance of the Logic-Program Paradigm*, \$10,000, 7/1/90 - 6/30/91.

The Israeli Academy of Sciences and Humanities, Ouri Wolfson (Principal Investigator), *Performance of Transaction Commitment Algorithms in Distributed Databases*, \$10,000, Dec. 1988 - Dec. 1989.

#### **Patents Issued:**

S. Stolfo, O. Wolfson, and H. Dewan, Incremental Update Process and Apparatus, US patent number 5,363,473 issued in Nov. 1994.

O. Wolfson, Method and System for Tracking Moving Objects, US patent number 6,801,850 issued Oct. 2004.

O. Wolfson, Method and System for Querying Moving Objects, US patent number 6,895,329 issued May 2005.

O. Wolfson, Method and System for Tracking Moving Objects, US patent number 6,965,827 issued Nov. 2005.

O. Wolfson, Method and System for Querying in a Moving Object Database, US patent number 6,968,271 issued Nov. 2005.

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O. Wolfson, B. Xu, Adaptive Search in Mobile Peer-to-Peer Databases, US Patent number 7,849,139 issued Dec. 2010

#### **Patents Pending:**

O. Wolfson, L. Stenneth, B. Xu, D. Ayala, B. Dasgupta, J. Lin, SYSTEM AND METHODS FOR DETECTION AND SELECTION OF A RESOURCE AMONG AVAILABLE RESOURCES, US Patent Application 20140122190, Application Number: 14/068307, Filing Date: 10/31/2013

#### **SOFTWARE SYSTEMS DEVELOPED:**

DOMINO – Databases fOr MovINg Objects tracking. Domino adds temporal, uncertainty management, and simulation capabilities to a database management system, for tracking the location of vehicles and aircraft. Domino was built with support from and in collaboration with the Army Research Laboratories. The system was demonstrated at the ACM-SIGMOD 1999, NGITS'99, and ICDE01 conferences.

MOBI-DIK – A mobile peer-to-peer database for local search. MOBI-DIK development was funded by NASA and NSF.

#### **LIST OF PUBLICATIONS**

Recent publications can be accessed at <http://www.eecs.uic.edu/~wolfson/html/ouripublish.html>

##### **Theses**

1. O. Wolfson, "Concurrency Control Using Locks in Distributed Databases", Ph.D. thesis, Department of Computer Science, New-York University, 1984.

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