

M. Tamer Özsu

University Professor
University of Waterloo
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- PERSONAL
- ◇ **Citizenship:** Canadian & Turkish
 - ◇ **Marital status:** Married, one son, one grandson

BIOSKETCH

M. Tamer Özsu is a University Professor in the David R. Cheriton School of Computer Science at the University of Waterloo. His research focuses on data science with emphasis on large-scale data distribution and management of non-relational data systems.

Research Leadership and Publications. Professor Özsu has authored three books, including the foundational text *Principles of Distributed Database Systems* (with Patrick Valduriez), now in its fourth edition with translations into Chinese and Portuguese. He edited the comprehensive *Encyclopedia of Database Systems* (with Ling Liu), with the second edition released in 2019. His research has earned four best paper awards and received significant recognition through the ACM SIGMOD Test-of-Time Award (2015).

Editorial and Professional Leadership. He served as Founding Editor-in-Chief of ACM Books (2013–2019) and Synthesis Lectures in Data Management (2009–2013), demonstrating sustained leadership in scholarly publishing. Professor Özsu has chaired all three major database conferences—VLDB (2004), ICDE (2007), and SIGMOD (2014)—a rare distinction reflecting exceptional standing in the field.

Recognition and Awards. Professor Özsu is a Fellow of the Royal Society of Canada, American Association for the Advancement of Science (AAAS), Balsillie School of International Affairs (BSIA), and Life Fellow of both ACM and IEEE. His honors include the University of Waterloo Award of Excellence in Graduate Student Supervision (2025), ACM Presidential Award (2024), IEEE Technical Committee on Data Engineering Education Award (2024), IEEE Innovation in Societal Infrastructure Award (2022),. He received the CS-Can/Info-Can Lifetime Achievement Award (2018), ACM SIGMOD Contributions Award (2006), and the Ohio State University College of Engineering Distinguished Alumnus Award (2008).

Academic Leadership. He served as Director of the Cheriton School of Computer Science (2007–2010), Associate Dean of Research for the Faculty of Mathematics (2014–2016), and and Co-Director of the Faculty of Mathematics Data Science and Artificial Intelligence Program (2024–2026). He holds a Distinguished Visiting Professorship at Tsinghua University and chairs the Advisory Committee of Hong Kong Polytechnic University’s Research Centre on Data Science and Artificial Intelligence, demonstrating global impact in advancing data science research and education.

- EDUCATION
- ◇ **The Ohio State University**, Columbus, Ohio, USA
Ph.D., Computer and Information Science, 1983; Advisor: Bruce Weide
 - ◇ **The Ohio State University**, Columbus, Ohio, USA
M.S., Computer and Information Science, 1981
 - ◇ **Middle East Technical University**, Ankara, Türkiye
M.Sc., Industrial Engineering, 1978; Advisor: Esen Özkarahan
 - ◇ **Middle East Technical University**, Ankara, Türkiye
B.Sc., Industrial Engineering, 1974

AWARDS &
HONOURS

◇ **Major Awards**

- University of Waterloo Award of Excellence in Graduate Supervision, 2025
To “recognize those faculty members who have excelled in their support of graduate students” – one of four awarded in 2025
- ACM Presidential Award, 2024
For “long-standing contributions to the broader computing community and to ACM” – two awarded in 2024
- IEEE Technical Committee on Data Engineering (TCDE) Education Award, 2024
For “fundamental contributions to data management and data science pedagogy” – one awarded per year
- IEEE Innovation in Societal Infrastructure Award, 2022
For “contributions to data science infrastructure and distributed data management” – one awarded per year
- Distinguished Visiting Professor, Tsinghua University, China, 2020
- CS-Can/Info-Can Lifetime Achievement Award, 2018
“recognize current or former faculty members ... who have made outstanding and sustained contributions to computing over their careers.” – four awarded in 2018
- University Professor, University of Waterloo, 2018
For “exceptional scholarly achievement and international pre-eminence” – one awarded in 2018
- University of Waterloo University Research Chair, 2004–2011
For “exceptional achievement and pre-eminence in a particular field of knowledge”
- Ohio State University College of Engineering Distinguished Alumnus Award, 2008
- ACM SIGMOD (Special Interest Group on Management of Data) Contributions Award, 2006
For “long-standing dedicated service to the database research community, including leadership roles in the SIGMOD and VLDB organizations, and innovations in the publication process”

◇ **Fellowships**

- Balsillie School of International Affairs (BSIA), 2022
- American Association for the Advancement of Science (AAAS), 2018
- Royal Society of Canada, 2016
- The Science Academy, Türkiye – Bilim Akademisi, 2013
- Institute of Electrical and Electronics Engineers (IEEE), 2011
For “contributions to distributed data management and multimedia database systems”
- Association for Computing Machinery (ACM), 2006
For “contributions to distributed data management and service to the database community”

◇ **Publication Awards**

- ◇ ACM SIGMOD Test-of-Time Award 2015 that recognizes “the best paper from the SIGMOD proceedings 10 years prior, based on the criterion of identifying the paper that has had the most impact (research, products, methodology) over the intervening decade” for paper
 - Lei Chen, M. Tamer Özsu, and Vincent Oria. “Robust and Fast Similarity Search for Moving Object Trajectories,” In *Proc. ACM SIGMOD International Conference on Management of Data*, 2005, pages 491–502.
- ◇ Best Paper Award (one of three) at 38th International Conference on Data Engineering, 2022 for paper

- Anil Pacaci, Angela Bonifati, and M. Tamer Özsu. “Evaluating complex queries on streaming graphs,” In *Proc. 38th International Conference on Data Engineering*, 2022, pages 272–285.
- ◇ Best Paper Award, 44th International Conference on Very Large Data Bases, 2018 for paper
 - Siddhartha Sahu, Amine Mhedhbi, Semih Salihoglu, Jimmy Lin, and M. Tamer Özsu. “The ubiquity of large graphs and surprising challenges of graph processing,” *Proc. VLDB Endowment*, 11(4): 420–431, 2018.
- ◇ Best Paper Award, 23rd International Conference on Database Systems for Advanced Applications, 2018 for paper
 - Peng Peng, Lei Zou, M. Tamer Özsu, and Dongyan Zhao. “Multi-Query optimization in Federated RDF Systems,” In *Proc. 23rd International Conference on Database Systems for Advanced Applications*, 2018, pages 745–765.
- ◇ Best Paper Award Honourable Mention, 29th International Conference on Data Engineering, 2013 for paper
 - Cagri Balkesen, Jens Teubner, Gustavo Alonso, and M. Tamer Özsu. “Main-Memory Hash Joins on Multi-Core CPUs: Tuning to the Underlying Hardware,” In *Proc. 29th IEEE International Conference on Data Engineering*, 2013, pages 362–373.
- ◇ **Honour Societies**
 - Sigma Xi–The Scientific Research Honor Society
- ◇ **Other Awards**
 - University of Waterloo Cheriton Faculty Fellow, 2013–2016, 2018–2021, 2021–2024
 - Google Faculty Research Award, 2009 & 2015
 - University of Waterloo Outstanding Performance Award, 2004, 2009, 2014, 2019, 2024
 - Natural Sciences and Engineering Research Council (NSERC) of Canada Accelerator Award for Exceptional Opportunity, 2013
 - ACM Distinguished Lecturer, 2007–2014
 - IBM CAS Canada Research Faculty Fellow, 2010–present
 - Faculty of Mathematics Fellow, University of Waterloo, 2000–2003
 - McCalla Professor, University of Alberta, 1993–1994
 - NATO Ph.D. scholarship, through TÜBITAK–The Scientific and Technical Research Council of Türkiye, 1979–1983

RESEARCH
INTERESTS

My research is broadly on data systems and engineering with two foci:

- ◇ **Application of database technology to non-traditional data types**

Data types I have studied include multimedia data, temporal data, time series data, spatial data, XML, streaming data, graph data, RDF data (the last two are the ones that I currently investigate).
- ◇ **Distributed/parallel data management of the above data types**

Most recent work addresses streaming data and distributed XML processing. Current work focuses on distributed/parallel graph management and processing algorithms.

EMPLOYMENT

- ◇ **2020–present:** Tsinghua University, China
Distinguished Visiting Professor
- ◇ **2018–present:** University of Waterloo, Canada
University Professor
- ◇ **July 2000–2018:** University of Waterloo, Canada
Professor of Computer Science

- ◇ **July 2000–June 2005:** University of Alberta
Adjunct Professor
- ◇ **July 1993–June 2000:** University of Alberta, Canada
Professor of Computing Science
- ◇ **July 1989–June 1993:** University of Alberta, Canada
Associate Professor of Computing Science
- ◇ **July 1984–June 1989:** University of Alberta, Canada
Assistant Professor of Computing Science
- ◇ **March 1983–July 1984:** Independent Computer Consultant specializing on database systems and information system design.
- ◇ **September 1981–March 1983:** Ohio State University, Columbus, OH
Graduate Teaching Associate (taught introductory computing courses)
- ◇ **January 1981–September 1981:** Ohio State University, Columbus, OH
Graduate Research Associate
- ◇ **March 1979–January 1980:** Technicare, Inc., Solon, Ohio, USA
Part-Time Programmer/Analyst (developed and implemented a software simulator for the CT Scanners that the company used to build)
- ◇ **June 1977–January 1979:** TÜMOSAN Turkish Motor Industries and Trade Corp., Ankara, Türkiye
Industrial Engineer/Systems Analyst at R&D Department
- ◇ **March 1976–June 1977:** In-plant Training Centre for Engineers, a joint project of UNIDO (United Nations Industrial Development Organization) and Turkish Ministry of Industry and Technology.
Industrial Engineering and System Analysis Expert
- ◇ **1975–March 1976:** Postal, Telephone and Telegraph (PTT) Administration, Ankara, Türkiye
Industrial Engineer, Electronic Data Processing Dept.
- ◇ **2011/09–2012/03:** Visiting Professor, ETH Zürich, Department of Computer Science, Switzerland
- ◇ **2010/08–2011/03:** KITHCT Visiting Professor, National University of Singapore, School of Computing, Singapore
- ◇ **2006/09–2006/12:** Visiting Professor, National University of Singapore, School of Computing, Singapore
- ◇ **2006/03–2006/06:** Visiting Professor, ETH Zürich, Department of Computer Science, Switzerland
- ◇ **2005/04–2005/05:** Visiting Professor, National University of Singapore, School of Computing, Singapore
- ◇ **1998/05:** Visiting Professor, University of Milano, Italy
- ◇ **1998/01–1998/03:** Visiting Scientist, GMD-IPSI, Darmstadt, Germany
- ◇ **1997/09–1997/12:** Visiting Scientist, INRIA Rocquencourt, Le Chesnay, France
- ◇ **1990/07–1991/06:** Visiting Scientist, GTE Laboratories, Waltham, MA, USA
- ◇ **2024/07–2026/06:** Co-Director, Faculty of Mathematics Data Science and Artificial Intelligence Program, University of Waterloo
- ◇ **2018/07–2026/06:** Director, Waterloo-Huawei Joint Innovation Lab, University of Waterloo
Major initiatives: Established funding programs in seven areas (data management, programming languages & compiler technologies, data trust, cloud computing, software engineering, AI, human-computer interaction). Funded 34 projects for a total of \$6.3M plus \$4.5M matching grants. The lab supported 38 faculty members and 225+ students, producing 125+ publications and two spin-off companies.

VISITING
POSITIONS

MAJOR
ADMINISTRATIVE
POSITIONS

EDUCATIONAL
EXPERIENCE

- ◇ **2014/01–2016/06:** Associate Dean of Research, Faculty of Mathematics, University of Waterloo
Major initiatives: Represented Math Faculty at VP Research office and its committees, managed Math CFI budget allocation, served on the Waterloo Bibliometrics Committee, chaired Waterloo Bibliometrics Working Group which produced the report *Measuring Research Output through Bibliometrics* (<https://bit.ly/3TtwXGO>).
- ◇ **2007/01– 2010/06:** Director, David R. Cheriton School of Computer Science, University of Waterloo
Major initiatives: Established course-based master’s stream, established Master of Health Informatics program, established joint CS-Business program in collaboration with Wilfred Laurier School of Business and Economics, established Women in Computing (WICS) Committee
- ◇ **1994/07–1995/06:** Acting Chair, Department of Computing Science, University of Alberta
- ◇ **Program & Course Development:**
 - Member of the committee that established the Master of Data Science and Artificial Intelligence (MDSAI) at the University of Waterloo, serving on its Coordinating Committee (2018–present).
 - Created the Master of Health Informatics, Faculty of Mathematics at the University of Waterloo (2009).
 - Created the Computer Science/Business Administration joint degree between University of Waterloo and Wilfred Laurier University (2009).
 - Created the course “Data Engineering for Data Science,” a graduate level course for the MDSAI program (2024).
 - Created the course “Principles of Data Management and Use,” a graduate level course for the Master of Health Informatics program, Faculty of Health at the University of Waterloo (2015).
 - Led the revision of undergraduate database courses at the University of Waterloo (2005).
 - Led the revision of undergraduate database courses at the University of Alberta (1995).
 - Created thirteen graduate courses at the Universities of Waterloo and Alberta.
- ◇ **Undergraduate Courses Taught:**
 - Principles of Data Management and Use (University of Waterloo)
 - Distributed Systems (University of Waterloo)
 - Introduction to Database Management (University of Waterloo)
 - Computer Applications in Business Databases (University of Waterloo)
 - Introduction to File and Database Systems (University of Alberta)
 - Database Management Systems (University of Alberta)
 - Telecommunications and Computers (University of Alberta)
 - Modeling and Analysis of Computer Systems (University of Alberta)
 - Switching Theory and Logical Design (University of Alberta)
 - Elements of Programming I (University of Alberta)
 - Introduction to Business Computing (University of Alberta)
 - Programming and Algorithms I (The Ohio State University)
 - Introduction to Programming (The Ohio State University)
 - Management Information Systems (Middle East Technical University, Türkiye)
 - Database Systems (Middle East Technical University, Türkiye)
- ◇ **Graduate Courses Taught:**
 - Data Engineering for Data Science (University of Waterloo)
 - Disaggregated and Heterogeneous Computing Platform for Graph Processing (University of Waterloo)

- Principles of Data Management and Use (University of Waterloo–hybrid course)
- Big Data Computing Platforms (University of Waterloo)
- Modern Database Systems (University of Waterloo)
- Parallel and Distributed Database Systems (University of Waterloo))
- System and Network Architectures and Implementation (University of Waterloo)
- Parallel and Distributed Databases (National University of Singapore)
- Parallel and Distributed Databases (ETH Zürich)
- Internet-Scale Distributed Data Management (University of Waterloo)
- Web Data Management (University of Waterloo)
- Distributed Database Systems (University of Waterloo & University of Alberta)
- Advanced Computer Architectures (University of Alberta)

STUDENTS &
POSTDOCS

◇ **Current PhD Students:**

- *Xiangru Jian*
Thesis title: A Multi-Agent Architecture for Complex Analytical Tasks over Heterogeneous Federated Systems
Start date: Fall 2022
- *Kerem Akillioglu*
Thesis title: Captain: A Native Data Management Stack for AI Applications
Start date: Spring 2024

◇ **Current MMath Students:**

- *Yaseen Sherif Gamaleldin Ahmed*
Thesis title: MADBench - Measuring Agentic Databases: Quantifying the Protocol Tax of MCP-Mediated Query Workloads
Start date: Fall 2023

◇ **Post-Doctoral Fellows and Research Associates:**

- None at this time

◇ **Visiting Students:**

- None at this time

◇ **Graduated PhD Students:**

- [20] *Dr. Zeynep Korkmaz*
Thesis title: Graph-aware locality optimization and cache replacement techniques for graph processing
Graduation date: Spring 2026
Co-supervised with Khuzaima Daudjee
- [19] *Dr. Aida Sheshbolouki*
Thesis title: Mining Butterflies in Streaming Graphs
Graduation date: Fall 2023
- [18] *Dr. Khaled Ammar*
Thesis title: Systems and Algorithms for Dynamic Graph Processing
Graduation date: Spring 2023
Last known employment: Borealis.AI, Waterloo, Canada
Co-supervised with Semih Salihoglu
- [17] *Dr. Anil Paçacı*
Thesis title: Query Models and Query Processing over Streaming Graphs
Graduation date: Fall 2022
Last known employment: Apple, Seattle, USA

- [16] *Dr. Güneş Aluç*
Thesis title: Scalable, Adaptive, and Distributed RDF Data Management
Graduation date: Fall 2015
Last known employment: SAP Canada, Waterloo, Canada
- [15] *Dr. Patrick Kling*
Thesis title: Distributed XML Query Processing
Graduation date: Spring 2012
Last known employment: Google, Waterloo, Canada
- [14] *Dr. Yingying Tao*
Thesis title: Mining Time-Changing Data Streams
Graduation date: Spring 2012
Last known employment: CI Investments Inc., Toronto, Canada
- [13] *Dr. Qiang Wang*
Thesis title: Efficient Range and Join Query Processing in Massively Distributed Peer-to-Peer Networks
Graduation date: Fall 2008
Last known employment: Oracle Corp., Seattle, WA, USA
- [12] *Dr. Ning Zhang*
Thesis title: XQuery Evaluation and Optimization: A Native Approach
Graduation date: Fall 2006
Last known employment: Pinterest, CA, USA
- [11] *Dr. Lukasz Golab*
Thesis title: Processing Continuous Queries over On-line Data Streams
Graduation date: Fall 2006
Last known employment: Associate Professor of Management Science, University of Waterloo, Waterloo, Canada
Winner of Alumni Gold Medal
- [10] *Dr. Lei Chen*
Thesis title: Similarity Search Over Time Series and Trajectory Data
Graduation date: Spring 2005
Last known employment: Dean and Chair Professor of Computer Science at Hong Kong University of Science and Technology (Guongzhou), China
- [9] *Dr. Kaladhar Voruganti*
Thesis title: Studies on Client Caching DBMS Architectures and Algorithms
Graduation date: Spring 2001
Last known employment: VP, Technology Innovation, Equinix, Redwood City, CA, USA
Co-supervised with Ron Unrau
- [8] *Dr. Lingling Yan*
Thesis title: Building Scalable and Flexible Mediation: The AURORA Approach
Graduation date: Spring 2000
Last known employment: Master, Product Management, Hitachi Vantara, San Jose, CA, USA
- [7] *Dr. Yuri Leontiev*
Thesis title: Type System for an Object-Oriented Database Programming Language
Graduation date: Fall 1999
Last known employment: Endeavor Technologies Corp., Edmonton, Canada
Winner of 1999 Governor General Award and 2001 NSERC Doctoral Dissertation Award
Co-supervised with Duane Szafron
- [6] *Dr. Iqbal Gorawalla*
Thesis title: Temporal Aspects and Rule Systems in Object-Oriented Database Systems
Graduation date: Spring 1998

Last known employment: Principal Consultant at Triton Consulting, UK.
Co-supervised with Duane Szafron

[5] *Dr. John Z. Li*

Thesis title: Query Languages for Multimedia Database Systems and their Optimization

Graduation date: Spring 1998

Last known employment: Data Architect, Compugen Inc, Toronto, Ontario, Canada

Co-supervised with Duane Szafron

[4] *Dr. Randal Peters*

Thesis title: Formal Models, Views and Languages for Object-Oriented Database Systems

Graduation date: Spring 1994

Last known employment: Instructor at Red River College and Director of IT, Sherpa (EMS) Ltd., Winnipeg, Canada

[3] *Dr. Dave D. Straube*

Thesis title: Queries and Query Processing in Object Oriented Database Systems

Graduation date: Spring 1991

Last known employment: Microsoft Corporation, Redmond, WA, USA (retired).

[2] *Dr. Kenneth Barker*

Thesis title: Transaction Management in Multidatabase Systems

Graduation date: Fall 1990

Last known employment: Professor of Computer Science, University of Calgary, Calgary, Canada

[1] *Dr. Abdel A. Farrag*

Thesis title: Concurrency and Consistency in Database Systems

Graduation date: Spring 1986

Last known employment: Professor of Computer Science, Dalhousie University, Halifax, Canada (retired).

◊ **Graduated Master's Students:**

[43] *Arman Davoodi* **Thesis title:** Approximate Nearest Neighbors Search using IVF-based Indices on Memory-Disaggregated Platforms

Graduation date: Fall 2026

Last known employment: Larus, Ottawa, Canada

[42] *Sepideh Abadini*

Thesis title: SQLyzz: A Comprehensive Benchmark and Framework for Evaluating Text-to-SQL Systems

Graduation date: Spring 2026

Last known employment: Vector Institute, Toronto, Canada

[41] *Harrum Noor*

Thesis title: What Do You Mean? Using Large Language Models for Semantic Evaluation of NL2SQL Queries

Graduation date: Spring 2025

Last known employment: Workday, Toronto, Canada

[40] *Sairaj Vorugantii*

Thesis title: MIRAGE-ANNS: Mixed Approach Graph-based Indexing for Approximate Nearest Neighbour Search

Graduation date: Spring 2025

[39] *Ipsita Mohanty*

Thesis title: Triangle count estimation and label prediction over uncertain streaming graphs

Graduation date: Fall 2024

Last known employment: Huawei Technologies Canada, Markham, Canada

- [38] *Kerem Akillioglu*
Thesis title: Cardinality Estimation in Streaming Graph Data Management Systems
Graduation date: Spring 2024
Last known employment: PhD Student, University of Waterloo, Cheriton School of Computer Science
- [37] *Libo Gao*
Thesis title: Streaming WatDiv –A Streaming RDF Benchmark
Graduation date: Spring 2018
Last known employment: Wish, Toronto, Canada
- [36] *Yan Zhang*
Thesis title: Efficient Structure-Aware Query Processing over Large Property Graphs
Graduation date: Spring 2018 **Last known employment:** IBM Toronto Laboratories, Markham, Canada
- [35] *Ning Zhang*
Non-thesis master's
Graduation date: Fall 2014
Last known employment: Google, Kitchener, Canada
- [34] *Yuke Yang*
Thesis title: ViewDF: a Flexible Framework for Incremental View Maintenance in Stream Data Warehouses
Graduation date: Fall 2013
Last known employment: Senior Staff Engineer, DoorDash, San Francisco, CA, USA
- [33] *Xin Zhan*
Essay title: Survey on Energy Efficient Computing
Graduation date: Spring 2010
Last known employment: RBC Capital Markets, Toronto, Canada
- [32] *Amod Gupta*
Thesis title: Audio Processing on Constrained Devices
Graduation date: Spring 2010
Last known employment: Head of Product, Traceable, Los Altos, CA USA
- [31] *Jack Ng*
Essay title: Extending Progressive Optimization to a Shared-Nothing Parallel Database Architecture
Graduation date: Spring 2007
Last known employment: Huawei Technologies, Markham, Canada
- [30] *Emre Cem Özgen*
Thesis title: View Selection in XML Query Processing
Graduation date: Fall 2006
Last known employment: Salesforce, CA, USA
- [29] *Sam Lightstone*
Thesis title: Automated Design of Multi-Dimensional Clustering Tables for Relational Databases
Graduation date: Spring 2004
Last known employment: Airbnb, Toronto, Canada
- [28] *Mohammad Hossain Sheikh Attar*
Thesis title: Alternative Architectures and Protocols for Providing Strong Consistency in Dynamic Web Applications
Graduation date: Spring 2004
Last known employment: unknown
- [27] *Weimin Li*
Thesis title: XComp: An XML Compression Tool

- Graduation date:** Fall 2003
Last known employment: Economic Insurance Group, Waterloo, Canada.
- [26] *Catalin Visinescu*
Thesis title: Incremental Data Distribution on Internet-Based Distributed Systems: A Spring System Approach
Graduation date: Fall 2003
Last known employment: NCC Group, Kitchener, Canada.
- [25] *Sunny K.S. Lam*
Thesis title: WebQA: A Web Querying Using the QA Approach
Graduation date: Spring 2002
Last known employment: Hard Rock Digital, Markham, Canada.
- [24] *Yuxin (Leon) Cao*
Thesis title: The Evaluation of Strong Web Caching Consistency Algorithms
Graduation date: Spring 2002
Last known employment: STMicroelectronics, Mississauga, Canada
- [23] *Shu Lin*
Thesis title: An Extendible Hashing Structure for Image Similarity Searches
Graduation date: Fall 2000
Last known employment: Huawei Technologies, Markham, Canada
- [22] *Justin Amalraj*
Thesis title: Performance Evaluation of Optimistic Cache Consistency Algorithms for Web-based Electronic Commerce Applications
Graduation date: Fall 2000
Last known employment: Winner's, Kanata, Canada
- [21] *Benjamin Bin Yao*
Thesis title: Building an Interoperable Distributed Image Database Management System on top of a CORBA Platform
Graduation date: Fall 2000
Last known employment: Microsoft Australia, Sydney, Australia
- [20] *Bing Xu*
Thesis title: Design and Development of a Visual Query Interface for DISIMA Image DBMS
Graduation date: Spring 2000
Last known employment: IBM Canada, Toronto, Canada
- [19] *Irene Lin-Oi Cheng*
Thesis title: Image Databases: A Content-Based Type System and Query by Similarity Match
Graduation date: Spring 1999
Last known employment: Scientific Director, Multimedia Research Centre, University of Alberta
- [18] *Adriana Zubiri (Manās)*
Thesis title: Design and Implementation of an Object Database for Injury Surveillance
Graduation date: Fall 1997
Last known employment: Vice President, Data Centers and Operational Resiliency, RBC, Toronto, Canada.
- [17] *Sherine El-Medani*
Thesis title: Coupling an SGML Compiler With a Multimedia Database Management System
Graduation date: Fall 1996
Last known employment: Juniper Networks, Ottawa, Canada
Co-supervised with Duane Szafron

- [16] *Manuela Jungchaans (Schone)*
Thesis title: A Generic Type System for Object-Oriented Multimedia Databases
Graduation date: Fall 1996
Last known employment: Siemens AG, Berlin, Germany
Co-supervised with Duane Szafron
- [15] *Ghada El-Medani*
Thesis title: A Visual Query Facility for Multimedia Databases
Graduation date: Fall 1995
Last known employment: Senior Manager, Engineering, Wind River Systems, Ottawa, Canada
Co-supervised with Duane Szafron
- [14] *Chiradeep Vittal*
Thesis title: Design and Implementation of an Object-Oriented Multimedia Database System for News-on-Demand
Graduation date: Fall 1995
Last known employment: CTO, Stealth, Sunnyvale, CA, USA
Co-supervised with Duane Szafron
- [13] *Adriana Munoz*
Thesis title: An Extensible Query Optimizer Architecture for the TIGUKAT Objectbase Management System
Graduation date: Spring 1994
Last known employment: Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, USA
- [12] *Kaladhar Voruganti*
Thesis title: Benchmarking for new database application domains
Graduation date: Spring 1993
Last known employment: See above under Former PhD students
Essay-based master's
- [11] *Yun Wang*
Thesis title: Advanced Transaction Models and Management Strategies for Object-Oriented Database Systems
Graduation date: Spring 1993
Last known employment: Destiny Software, Wishohocken, Pennsylvania, USA
Essay-based master's
- [10] *Ana Dominguez*
Thesis title: A Query Optimization Strategy for Multidatabase Systems
Graduation date: Fall 1993
Last known employment: Government of Alberta, Edmonton, Canada.
- [9] *Boman B. Irani*
Thesis title: Implementation of TIGUKAT Object Model
Graduation date: Fall 1993
Last known employment: Sun Microsystems, Palo Alto, CA, USA
- [8] *Anna P. Lipka*
Thesis title: The Design and Implementation of TIGUKAT User Languages
Graduation date: Fall 1993
Last known employment: Autodesk, Toronto, Ontario, Canada.
- [7] *Youping Niu*
Thesis title: Network Communication Overhead in Distributed Concurrency Control Performance
Graduation date: Fall 1990
Last known employment: unknown
- [6] *Yan Li*
Thesis title: Communication in FLEX

Graduation date: Spring 1990

Last known employment: unknown

[5] *Meei Fen Teo*

Thesis title: Experiments on the Implementation of Database Buffer Management Strategies in Virtual Memory Environments

Graduation date: Spring 1989

Last known employment: unknown

[4] *Kok-Lung Wong*

Thesis title: Distributed Simulation of Performance Petri Nets

Graduation date: Fall 1988

Last known employment: unknown

[3] *David Meechan*

Thesis title: A Heuristic Approach to Query Processing

Graduation date: Spring 1988

Last known employment: Zim Technologies International, Barbados

[2] *Christina Lau*

Thesis title: Object Management, Protection and Scheduling in FLEX

Graduation date: Spring 1988

Last known employment: IBM Laboratories, Markham, Canada

[1] *Tse-Men Koon*

Thesis title: Performance of Resilient Synchronization Mechanisms for Distributed Databases

Graduation date: Spring 1986

Last known employment: unknown

◇ **Past Post-Doctoral Fellows and Research Associates:**

- *Dr. Chao Zhang*, August 2022 – August 2024. Degree from University of Clermont Auvergne.
Last known employment: Junior Professor Chair, Université Lyon 1, France.
- *Dr. Aida Sheshbolouki*, September 2023 – September 2024. Degree from University of Waterloo.
- *Dr. Himchan Park*, March 2021–March 2022. Degree from Korea Advanced Institute of Science and Technology.
- *Dr. Guoqing Xiao*, October 2017–October 2019. Degree from Hunan University, China.
Last known employment: Associate Professor in Computer Science and Technology, Hunan University, China.
- *Dr. Bojana Bislimovska*, October 2015–September 2018. Degree from Politecnico di Milano, Italy.
Last known employment: SAP Canada, Waterloo, Canada.
- *Dr. Xiaofei Zhang*, December 2015–September 2018. Degree from Hong Kong University of Science and Technology.
Last known employment: Associate Professor, Department of Computer Science, University of Memphis, USA.
- *Dr. Olaf Hartig*, November 2012–November 2014. Degree from Humboldt Universität zu Berlin, Germany.
Last known employment: Associate Professor (Docent), Department of Computer and Information Science, Linköping University, Sweden.
- *Dr. Reza Akbarania*, December 2007–December 2008. Degree from Université de Nantes, France.
Last known employment: Research Scientist at INRIA Sophia Antipolis - Méditerranée Research Center, Lirmm Laboratory, Université de Montpellier, France.

- Dr. Susanne Busse, July–September 2007, Degree from Technische Universität Berlin.
Last known employment: Professor at Fachhochschule Brandenburg, Fachbereich Informatik und Medien.
- Dr. Vincent Oria, University of Alberta, May 1996–December 1999. Degree from Ecole Nationale Supérieure des Télécommunications, France.
Last known employment: Chair and Professor of Computer Science at New Jersey Institute of Technology, Newark, NJ, USA.
- Paul Iglinski, University of Alberta. January 1995–July 2000.
Last known employment: University of Alberta (retired).

◊ **Past Visiting Students:**

- Siyuan Zhang, PhD student at Fudan University, China, May 2025–April 2026. Currently at ByteDance, Hangzhou, China.
- Jiani Yang, PhD student at Zhejiang University, China, March 2025–September 2025. Currently at Tencent, Hangzhou, China.
- Alexander Zhou, PhD student at Hong Kong University of Science and Technology, November 2022 – February 2023. Currently Assistant Professor, Hong Kong Polytechnic University.
- Yuedan Chen, PhD student at Hunan University, China, October 2018–October 2019 (graduation date: 2020). Currently Associate Professor, Central South University, China.
- Youhuan Li, PhD student at Peking University, China, September 2016–April 2017. Currently Assistant Professor, Hunan University, China.
- Bojana Bislimovska, PhD student at Politecnico di Milano, Italy, June–September 2012 and June–September 2013. Currently at SAP, Canada.
- Tao Chen, PhD student at National University of Defense Technology, China, October 2009–March 2011 (graduation date: 2011). Currently researcher at Beijing Proteome Research Center, Beijing Institute of Radiation Medicine, China.
- Lei Zou, PhD student at Huazhong University of Science and Technology, China, September 2008–October 2009 (graduation date: 2009). Currently Professor, Institute of Computer Science & Technology, Peking University, China.
- Raymond Chi Wing Wong, PhD student at Chinese University of Hong Kong, June–July 2008 (graduation date: 2008). Currently Professor, Department of Computer Science, Hong Kong University of Science and Technology, Hong Kong.
- Nan Tang, PhD student at Chinese University of Hong Kong, March - August 2007 (graduation date: 2008). Currently Senior Scientist at Qatar Computing Research Institute, Qatar.
- Yueguo Chen, PhD student at National University of Singapore, April - June 2007 (graduation date: 2009). Currently Professor, Department of Computer Science, Renmin University, China.
- Xiaoyan Yang, PhD student at National University of Singapore, April - June 2007 (graduation date: 2012). Currently Researcher at Advanced Digital Sciences Center, Singapore.
- Sebastian Schär, Master's student at Dresden University of Technology, Germany, 2004.
- Abdullah Diltemiz, Master's student at RWTH Aachen, Germany, 2003–2004.
- Sule Gündüz-Öğüdücü, PhD student at Istanbul Technical University, Türkiye, 2001–2002 (graduation date: 2003). Currently Professor and Chair, Department of Computer Engineering, Istanbul Technical University, Türkiye.
- Henrike Berthold, PhD student at Dresden University of Technology, Germany, 2000 (graduation date: 2002)

- Sylvia Hollfellder, PhD student at Technical University of Darmstadt, Germany, 1999 (graduation date: 2004)
- Katherine Gayer, Master's student at Technical University of Darmstadt, Germany, 1996.

◊ **Undergraduate Interns:**

- Mazen El Sedfy, Arab Academy for Science and Technology, Egypt, Summer 2025.
- Yaseen Ahmed, The American University in Cairo, Egypt, Summer 2024.
- Baran Gayretli, Sabanci University, Türkiye, Summer 2019.
- Kerem Akillioglu, Sabanci University, Türkiye, Summer 2018.
- Boshen Cui, University of Waterloo, Fall 2017.
- Runsheng Guo, University of Waterloo, Fall 2017.
- Vincent Luong, University of Waterloo, Spring 2017.
- Anzo Zhao Yang Teh, University of Waterloo, Spring 2017.
- Heli Wang, University of Waterloo, Spring 2017.
- Anselme Goetschmann, University of Waterloo, Spring 2017.
- Weiyang Zhu, University of Waterloo, Spring 2017.
- Zhuoran Yu, University of Waterloo, Spring & Fall 2017.
- Amod Gupta, Indian Institute of Information Technology, Allahabad, India, Spring 2006.
- Kumar Gaurav Bijay, Indian Institute of Technology, Bombay, India, 2005.
- Abhay Kumar Jha, Indian Institute of Technology, Bombay, India, Spring 2005.
- Piyush Prahladka, Indian Institute of Technology, Bombay, India, Spring 2004.
- Shishir K. Agrawal, Indian Institute of Technology, Bombay, India, Spring 2004.
- Varun Kochalia, Indian Institute of Technology, Bombay, India, Spring 2003.
- Shaveen Garg, Indian Institute of Technology, Bombay, India, Spring 2003.
- Shariq Rizvi, Indian Institute of Technology, Bombay, India, Spring 2002.
- Nitin Khendelwal, Indian Institute of Technology, Bombay, India, Spring 2002.
- Andreas Doms, Dresden University of Technology, Germany, 2001-2002.
- Mirko Seifert, Dresden University of Technology, Germany, 2001-2002.
- Bilal Shirazi, University of Waterloo, Spring 2002.
- Aameek Singh, Indian Institute of Technology, Bombay, India, Spring 2001.

◊ **External Examiner:**

- Davide Piantella, Politecnico di Milano, Italy, 2024 (PhD).
- Hassan Halawa, University of British Columbia, 2023 (PhD).
- Misha Genkin, Carleton University, 2021 (PhD).
- Priyanka Vashisht, Thapar University, India, 2017 (PhD).
- Vincent Leroy, University of Grenoble, France 2017 (Rapporteur for Habilitation à Diriger les Recherches).
- Sairam Gurajada, Saarland University, Germany, 2017 (PhD).
- Sobhan Badiozamani, University of Uppsala, Sweden, 2016 (PhD)
- Stamatis Zampetakis, Université Paris-Sud and Inria-Saclay, France, 2015 (PhD)
- Le Thuy Ngoc, National University of Singapore, 2014 (PhD)
- Laurent Amsaleg, Université de Rennes 1, France, 2014 (Rapporteur for Habilitation à Diriger les Recherches)

- Cagri Balkesen, ETH Zürich, Switzerland, 2014 (PhD)
- Erietta Liarou, Universiteit van Amsterdam, The Netherlands, 2013 (PhD)
- Alexandru Maga, ETH Zürich, Switzerland, 2011 (PhD)
- Sadeqh Nobari, National University of Singapore, 2012 (PhD)
- Michael Duller, ETH Zürich, Switzerland, 2011 (PhD)
- Huayu Wu, National University of Singapore, 2011 (PhD)
- Irina Magdalena Botan, ETH Zürich, Switzerland, 2011 (PhD)
- Liang Xu, National University of Singapore, 2010 (PhD)
- Ladjel Bellatreche, Université de Poitiers, France, 2009, (Rapporteur for Habilitation à Diriger les Rescherches)
- Haifeng Liu, University of Toronto, Canada, 2009 (PhD)
- Nan Tang, Chinese University of Hong Kong, Hong Kong, 2008 (PhD)
- Eric Lo, ETH Zürich, Switzerland, 2007 (PhD)
- Christian Plattner, ETH Zürich, Switzerland, 2006 (PhD)
- Changqing Li, National University of Singapore, 2006 (PhD)
- Attila Barta, University of Toronto, Canada 2006 (PhD)
- Thomas Heimrich, Technical University of Ilmenau, Germany, 2005 (PhD)
- Timour Katchaounov, University of Uppsala, Sweden, 2003 (PhD)
- Henrique Paques, Georgia Institute of Technology, USA, 2003 (PhD)
- Andrea Cali, Università di Roma La Sapienza. Italy, 2002 (PhD)
- Henrike Berthold, Dresden University of Technology, Germany, 2002 (PhD)
- Ioana Manolescu, Université de Versailles, France, 2001(PhD; Rapporteur)
- Eleana Kafeza, Hong Kong University of Science and Technology, Hong Kong, 2000 (PhD)
- Alban Gabillon, Université de Toulon, France, 2000 (Rapporteur for Habilitation à Diriger les Rescherches)
- Mikael Ronström, University of Linköping, Sweden, 1998 (PhD)
- Jacek Skowronek, University of Twente, The Netherlands, 1997 (PhD)
- Panagiotis Patsouris, University of Witwatersrand, South Africa, 1997 (PhD)
- Gopi Attaluri, University of Waterloo, Canada, 1996 (PhD)
- Li Yu, University of Western Ontario, Canada, 1992 (PhD)
- Vinay Deshpande, University of Waterloo, Canada, 1991 (PhD)
- Bjorn Bergsten, Université Paris 6, France, 1991 (PhD)

PROFESSIONAL
ACTIVITIES

◇ **Advisory Boards**

- Member, Advisory Committee, Hong Kong Polytechnic University Department of Computing, 2024–present.
- Member, Advisory Board, Hong Kong University of Science and Technology, School of Engineering, 2009–2014, 2017–2020, 2024–2027.
- Chair, Advisory/Steering Committee, Hong Kong Polytechnic University Research Centre on Data Science and AI, 2021–present.
- Member, Advisory Council, Istanbul Technical University Artificial Intelligence and Data Science Application and Research Centre, 2020–present.
- Member, Advisory Council, Huawei Distributed Scheduling and Data Engine Lab, Markham, Canada, 2018–present.

- Member & Chair, Advisory Board, Hong Kong University of Science and Technology, Department of Computer Science and Engineering, 2009–2012, 2014–2017 & 2020–2023.
- Member, Advisory Board, Hong Kong University of Science and Technology Big Data Institute, 2017–present (<http://www.cse.ust.hk/BDI/>)
- Member, Technical Advisory Board, Tsinghua University National Engineering Laboratory for Big Data Software, 2017–present
- Member, International Advisory Board, National Institute of Informatics (NII), Tokyo, Japan, 2011–2017 (<http://www.nii.ac.jp/en/>).
- Member, Technical Expert Advisory Committee, City University of Hong Kong Multimedia Software Engineering Research Center, 2014–2019 (<http://www.cityu.edu.hk/merc/>).

◊ **Professional Societies**

- Co-Chair, ACM Awards Committee, 2026–2828.
- Member of the CS-Can/Info-Can Research Committee, 2022–present
- Member of the Board, CS-Can/Info-Can, 2017–2020 (<http://cscan-infocan.ca>)
- Member of the Board, Computing Research Association (CRA), Canadian Association of Computer Science (CACS/AIC) Representative, 2009–2013.
- Member, ACM Publications Board, 2002–2017.
- Member, ACM SIGMOD Advisory Board, 2015–2017.
- Member, Proceedings of VLDB Advisory Board, 2014–2021.
- Chair, ACM Special Interest Group on Data Management–SIGMOD (<http://www.sigmod.org>), 2001–2005.
- Trustee, VLDB Endowment (<http://www.vldb.org>), 1996–2002.
- Member, International Federation for Cooperative Information Systems Board, 1999–2002.

◊ **Program Reviews**

- Dalhousie University, Institute for Big Data Analytics, 2025.
- University of Hong Kong, Bachelor of Engineering in Computer Science Program, 2024.
- University of Calgary (Canada), Data Science program (undergraduate), 2022.
- McMaster University (Canada), MacDATA Institute, 2022.
- Carleton University (Canada), Data Science and Analytics Graduate Program, 2020.
- INRIA (France), Data and Knowledge Representation and Processing Theme, 2019.
- Hong Kong University of Science and Technology, School of Engineering, 2018, 2013.
- Hong Kong University of Science and Technology, Department of Computer Engineering, 2014.
- University of British Columbia (Canada) Department of Computer Science, 2010.
- University of California-Santa Barbara (USA), Computer Science Department, 2001.
- York University (Canada), Department of Computer Science, 2001.

◊ **Others**

- Member, Royal Society of Canada Fellow Selection Committee, 2024–2026.
- Member, CRA Committee on Scholarly Practices in Computing, 2013–2014.
See report at http://archive2.cra.org/uploads/documents/resources/bpmemos/BP_Memo
- Major Project Leader & Member of Programme Committee, Canadian Institute for Telecommunications Research, 1998–2000.
- Founding Board Member, Edmonton New Media, 1996–1997.

SCIENTIFIC
ACTIVITIES

- Founding Director, Research Institute for Multimedia Systems, University of Alberta, 1996–1997.
- Member and Chair of the Grant Selection Committee, Natural Sciences & Engineering Research Council of Canada (<http://www.nserc.ca>), 1991–1994.
- Member of the Management Committee, Canadian Genome Analysis & Technology Program, 1992–1993.

◊ **Book Series:**

- Founding Editor-in-Chief, *ACM Book Series*, ACM, 2013–2019.
Series home page: <http://books.acm.org>
- Founding Series Editor, *Synthesis Lectures on Data Management*, Morgan & Claypool, 2009–2013.
Series home page: <http://www.morganclaypool.com/toc/dtm/1/1>.
Published 38 books
- Co-Editor-in-Chief, *Encyclopedia of Database Systems*, 2nd edition, Springer, 2019.
- Editorial Board Member, *Web Information Systems Engineering and Internet Technologies*, Springer (2005–present).
- Editorial Board Member, *Advanced Information and Knowledge Processing*, Springer (2002–2013).

◊ **Journal Activities:**

- Associate Editor, *IEEE Transactions on Big Data*, IEEE, 2025–present.
- Senior Editor, *ACM/IMS Journal on Data Science*, ACM & IMS, 2021–present.
- Associate Editor, *ACM Transactions on Internet Technologies*, ACM, 2019–present.
- Editorial Board Member, *Communications of ACM* (Research Highlights), ACM, 2022–present.
- Editorial Board Member, *World Wide Web Journal - Internet and Web Information Systems*, Springer, 2001–present.
- Editorial Board Member, *Frontiers of Computer Science*, 2018–present.
- Editorial Board Member, *FACETS*, 2018–2024.
- Editorial Board Member, *Knowledge and Information Systems*, 2003–2018.
- Advisory Board Member, *International Journal for Next-Generation Computing*, 2011–present.
- Associate Editor, *Proceedings of VLDB Endowment*, 2018–2020, 2024–2027.
- Review Board Member, *Proceedings of VLDB Endowment*, 2009–2015, 2015–2016, 2021.
- Editorial Board Member, *Journal of Information and Data Management*, Brazilian Computer Society, 2010–2013.
- Senior Advisory Board Member, *ACM Journal on Data and Information Quality*, ACM, 2007–2013.
- Editorial Board Member, *Information Technology and Management*, Springer, 1997–2013.
- Editorial Board Member, *Distributed and Parallel Databases*, Springer, 1993–2012.
- Associate Editor, *ACM Computing Surveys*, 2005–2010.
- Editor-in-Chief, *The VLDB Journal*, VLDB Endowment/Springer, 1997–2005. Between 2001–2005: Coordinating Editor-in-Chief.
- Editorial Board Member, *SIGMOD DiSC (Digital Symposium Collection)*, ACM SIGMOD, 1998–2001.

- Editorial Board Member, *SIGMOD Digital Review*, ACM SIGMOD, 1999–2001.
- Editorial Board Member, *The VLDB Journal*, VLDB Endowment/Springer, 1994–1997.
- Editorial Board Member, *Parallel and Distributed Technology: Systems and Applications*, IEEE Computer Society, 1992–1996. Title later changed to *Concurrency*.
- Guest Editor (with Qing Li), Special issue on Web Media Information Systems, *World Wide Web Journal*, 5(3), 2002.
- Guest Editor (with Stavros Christodoulakis), Special issue on Multimedia Data Management, *The VLDB Journal*, 8(1), 1999.
- Guest Editor (with Elisa Bertino), Special issue on Distributed/Parallel Object Management, *Distributed and Parallel Databases*, 2(1), 1994.
- Guest Editor, *INFOR*, 26(4), 1988 and 27(2), 1989.
- Guest Editor, *Canadian Information Processing*, July/August 1992.

◊ **Conference/Symposia/Workshop Activities:**

General Chair/Co-Chair:

- 42nd IEEE International Conference on Data Engineering (ICDE), 2026. Honourary Chair.
- ICDE Workshop on Coupling of Large Language Models with Vector Data Management for Enhancing Data Science, 2025.
- VLDB Workshop on Serverless Data Analytics: 2024.
- 35th IEEE International Conference on Management of Data (ICDE): 2019.
- APWeb-WAIM Joint Conference on Web and Big Data: 2017.
- 18th Asia-Pacific Web Conference (APWeb): 2016.
- International Conference on Very Large Data Bases: 2012. Honourary Chair.
- 7th International Conference on Web Information Systems Engineering (WISE): 2006.
- 14th Conference on Advanced Information Systems Engineering (CAiSE): 2002.
- International Workshop on Issues and Applications of Database Technology (IADT): 1998.
- International Conference on Computing and Information: 1998.
- International Workshop on Distributed Object Management: 1992.

Program Committee Chair/Co-Chair:

- The 8th IEEE International Conference on Big Knowledge (ICBK): 2017.
- ACM SIGMOD International Conference on Management of Data (SIGMOD): 2014.
- International Conference on Very Large Data Bases (VLDB): 2004.
- International Conference on Data Engineering (ICDE): 2007, 2001 (Industrial Program Co-PC Chair).
- ACM SIGMOD/PODS PhD Symposium: 2012.
- International Workshop on Graph Databases (IWDG): 2010.
- International Workshop on Semantic Web and Databases (SWDB): 2006.
- International Database Engineering & Applications Symposium (IDEAS): 2002.
- 2nd International Conference on Web Information Systems Engineering (WISE): 2001.
- Fourth International Workshop on Multimedia Information Systems (MIS): 1998.
- Fifth International Conference on Information and Knowledge Management (CIKM): 1996.
- Fifth International Workshop on Research Issues in Data Engineering: Distributed Object Management (RIDE-DOM): 1995.
- CIPS (Canadian Information Processing Society) Edmonton Conference: 1987.

Program Committee Vice-Chair/Area Chair or Senior PC Member:

- *ACM SIGMOD International Conference on Management of Data*: 2013, 2019, 2020, 2021, 2026, 2028.
- *IEEE International Conference on Data Engineering*, 1993, 2003, 2006, 2011, 2021, 2022, 2023, 2025.
- *International Conference on Extending Database Technology (EDBT)*, 2021, 2022, 2023, 2025, 2026, 2027.
- *ACM International Conference on Information and Knowledge Management*: 2015, 2016, 2017.
- *IEEE International Conference on Distributed Computing Systems*: 1992, 1996.
- *Workshop on Parallel and Distributed Database Systems* (as part of EURO-PAR): 1997.

Program Committee Member:

- *International Conference on Very Large Data Bases (VLDB)*: 1992, 1993, 1995, 1997, 1999, 2002.
- *ACM International Conference on Management of Data (SIGMOD)*: 1994, 1996, 1999, 2007, 2008, 2009, 2010, 2016, 2017, 2018.
- *IEEE International Conference on Data Engineering (ICDE)*: 1991, 1996, 1997, 1999, 2000, 2002, 2004, 2012, 2015, 2016.
- *ACM Symposium on Cloud Computing (SOCC)*: 2020.
- *International Conference on Extending Database Technology (EDBT)*: 2006, 2008, 2009.
- *International Conference on Similarity Search and Applications (SISAP)*: 2016
- *International World Wide Web Conference (WWW)*: 2007.
- *International Conference on Principles of Distributed Systems (OPODIS)*: 2014.
- *IEEE International Conference on Big Data*: 2014.
- *International Conference on Big Data and Smart Computing (BigData)*: 2015.
- *IEEE International Conference on Multimedia Computing and Systems (ICMCS)*: 1996, 1997, 1999.
- *Database Management and Application over Networks (DBMAN)*: 2007.
- *International Workshop on End-to-End Management of Big Data*: 2012.
- *IEEE International Conference on Data Mining (ICDM)*: 2001.
- *ACM International Conference on Knowledge and Data Discovery (KDD)*: 2001.
- *Conference on Advanced Information Systems Engineering (CAiSE)*: 2003
- *International Conference on Web Information Systems Engineering (WISE)*: 2005.
- *International Conference on Information and Knowledge Management (CIKM)*: 1995, 1998, 2012 (Senior Program Committee), 2013.
- *International Conference on Cooperative and Interoperable Information Systems (CoopIS)*: 1998, 2000, 2001.
- *International Conference on Database Systems for Advanced Applications (DASFAA)*: 2005.
- *International Conference on Distributed Computing Systems (ICDCS)*: 1993, 1994, 1998, 2002, 2006.
- *ACM/IFIP/USENIX 7th International Middleware Conference (Middleware)*: 2006, 2007.
- *Fourth International XML Database Symposium (XSym)*: 2006.
- *International Workshop on Research Issues in Data Engineering (RIDE)*: 1993, 1996, 1997, 1998, 1999, 2001, 2002.

- *Third International Workshop on Networks Meets Databases (NetDB)*: 2007.
- *IEEE Workshop on Information & Software as Services (WISS)*: 2009, 2010.
- *European Conference on Object Oriented Programming (ECOOP)*: 2000.
- *International Workshop on Database Technologies for Handling XML Information on the Web*: 2006.
- *2nd International Workshop on Information Quality in Information Systems*: 2005.
- *Brazilian Symposium on Databases (SBBD)*: 2004, 2005, 2006, 2007.
- *International Symposium on Computer and Information Sciences (ISCIS)*, 2004, 2005, 2007.
- *IFIP 2.6 Working Conference on Data on Semantics Issues in Multimedia Semantics (DS)*: 1999, 2001.
- *International Workshop on Persistent Object Systems (POS)*: 1994, 1998, 2000.
- *IFIP 2.6 Working Conference on Visual Database Systems (VDB)*: 1998, 2000.
- *International Symposium (formerly Workshop) on Temporal Representation and Reasoning (TIME)*: 2001.
- *Third International Symposium on Cooperative Database Systems for Advanced Applications (CODAS)*: 2001.
- *International Conference on Advances in Visual Interfaces (AVI)*: 2000.
- *International Symposium on Distributed Object and Applications (DOA)*: 1999, 2000.
- *International Conference on Applications of Databases (ADB)*: 1994, 1995.
- *International Conference on Parallel and Distributed Information Systems (PDIS)*: 1994.
- *International Conference on Computer Communications and Networks*: 1995, 1996.
- *International Workshop on Multimedia Information Systems (MIS)*: 1999, 2001, 2005.
- *International Workshop on Interacting with Databases (IDA)*: 2000.
- *IBM CASCON Conference*: 1998.
- *IEEE Knowledge and Data Engineering Exchange Workshop*: 1997.
- *International Conference on Management of Data*: 1994. (India)
- *International Symposium on Applied Corporate Computing*: 1993, 1994. (Mexico)
- *International Symposium on Object-Oriented Methodologies and Systems*: 1994. (Italy)
- *International Conference on Parallel and Distributed Systems*: 1993. (Taiwan)
- *The International Workshop on Next Generation Information Technologies and Systems (NGITS)*: 1993. (Israel)
- *International Conference on Computing and Information*: 1992.
- *Symposium on Applied Computing (SAC)*: 1993.
- *CIPS (Canadian Information Processing Society) National Congress*: 1989.
- *CIPS Edmonton Conference*: 1986, 1988.

Others:

- Best Paper Selection Committee Chair, *IEEE International Conference on Data Engineering*: 2023.
item Best Paper Selection Committee , *International Conference on Extending Database Technology*: 2023. 1
- Best Paper Selection Committee Chair, *ACM SIGMOD International Conference on Management of Data*: 2013.
- Ten-Year Best Paper Award Committee Chair, *International Conference on Very Large Data Bases*: 2010.

- Tutorials Committee, *ACM International Conference on Databases*: 2009.
- Tutorial Chair, *International Conference on Very Large Data Bases*: 1997.
- Tutorial Chair, *IEEE International Conference on Data Engineering*: 1998.
- Tutorial Chair, *International Symposium on Databases in Parallel and Distributed Systems*: 1988.
- Co-organizer, *Dagstuhl Workshop on Data Quality on the Web*, Dagstuhl, Germany, September 2003.
- Panel Organizer, *Web Information Systems Engineering*, 14th International Conference on Advanced Information Systems Engineering (CAiSE), 2002.
- Advanced Technology Seminars Chair, *IEEE International Conference On Data Engineering (ICDE)*, 2002.
- Panel Organizer, *Data Management Issues in Electronic Commerce*, ACM International Conference on Management of Data (SIGMOD), 1999.
- Co-organizer, *Dagstuhl Workshop on Database Support for Digital Libraries*, Dagstuhl, Germany, August 1999.
- Co-organizer, *NATO Advanced Systems Institute on Workflow Systems and Interoperability*, Istanbul, Türkiye, 12-20 August, 1997.
- Steering Committee Member, *International Workshop on Temporal Databases*: 1995.
- Co-organizer, *NATO Advanced Systems Institute on Object-Oriented Database Systems*, Kusadasi, Türkiye, 6-17 August, 1993.
- Organizing Committee Member, *International Workshop on an Infrastructure for Temporal Databases*: 1993.
- Demos Chair, *ACM SIGMOD/PODS Conference*: 1997.
- Organizing Chair, *18th International Conference on Very Large Data Bases*: 1992.
- Publicity Chair, *ACM SIGMOD/PODS Conference*: 1996; *VLDB Conference*: 1998; *International Conference on Distributed Information Systems*: 1991; *8th ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing*: 1989.
- Advisory Committee Member of the Software Technology Track, *28th Hawaii International Conference on System Sciences*: 1995.
- Steering Committee Member, *4th International Conference on Computing and Information*: 1993.
- Coordinator, Issues in Distributed Databases Session, *Hawaii International Conference on System Sciences*: 1986, 1987.

♦ **Grant Review Activities**

- Natural Sciences and Research Council of Canada.
- National Science Foundation, USA.
- Austrian Science Foundation (FWF).
- Hong Kong Research Grants Council (RGC).
- Norwegian Research Program.
- Swiss National Science Foundation.
- Icelandic Research Fund.
- Portuguese Foundation for Science and Technology.

UNIVERSITY
SERVICE

Unless otherwise noted, all responsibilities after 2000 are at the University of Waterloo; earlier ones are at the University of Alberta.

♦ **University and Faculty Level Committees**

- 2022–present:** Member, *Waterloo Awards Committee*
- 2020–2022:** Member, *Faculty of Mathematics Innovation and Entrepreneurship Working Group*
- 2020–2021:** Member, *Waterloo Institute for Sustainable Energy Internal Board of Management*
- 2018–2022:** Member, *Faculty of Mathematics Data Science Program Committee*
- 2017–present:** Member, *Honorary Degrees Committee*, Faculty of Mathematics
- 2019–2020:** Member, *Faculty of Mathematics Dean Nominating Committee*
- 2019–2020:** Member, *Cheriton School of Computer Science Director Nominating Committee*
- 2012–2017** Member, *Waterloo Bibliometrics Committee*
- 2015/06–2016/06:** Chair, *Waterloo Bibliometrics Working Group*
- 2014/01–2016/06:** Associate Dean of Research, *Faculty of Mathematics*
- 2014/01–2016/06:** Member, *Senate Graduate and Research Committee*
- 2009–2010:** Member, *Review Committee for Renewal of Waterloo Institute for Health Informatics Research*
- 2005–2006:** Member, *Nominating Committee for Director of School of Computer Science*
- 2003–2004:** Member, *Faculty of Mathematics Dean Selection Committee*;
- 2001–2002:** Member, *Nominating Committee for Chair of Department of Computer Science*
- 2000–2001:** Chair, *Ad hoc Committee on Department Governance* (The Committee, formed jointly by the Dean of Mathematics and the Chair of Computer Science, proposed a new model of governance for Computer Science that included recommendations for substantially changing the organization and operation of both Computer Science and the Faculty of Mathematics); Member, *Ad hoc Committee on Departmental Reorganization* (This is a precursor to the Committee on Governance; it was also struck jointly by the Dean of Mathematics and the Chair of Computer Science with the mandate of surveying the Department of Computer Science and determining the governance-related issues); Member, *Department of Computer Science Representative to Math Faculty Computing Facility Advisory Committee*
- 1998–1999:** Member, *Technology Enhanced Instructional Spaces Advisory Committee* (A university committee that plans and budgets for the establishment of new and renewal of existing instructional computer laboratories); Member, *Faculty of Science–Information Technology Committee*
- 1996:** Faculty of Science representative on the *Committee on Space Planning*
- 1995:** Member, *General Appeals Committee* (This is a standing committee of the Academic Vice-President. office dealing with appeals by faculty members of their annual evaluations. I was an ad hoc member for one case)
- 1995–1997:** Member, *Faculty of Science Research Award Selection Committee*
- 1995–1996:** Member, *Faculty of Science Selection Committee for the Gordin Kaplan Award for Excellence in Research*
- 1994–1996:** Member and Chair (1995–96), *McCalla Professor Selection Committee*, Faculty of Science
- ◇ **Academic Unit Level Committees**
- 2022–present:** Chair, *Awards Committee*
- 2012–2014:** Member, *Advisory Committee on Appointments*; Member, *Graduate Recruiting Committee*
- 2007/01–2010/06:** Director, David R. Cheriton School of Computer Science
- 2006–2007:** Member, *Tenure and Promotion Committee*
- 2005–2006:** Member, *Tenure and Promotion Committee*; Chair, *Undergraduate Recruiting Committee*

2003–2004: Member, *Advisory Committee on Appointments*

2002–2003: Member, *Advisory Committee on Appointments*

2001–2002: Member, *Graduate Committee*; Member, *Infrastructure Committee*; Member, *Advisory Committee on Appointments*

1998–1999: Chair, *Computing Resources Policy Committee*; Member, *Recruiting Committee*; Member, *Executive Committee*

1994/07–1995/06: Acting Chair, Department of Computing Science

1993–1994: Member of *Department of Computing Science Chair Selection Committee*

1991–1993: Chair, *Research Planning and External Affairs Committee*

1988–1990: Member, *Executive Committee*; Chair, *Graduate Committee*

1985–1988: Member, *Executive Committee*; Member, *Graduate Committee*

1986–1988: Member, *Computing Resources Policy Committee*

RESEARCH &
OTHER FUNDING

Total over \$15M. Unless otherwise noted, all of the following are in Canadian Dollars. NSERC grants are net without overhead. In most of these, I am the PI; the few where I am not the PI are marked by †.

- ◇ Advanced Topics in Graph Data Management and Processing, NSERC Discovery Grant, 2024–2028, \$55,000/year.
- ◇ Disaggregated and Heterogeneous Computing Platform, NSERC RTI Grant, 2024, \$150,000.
- ◇ Scaling-Out Streaming Graph Processing Graph Processing, NSERC Collaborative Research Grant, 2019–2022, \$94,200/year.
- ◇ Highly Scalable Graph Processing, NSERC Discovery Grant, 2019–2024, \$41,000/year.
- ◇ Streaming Graph Processing at Scale, Waterloo-Huawei Joint Innovation Laboratory, 2018–2021, \$75,000/year.
- ◇ Canadian Workshop on Data Science, NSERC CONNECT Grant, 2018, \$23,600.
- ◇ Scaling the Cluster Computing Infrastructure for Scalable Big Data Management and Analysis. Canada Foundation for Innovation Infrastructure Operating Fund, 2017–2022, \$39,000 (joint with Ian Munro and Khuzaima Daudjee).
- ◇ Approximate Graph Query Answering over Streaming Microblogs, NSERC Collaborative Research and Development Grant, 2016–2017, \$76,545. Matches the Google Faculty Research Award.
- ◇ Scaling the Cluster Computing Infrastructure for Scalable Big Data Management and Analysis. Canada Foundation for Innovation and Ontario Research Fund, 2016, \$264,050 (joint with Ian Munro and Khuzaima Daudjee).
- ◇ Approximate Query Answering over Streaming Microblogs Using Graph Models. Google Faculty Research Award, 2015, US\$39,000.
- ◇ RDF Data Management. NSERC Discovery Grant, 2014–2019, \$54,000/year.
- ◇ NSERC Accelerator Grant, 2014–2017, \$40,000/year.
- ◇ Cluster Computing Infrastructure for Scalable Big Data Management and Analysis. Canada Foundation for Innovation and Ontario Research Fund, 2013, \$538,536 (joint with Ian Munro and Khuzaima Daudjee).
- ◇ Techniques and Systems for Parallel Graph Analysis. IBM Centre for Advanced Studies, 2013–2015, \$28,000/year.
- ◇ Focusing on the Data in Web-Scale Data Integration. Business Intelligence NSERC Strategic Network, 2012–2013, \$25,000 (joint with Ashraf Aboulnaga).
- ◇ Modeling and Querying Uncertainty in Record De-duplication and Repairing FD Violations. Business Intelligence NSERC Strategic Network, 2012–2013, \$25,000 (joint with Ihab Ilyas).

- ◇ Modeling and Querying Uncertainty in Record De-duplication. Business Intelligence NSERC Strategic Network, 2011–2012, \$52,000 (joint with Ihab Ilyas).
- ◇ Multi-Platform Digital Media Enabling Technologies. Ontario Research Fund, 2010–2017, \$4,899,045.
- ◇ Beyond Mashups: Data Integration for End-Users. Google Faculty Research Award, 2009, US\$70,000.
- ◇ Studies in Advanced Distributed Data Management. NSERC Discovery Grant, 2009–2014, \$70,000/year.
- ◇ Distributed XML Processing. Business Intelligence NSERC Strategic Network, 2009–2011, \$37,500 (joint with Denilson Barbosa, University of Alberta).
- ◇ Keyword-enabling Data Warehouses†. Business Intelligence NSERC Strategic Network, 2009–2011, \$44,000/year (joint with Ihab Ilyas, University of Waterloo and Laks Lakshmanan, UBC).
- ◇ Change Detecting and Mining of Dynamic Data Streams. IBM Centre for Advanced Studies, 2009–2011, \$28,000/year.
- ◇ Data Stream Management in Sensor Networks. Communications and Information Technology Ontario (CITO) Grant, 2005–2007, \$125,821.
- ◇ Data Stream Systems. Sun Microsystems Grant, 2004–2005, \$40,000.
- ◇ Internet-based Data Management Issues. NSERC Discovery Grant, 2004–2008, \$65,700/year.
- ◇ Database Technology in IP Telephony†. Communications and Information Technology Ontario, 2003–2005, \$118,500/year (including \$30,000 from Nortel; joint with Grant Weddell and David Toman).
- ◇ The Software Telecommunications Group (STG). 2002–2007, Ontario Research and Development Challenge Fund (ORDCF): \$4,730,000 (including \$2,480,000 from Nortel and \$300,000 from Sun Microsystems); Co-PIs: Ric Holt, M. Tamer Özsu, Johnny Wong.
- ◇ Issues in Developing Next Generation Distributed Database Systems. NSERC Individual Research Grant, 1999–2004, \$38,000/year.
- ◇ Managing Large, Diverse Data Sources†. Bell University Laboratories Grant, 2000–2002, \$225,000/year (with 8 others; Frank Tompa as PI).
- ◇ Equipment for Database Systems Research†. NSERC Equipment Grant, 2001, \$56,970 (with 7 others; Ken Salem as PI).
- ◇ *Enabling Technologies for Electronic Commerce Major Project*: Funding for two projects: Development of Multimedia Virtual Catalogs and Interoperability Issues in Electronic Commerce. 1998–1999: \$76,500, 1999–2002: \$61,000/year; Project Integration and Management. 1998–2001: \$61,000/year. This major project was part of the Canadian Institute for Telecommunications Research (CITR), one of the Canadian Networks of Centres of Excellence.
- ◇ Distributed Image Databases. Institute for Robotics and Intelligent Systems (IRIS), one of the Canadian Networks of Centres of Excellence, 1998–1999: \$30,000/year; 1999–2005: \$20,000/year.
- ◇ CAVE Virtual Reality†. Natural Sciences and Engineering Research Council of Canada (NSERC) Major Installation Grant, 1998, \$433,000 (PI: Mark Green).
- ◇ Design and Implementation of an Enactment Service for a Workflow System (PI: Mark Green). NATO Collaborative Research Grant, 1997–1998, Belgian Francs 204,000 (with Asuman Dogac of Middle East Technical University as PI).
- ◇ A Distributed Image Database Management System. Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Grant, 1995–1999, \$327,620.
- ◇ Electronic Commerce. Part of the Broadband Services Major Project of Canadian Institute for Telecommunications Research (CITR), one of the Canadian Networks of Centres of Excellence, 1996–1998, \$100,000/year.

- ◇ Design and Implementation of Distributed Objectbase Management Systems. Natural Sciences and Engineering Research Council of Canada (NSERC) Research Grant, 1995–1999, \$30,900/year.
- ◇ Multimedia Data Management. as part of the Broadband Services Major Project of Canadian Institute for Telecommunications Research (CITR), one of the Canadian Networks of Centres of Excellence, 1993–1998, \$437,875.
- ◇ Upgrade to the Laboratory for Database Systems Research. Natural Sciences and Engineering Research Council of Canada (NSERC) Equipment Grant, 1993–1994, \$38,500.
- ◇ Artificial Intelligence–Database Systems Group Infrastructure Grant†. Natural Sciences and Engineering Research Council of Canada (NSERC), 1994–1997, \$33,000/year (with 8 others).
- ◇ Design and Implementation of Distributed Object-Oriented Database Systems. Natural Sciences and Engineering Research Council of Canada (NSERC) Operating Grant, 1991–1994, \$28,000/year.
- ◇ Visit of Researcher Patrick Valduriez. 1991–1992, Operating Grant, University of Alberta Central Research Fund, \$5,000.
- ◇ Laboratory for Database Systems Research. Natural Sciences and Engineering Research Council of Canada (NSERC) Equipment Grant, 1990–1991, \$43,397 (with three other applicants).
- ◇ Artificial Intelligence–Database Systems Group Infrastructure Grant†. Natural Sciences and Engineering Research Council of Canada (NSERC), 1991–1993, \$45,000/year (with 25 other applicants).
- ◇ CPU Server†. Natural Sciences and Engineering Research Council of Canada (NSERC) Major Equipment Grant, 1990, \$194,530 (with 25 other applicants).
- ◇ Design and Implementation of DIDOS: A Distributed Database Operating System. Natural Sciences and Engineering Research Council of Canada (NSERC) Operating Grant, 1988–1991, \$19,477/year.
- ◇ Visit to Institute for System Studies, Moscow, U.S.S.R., June 18–July 2, 1988, Travel Grant, University of Alberta Central Research Fund, \$1,700.
- ◇ Interfacing Distributed Databases with Operating Systems. Natural Sciences and Engineering Research Council of Canada (NSERC) Operating Grant, 1987–1988, \$14,000.
- ◇ Analysis and Design of Distributed Database Systems/Operating System Support for Distributed Databases. Natural Sciences and Engineering Research Council of Canada (NSERC) Operating Grant, 1986–1987, \$13,797.
- ◇ Attendance at the 19th Hawaii International Conference on System Sciences. January 1986, Travel Grant, University of Alberta Central Research Fund, \$1,000.
- ◇ Analysis and Design of Distributed Database Systems. Natural Sciences and Engineering Research Council of Canada (NSERC) Operating Grant, 1985–1986, \$13,140.
- ◇ Distributed Computing Group Infrastructure Grant†, Natural Sciences and Engineering Research Council of Canada (NSERC), 1985–1986, \$69,000 (with 13 other applicants).
- ◇ A Net Simulator for Distributed Database Systems. University of Alberta Central Research Fund, 1984–1985, \$8,000.

INDUSTRIAL
CONSULTING

BlueCat Networks, Toronto, Canada (2011)

Consulted on patent infringement issues.

Pre Print Inc., Edmonton, Canada (1996)

PrePrint develops software for the creation of yellow page directories. The assignment included providing assistance for distribution design of the database that is used for this application.

Bull Information Systems, Phoenix, USA (1993)

Consultancy in distributed database management. A major portion of the consulting involved a three-day intensive (18 hours) course on this topic for 80 engineers.

PRESENTATIONS

◇ **Keynotes and Distinguished Lectures:**

Artificial Intelligence and Strategic Choices of Small States: Locating the Real Decisions, Plenary Keynote at 8th International Scientific Conference of Economics and Management Researchers, 21-23 May 2026, Baku, Azerbaijan (remotely delivered).

Exploring the Connections Between Social Network Analysis and Graph Analytics, Keynote at 10th International Conference on Computer Science and Engineering, 17-21 September 2025, Istanbul, Türkiye (remotely delivered).

Exploring the Connections Between Social Network Analysis and Graph Analytics, Keynote at The 4th International Workshop on Large Scale Graph Data Analytics, collocated with VLDB 2025, 5 September 2025, London, UK.

Exploring the Duality Between Large Language Models and Database Systems, Keynote presentation at LLM+Graph - 2nd International Workshop on Data Management Opportunities in Bringing LLMs with Graph Data, collocated with VLDB 2025, .1 September 2025, London, UK.

Exploring the Connections Between Social Network Analysis and Graph Analytics, Keynote at 17th International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 25–28 August 2025, Niagara Falls, Canada.

Some thoughts on AI4DB (More specifically on LLM4DB), Keynote at Huawei Global Software Technology Summit, China, 4 November 2024 (remotely delivered).

Streaming Graph Processing & Analytics, Keynote at the 3rd International Workshop on Large Scale Graph (LSGDA), collocated with VLDB 2024 Conference, Guangzhou, China, 26 August 2024 (remotely delivered).

Graph Processing: A Panoramic View and Some Open Problems, Keynote at XiuHu Lake Seminar on “Large Scale Graph Computing and Intelligent Systems”, Shenyang, China, 24 May 2024 (remotely delivered).

Streaming Graph Processing & Analytics, Distinguished Lecture at 2023 Bund Summit – 2nd International Forum on Graph Intelligence, Shanghai, China, 7 September 2023 (remotely delivered). (Remotely delivered)

Disaggregated & Heterogeneous Platform for Data Management, Keynote at Symposium on Frontiers in Databases (SiftDB 2023), Hulunbuir, China, 30 June - 2 July 2023 (remotely delivered).

A Systematic View of Data Science, Keynote at Data Systems Meet Data Science Workshop, Montreal, Canada, 5–6 June 2023.

A Systematic View of Data Science, Keynote at IEEE International Conference on Big Data, 20 December 2022 (remotely delivered).

Distributed RDF Data Management and Processing, Keynote at 5th APWeb-WAIM International Joint Conference on Web and Big Data, 23-25 August 2021 (remotely delivered).

Distributed RDF Data Management and Processing, Keynote at 2021 “Artificial Intelligence and High-Performance Computing” International Graduate Summer School and Innovation Forum, Hunan University, 18 August 2021 (remotely delivered).

A Systematic View of Data Science, Distinguished Lecture at Istanbul Technical University Artificial Intelligence and Data Science Applied Research Center, 11 June 2021 (remotely delivered).

A Systematic View of Data Science, Distinguished Lecture at Polytechnic University of Hong Kong Research Centre on Data Science and AI, 11 June 2021 (remotely delivered).

Streaming Graph Processing & Analytics, Keynote at 14th ACM International Conference on Distributed and Event-based Systems, Montreal, Canada, 13-15 July 2020 (remotely delivered).

Graph Processing: A Panoramic View and Some open Problems, Keynote at the 45th International Conference on Very Large Data Bases, Los Angeles, USA, 26-30 August 2019.

An Introduction to Graph Analytics Platforms, Keynote at VLDB 2018 Workshop on Advances in Mining Large-Scale Time-Dependent Graphs, Rio de Janeiro, Brazil, 31 August 2018.

Web Data Management in RDF Age, IEEE International Conference on Big Data and Smart Computing (BigComp), Shanghai, China, 15-18 January 2018.

Web Data Management in RDF Age, Keynote at IEEE International Conference on Distributed Computing Systems (ICDCS), Atlanta, USA, 5-8 June 2017.

Web Data Management in RDF Age, Keynote at 20th International Database Engineering & Applications Symposium, Ottawa, Canada, 11-13 July 2016.

Web Data Management in RDF Age, Distinguished Lecture at University of Alberta, Department of Computer Science, 16 September 2015.

Web Data Management in RDF Age, Keynote at 1st International Forum on Big Search, Malbourne, Australia, 31 May 2015.

Personal Reflections on Academic Research and Publishing, Keynote at PhD Symposium, 40th Int. Conf. on Very Large Data Bases, Hangzhou, China, 1 September 2014.

gStore: A Graph-based SPARQL Query Engine, Distinguished Lecture at Korea Advanced Institute of Science and Technology, Department of Computer Science 30 September 2013.

Reflections on Academic Research and Publishing, Keynote at ACM SIGMOD/PODS PhD Symposium, New York, 23 June 2013.

RDF Data Management, University of Pennsylvania, Distinguished Lecture at Department of Computer Science, 3 December 2012.

Internet Scale Data Distribution: Some Research Problems, Distinguished Lecture at University at Buffalo, The State University of New York, Department of Computer Science and Engineering, 28 April 2011.

Internet Scale Data Distribution: Some Research Problems, William Mong Distinguished Lecture, University of Hong Kong, Hong Kong, 13 December 2010.

Distributed XML Processing, Keynote at 7th International XML Database Symposium (XSym 2010), Singapore, 17 September 2010.

Distributed XML Processing, Keynote at APWeb/WAIM 2009—The Joint International Conferences on Asia-Pacific Web Conference (APWeb) and Web-Age Information Management (WAIM), Suzhou, China, 2-4 April 2009.

Internet-Scale Data Distribution: Some Research Problems, Keynote at 12th East-European Conference on Advances in Databases and Information Systems (ADBIS), Pori, Finland, 5-9 September 2008.

Internet-Scale Data Distribution: Some Research Problems, Keynote at IEEE International Conference on Distributed Computing Systems (ICDCS), Toronto, Canada, 25-29 June 2007.

Achievements and Remaining Challenges in Multimedia Data Modeling, Keynote at 2nd IEEE International Workshop on Multimedia Databases and Data Management, Istanbul, Türkiye, 15 April 2007.

Internet-Scale Data Distribution: Some Research Problems, Keynote at 7th International Conference on Web Information Systems Engineering (WISE), Wuhan, China, 23-26 October 2006.

Query Processing and Optimization in Native XML Databases, Keynote at 4th International XML Database Symposium (XSym 2006), Seoul, Korea, 10-11 September 2006.

Sliding Window Query Processing over Data Streams, Distinguished Lecture ETH Zürich, Department of Computer Science, Switzerland, 29 May 2006.

Query Processing and Optimization in Native XML Databases, Distinguished Lecture University of Zürich, Department of Informatics, Switzerland, 20 April 2006.

Query Processing in Data Stream Systems, Keynote at Joint Session of 11th International Workshop on Foundations of Models and Languages for Data and Objects - Query Languages and Query Processing, International Conference on Semantics of Networked World, and 2nd International Workshop on Pervasive Information Management, Munich, Germany, 30 March 2006.

Achievements and Remaining Challenges in Multimedia Data Modeling, Keynote at 12th International Multimedia Modeling Conference, Beijing, China, 3-6 January 2006.

Similarity-based Search of Time Series and Trajectory Data, Distinguished Lecture at New England Database Society, Boston, USA, 20 May 2005.

Database Issues in Streaming Data, Distinguished Lecture Queen's University, Kingston, Canada, 6 May 2004.

Database Issues in Stream Data Management, Distinguished Lecture Middle East Technical University, Ankara, Türkiye, 19 October 2003.

Querying Image Databases—DISIMA Approach, Distinguished Lecture Case Western Reserve University, Cleveland, Ohio, 7 February 2002.

Distributed Data Management Issues in a Changing Environment, Distinguished Lecture University of Tokyo; SIGMOD Japan Meeting, Tokyo, Japan, 2 December 2001.

Distributed Data Management Issues in a Changing Environment, Keynote at International Workshop on Foundations of Models for Information Integration (FMII-2001), Viterbo, Italy, 16-18 September 2001.

Flexible Data Integration on the Internet: Current Trends and Issues, Keynote at International Workshop on Information Integration on the Web: Technologies and Applications, Rio de Janeiro, Brazil, 9-11 April 2001.

Document Management Issues in E-Commerce, Keynote at 11th International Workshop on Research Issues on Data Engineering (RIDE 2001), Heidelberg, Germany, 1-2 April 2001.

Database Support for Document and Multimedia Data, Keynote at German Database Conference (BTW), Oldenburg, Germany, 7-9 March 2001.

Issues in Multimedia Data Management, Keynote at International Database Engineering and Applications Symposium (IDEAS), Montreal, Canada, August 2-4, 1999.

Issues in Multimedia Data Management, Keynote at 13e Journées de Bases de Données Avancées (BDA), Grenoble, France, September 9-12, 1997.

♦ **Invited Talks (since 2000):**

2026:

- *MIRAGE: A Fast and Scalable Graph-Based Index for Vector Search*, Peking University, 20 January 2026 (remotely delivered).

2025:

- *Introduction to Data Science and Data Analytics*, Balsillie School of International Affairs Summer School on Technology Governance, 11-15 August 2025.
- *Exploring the Duality Between Large Language Models and Database Systems*, SAP, Waterloo, 9 July 2025.
- *MIRAGE: A Fast and Scalable Graph-Based Index for Vector Search*, Istanbul Technical University, Artificial Intelligence and Data Science Application and Research Center, Istanbul, Türkiye, 3 July 2025.
- *MIRAGE: A Fast and Scalable Graph-Based Index for Vector Search*, Huawei Global Software Technology Summit, Markham, Canada, 4 November 2025.

2024:

- *Fast and Efficient Vector Indexes*, Tsinghua University, School of Software, 17 December 2024 (remotely delivered).

- *A Systematic Approach to Data Science*, StarFin Science Congress, 14 December 2024 (in Turkish; remotely delivered).
- *A Systematic View of Data Science*, Balsillie School of International Affairs Summer School on Technology Governance, 12–23 August 2024.
- *Data Systems for Data Science*, Balsillie School of International Affairs Summer School on Technology Governance, 12–23 August 2024.

2023:

- *Disaggregated & Heterogeneous Platform for Data Management*, Tsinghua University, School of Software, 20 December 2023 (remotely delivered).
- *A Systematic View of Data Science*, University of Waterloo, MDSAI Program Industry Panel, 15 November 2023.
- *Data Systems for Data Science*, Balsillie School of International Affairs Summer School on Technology Governance, 14–18 August 2023.
- *A Systematic View of Data Science*, Balsillie School of International Affairs Summer School on Technology Governance, 14–18 August 2023.
- *Disaggregated & Heterogeneous Platform for Data Management*, Huawei 2012 Labs Global Software Technology Summit, Markham, 9 May 2023.

2022:

- *Streaming Graph Processing at Scale*, Tsinghua University, 6 December 2022. (Remotely delivered)
- *Distributed RDF Data Management and Processing*, Peking University, 24 November 2022.
- *Streaming Graph Processing at Scale*, Huawei Science and Technology Week (STW), 27 September 2022. (Remotely delivered)
- *A Systematic View of Data Science*, Seoul National University, 25 May 2022. (Remotely delivered)
- *A Systematic View of Data Science*, Simon Fraser University, Trustworthy Data Science and AI Series, 27 April 2022. (Remotely delivered)
- *A Systematic View of Data Science*, Pohang University of Science and Technology, Korea, 24 January 2022. (Remotely delivered)
- *A Systematic View of Data Science*, Mohammed VI Polytechnic University School of Computer Science, Morocco, 24 January 2022. (Remotely delivered)
- *A Systematic View of Data Science*, Peking University Institute for Computer Science, 15 January 2022. (Remotely delivered)

2021:

- *A Systematic View of Data Science*, Tsinghua University, 16 December 2021. (Remotely delivered)
- *Streaming Graph Processing at Scale*, Waterloo-Huawei Joint Innovation Lab Annual Workshop, 8 June 2021. (Remotely delivered)
- *Distributed RDF Data Management and Processing*, Stanford University (as a guest lecture in the Knowledge Graphs graduate seminar course), 8 April 2021.

2020:

- *Streaming Graph Processing and Analytics*, Data Science Forum, East China Normal University, 2 December 2020. (Remotely delivered)
- *Graph Processing: A Panoramic View and Some open Problems*, Tsinghua University, 22 October 2020. (Remotely delivered)
- *Graph Processing: A Panoramic View and Some open Problems*, Peking University, 30 June 2020. (Remotely delivered)

- *Streaming Graph Processing & Analytics*, Peking University, 22 July 2020. (Remotely delivered)

2019:

- *Graph Processing: A Panaromic View and Some open Problems*, Dagstuhl Workshop on Big Graph Processing Systems, Dagstuhl, Germany, 2 December 2019.

2018:

- *An Introduction to Graph Analytics Platforms*, Fudan University, School of Computing, Shanghai, China, 15 January 2018.
- *An Introduction to Graph Analytics Platforms*, East China Normal University, School of Data Science and Engineering, Shanghai, China, 18 January 2018.

2017:

- *Approaches to RDF Data Management and SPARQL Query Processing*, Inria & Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier, Montpellier, France, 9 March 2017.
- *An Introduction to Graph Analytics Platforms*, 8th IEEE Conference on Big Knowledge, Hefei, China, 9–10 August 2017.
- *Web Data Management in the RDF Age*, Hefei University of Technology, Hefei, China, 11 August 2017.

2016:

- *Graph Analytics Platforms*, Huawei Strategy and Technology Workshop, Shenzhen, China, 18 May 2016.
- *Web Data Management in RDF Age*, North Carolina State University, Department of Computer Science, Raleigh, NC, 15 April 2016.
- *An Introduction to Graph Analytics Platforms*, Invited Talk at Spring School “Models, Systems, and Algorithms for Role-based Business Intelligence Applications”, Dagstuhl, Germany, 7–9 March 2016 (3 hour lecture).

2015:

- *An Overview of Graph Data Management and Analysis*, Croucher Advanced Study Institute: Frontiers in Big Graph Research, Hong Kong, 16–18 December 2015 (3 hour lecture).
- *An Overview of Graph Data Management and Analysis*, Australian Database Conference PhD School, Melbourne, Australia, 4 June 2015 (3 hour lecture).
- *Web Data Management in RDF Age*, University of Queensland, School of Information Technology and Electrical Engineering, Brisbane, Australia, 5 June 2015.

2014:

- *Web Data Management in RDF Age*, Polytechnic University of Hong Kong, 26 November 2014.
- *Web Data Management in RDF Age*, Multimedia Software Engineering Research Centre of City University of Hong Kong, Shenzhen, 26 November 2014.
- *An Experimental Comparison of Pregel-like Graph Processing Systems*, OPODIS Workshop, Paris, France, 30 September 2014.
- *Web Data Management in RDF Age*, Inria Saclay, France, 1 October 2014.
- *Personal Reflections on Academic Research and Publishing*, PhD Workshop, 40th Int. Conf. on Very Large Databases, 1 September 2014.
- *Web Data Management in RDF Age*, Modern Database Systems Summit, Tsinghua University, China, 29–31 August 2014.
- *Web Data Management in RDF Age*, Peking University, Institute of Computer Science & Technology, 29 August 2014.

2013:

- *gStore: A Graph-based SPARQL Query Engine*, SAP Labs Korea, 2 October 2013.
- *gStore: A Graph-based SPARQL Query Engine*, Seoul National University, 1 October 2013.
- *gStore: A Graph-based SPARQL Query Engine*, University of Tokyo, 12 March 2013.

2012:

- *RDF Data Management*, University of Manitoba, Department of Computer Science, 29 June 2012.
- *RDF Data Management*, University of Zürich, Department of Computer Science, 1 March 2012.
- *RDF Data Management*, Università degli Studi dell'Insubria, 8 February 2012.
- *RDF Data Management*, Politecnico di Milano, Department of Computer Science, 7 February 2012.
- *Internet-Scale Data Distribution: Some Research Problems*, University of Basel, Department of Mathematics and Computer Science, 19 January 2012.
- *RDF Data Management*, Technische Universität München, Fakultät für Informatik, 11 January 2012.
- *RDF Data Management*, Ludwig-Maximilians-Universität München, Institut für Informatik, 10 January 2012.

2011:

- *Some Results in Graph Data Management*, Humboldt University, Department of Computer Science, 12 December 2011.
- *Some Results in Graph Data Management*, Technical University of Dresden, Department of Computer Science, 8 December 2011.
- *Some Results in Graph Data Management*, EPFL, Faculty of Computer Science, 18 November 2011.
- *Some Results in Graph Data Management*, ETH Zürich, Department of Computer Science, Switzerland, 31 October 2011.

2010:

- *Distributed XML Processing*, Hong Kong University of Science and Technology, Hong Kong, 15 December 2010.
- *Distributed XML Processing*, Nanyang Technological University, Singapore, 10 December 2010.
- *Internet-Scale Data Distribution: Some Research Problems* Maltepe University, 28 May 2010, Istanbul, Türkiye.

2006:

- *Sliding Window Query Processing over Data Streams*, Hong Kong University of Science and Technology, Department of Computer Science, China, 26 October 2006.
- *Sliding Window Query Processing over Data Streams*, National University of Singapore, School of Computing, Singapore, 20 October 2006.
- *Query Processing and Optimization in Native XML Databases*, National University of Singapore, School of Computing, Singapore, 6 October 2006.
- *Sliding Window Query Processing over Data Streams*, Université Paris Dauphine, Laboratoire d'Analyse et Modélisation de Systèmes pour l'Aide à la décision, 5 June 2006.
- *Sliding Window Query Processing over Data Streams*, Université de Nantes, Laboratoire d'Informatique de Nantes Atlantique, 1 June 2006.

- *Query Processing and Optimization in Native XML Databases*, Tsinghua University, Department of Computer Science, 10 January 2006.
- *Query Processing and Optimization in Native XML Databases*, Microsoft Research Asia, Beijing, China, 9 January 2006.

2005:

- *Update-Pattern-Aware Modeling and Processing of Continuous Queries*, National University of Singapore, School of Computing, 26 April 2005.
- *Similarity-based Search of Time Series and Trajectory Data*, University of Uppsala, Uppsala, Sweden, 2 February 2005.

2004:

- *Windowed Join Processing over Data Streams*, University of Vienna, Vienna, Austria, 23 April 2004.
- *A Succinct Physical Storage Scheme for Efficient Evaluation of XPath Queries in XML*, Arizona State University, Tempe, AZ, USA, 20 February 2004.

2003:

- *Database Issues in Stream Data Management*, University of Uppsala, Uppsala, Sweden, 11 October 2003.
- *Database Issues in Stream Data Management*, University of British Columbia, Vancouver, Canada, 24 July 2003.

2002:

- *XBench: A Family of XML Benchmarks*, CASCON Conference Workshop on XML Data Management, Toronto, Canada, 1 October 2002.
- *XBench: A Family of XML Benchmarks*, Workshop on Efficiency and Effectiveness of XML Tools and Techniques, Hong Kong, 19 August 2002.
- *Querying Image Databases–DISIMA Approach*, Ohio State University, Columbus, OH, USA, 22 April 2002.
- *Querying the Web–Question Answer Approach*, University of Maryland Baltimore County, Baltimore, MD, USA, 15 March 2002.
- *Querying the Web–Question Answer Approach*, Northwestern University, Evanston, IL, USA, 5 March 2002.
- *Querying the Web–Question Answer Approach*, Georgia Institute of Technology, Atlanta, GA, USA, 22 February 2002.
- *DISIMA Distributed Image Database System–Experiences and Reflections*, Technical University of Dresden, Dresden, Germany, 24 January 2002.

2000:

- *Evaluation of Client-Server Object DBMSs*, IBM CASCON Conference, Toronto, Canada, November 15, 2000.
- *Adaptive Distributed DBMS Architectures*, GMD-IPSI, Darmstadt, Germany, September 15, 2000.
- *An Interoperable Multimedia Catalog System for Electronic Commerce*, Third International Workshop on Technological Challenges of Electronic Commerce, Waterloo, Canada, 28-29 June 2000.

◊ **Tutorials at Conferences:**

Reachability Indexes on Graphs (with Chao Zhang and Angela Bonifati). *ACM SIGMOD International Conference on Management of Data*, June 2023, Seattle, Washington (1.5 hours).

Linked Data Query Processing (with Olaf Hartig). *30th IEEE International Conference on Data Engineering*, April 2014, Chicago, Illinois (1.5 hours).

Distributed Data and Object Management. *International Conference on Extended Database Technology*, March 1996, Avignon, France (half-day).

Distributed Data and Object Management. *Fourth International Conference on Information and Knowledge Management*, November 29–December 2 1995, Baltimore, MD, USA (half-day).

Transactions and Transaction Management in Object-Oriented Database Systems. *NATO Advanced Study Institute on Object-Oriented Database Systems*, August 6–15, 1993, Kusadasi, Türkiye (half-day).

Distributed Data Management–Unsolved Problems and New Issues. *9th International Conference on Data Engineering*, April 19–23, 1993, Vienna, Austria (half-day).

Distributed Object Management. *1st International Conference on Information and Knowledge Management*, November 5–7, 1992, Baltimore, MD, USA (half-day).

Distributed Data Management–Unsolved Problems and New Issues. *8th International Conference on Data Engineering*, February 3–7, 1992, Tempe, AZ, USA (full-day).

Distributed Databases within the Enterprise. *CIPS (Canadian Information Processing Society) Edmonton .1 Conference*, October 21–24, 1991, Edmonton, Canada (half-day).

Distributed Data Management–Unsolved Problems and New Issues. *17th International Conference on Very Large Data Bases*, September 3–6, 1991, Barcelona, Spain (half-day).

Operating System Support for Distributed Database Systems: Architectures and Issues in Integration. *The 2nd IEEE Symposium on Parallel and Distributed Processing*, December 9 – 13, 1990, Dallas, TX, USA (full day).

Distributed Database Management Systems. *6th International Conference on Data Engineering*, February 5–9, 1990, Los Angeles, CA, USA (half day).

Reliable Distributed Software. *COMPCON Spring Conference*, February 28–March 3, 1989, San Francisco, CA, USA (full day; with A. Elmagarmid).

Reliable Distributed Systems. *7th International Symposium on Reliable Distributed Systems*, October 10–12, 1988, Columbus, OH, USA (full day; with A. Elmagarmid).

Fault-Tolerant Distributed Software. *COMPCON Spring Conference*, March 1–4, 1988, San Francisco, CA, USA (full day; with A. Elmagarmid).

Distributed Database Operating Systems. *4th International Conference on Data Engineering*, February 1–5, 1988, Los Angeles, CA, USA (half-day).

◊ **Short Courses:**

Introduction to Data Science, Balsillie School of International Affairs, Waterloo, Canada, 14 March 2025 (3 hours).

Introduction to Data Science, Balsillie School of International Affairs, Waterloo, Canada, 22 March 2024 (3 hours).

Foundations of Big Data Systems. Peking University, Beijing, China, 9–14 July 2018 (24 hours).

Components of Modern Database Systems. VLDB Summer School, Tsinghua University, Beijing, China, 27–28 July 2015 (1.5 days, 9 hours).

Distributed Data and Object Management. Institute for Computer Research, University of Waterloo, Waterloo, Canada, 24 – 25 June 1999 (2 days, 12 hours).

Distributed Data and Object Management. University of Udine, Udine, Italy, 27–30 April 1998 (12 hours).

Principles of Distributed Databases. Technical University of Darmstadt, Darmstadt, Germany, 13–24 April 1998 (9 hours).

Special Issues in Advanced Data Management. University of Jyväskylä, Jyväskylä, Finland, 6–9 April 1998 (16 hours).

Distributed Object Management and Interoperability. Summer course at Ecole d'été CEA-EDF-INRIA, Chateau du Breau-sans-Nappe, France, 8–12 July 1996.

Distributed Data Management–Unsolved Problems and New Issues. Bull Worldwide Information Systems, Inc., March 29 – 31, 1993, Phoenix, Arizona.

Distributed Data Management–Unsolved Problems and New Issues. Bull Worldwide Information Systems, Inc., February 7, 1992, Phoenix, Arizona.

Distributed Data Management–Unsolved Problems and New Issues. Short course at Middle East Technical University, July 31, 1991, Ankara, Türkiye (half-day).

Data Modeling. Seminar for the Alberta Cancer Board, September 11–13, 1989, Edmonton, Canada.

Advanced Course on Distributed Computing. Summer course at Instituto Tecnológico y de Estudios Superiores, Monterrey, Mexico, June 2–20, 1986.

♦ **Seminars for the Government of Alberta:**

Designed and presented eleven training courses for the Government of Alberta on the following topics: Local Area Network Concepts, Logical Data Modeling for DP Personnel, Micro-Mainframe Connectivity, and Distributed Data Processing.

♦ **UNIDO Seminars:**

Designed and conducted ten seminars under Special Service Agreement with UNIDO (United Nations Industrial Development Organization) on the following topics: Database Management Systems, Engineering Database Organization, Project Planning and Control Techniques, and Use of Computers in Production.

PUBLICATIONS

♦ **Authored/Co-authored Books:**

[A5] M. Tamer Özsu. *Principles and Foundations of Data Science*. ACM Books, 2027. 643 + xix pages. Forthcoming

[A4] Lei Zou, Lei Chen, and M. Tamer Özsu. *RDF Data Management and Processing*. Springer, 2027. 141+xi pages. Forthcoming

[A3] M. Tamer Özsu and Patrick Valduriez. *Principles of Distributed Database Systems*. Springer, 4th edition, 2020. 674+xvii pages. First two editions of the book were published by Prentice-Hall in 1991 and 1999, respectively.,
Translated into:

- Portugese (second edition)
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◊ **Workshop Publications:**

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