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## Curriculum Vitae Avigdor Gal

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### ACADEMIC DEGREES

**D.Sc.-** July 1995: Information Systems Engineering, Technion - Israel Institute of Technology.  
Title: TALE — A Temporal Active Language and Execution Model. (Supervisors: Opher Etzion and Dov Dori).  
**B.Sc.-** (*Cum Laude*), July 1990: Computer Science (Information Systems Engineering), Technion - Israel Institute of Technology.

### ACADEMIC APPOINTMENTS

**May 2007-present** Associate Professor, Faculty of Industrial Engineering & Management, Technion — Israel Institute of Technology.  
**March 2001–April 2007** Senior Lecturer, Faculty of Industrial Engineering & Management, Technion — Israel Institute of Technology.  
**September 1997-February 2001** Assistant Professor, Department of Management Science & Information Systems, Rutgers University.  
**September 1995-August 1997** Post-doctoral Fellow, Department of Computer Science, University of Toronto.

### PROFESSIONAL EXPERIENCE

**May 2005–present** Affiliate member of BPMCenter.org  
**January 2005–March 2005** Information Systems consultant to Giza, a venture capital fund.  
**January 2005–present** CoopIS Advisory Board Member  
**September 2001–December 2004** Member of the IFCIS, International Foundation of Cooperative Information Systems.

**December 1998-February 2001** Associate Faculty and Steering Group Member (as of September 2000), Rutgers University Distributed Laboratory for Digital Libraries (<http://scils.rutgers.edu/RDLDL/>).

**November 1998-July 1999** Information technology consultant to ChannelActive and MyZebra.com.

**December 1997-February 2001** Member of the Graduate School of Management, Rutgers University.

**December 1997-February 2001** Associate Director, ITECC, Information Technology and Electronic Commerce Clinic, School of Business, New Brunswick.

**May 1997-March 1998** Information Systems consultant to Revenue Canada.

**September 1990-July 1995** Information systems consultant to the Israeli Air Force, as part of reserves service.

## **RESEARCH INTERESTS**

1. Temporal Databases and Temporal Evolution of Databases
2. Semantic Integration of Data Resources
3. Active databases
4. Federated Databases in Electronic Commerce
5. Semantic Web

## **TEACHING EXPERIENCE**

Cooperative Information Systems [senior level undergraduate and graduate].

Advanced course in Databases [senior level undergraduate and graduate].

Knowledge-Based Systems [graduate].

Advanced topics in system design (Object-Oriented Design and Programming, Design of real-time systems) [senior level undergraduate].

Foundations of System Analysis [undergraduate].

Digital Simulation [undergraduate].

Probability [undergraduate].

Information Systems Design [undergraduate].

Data Management Systems [senior level undergraduate].

Data Structures and Algorithm Analysis [senior level undergraduate].

The How and Why of Computing [undergraduate].  
Database Theory [graduate].  
Advanced Management Information Systems [senior level undergraduate].  
Management Information Systems [undergraduate].  
Software Engineering for Managers [graduate].  
Introduction to Information Systems [graduate].  
Theoretical Foundations in Information Systems [graduate].  
Advanced Topics in Information Systems [graduate and senior level undergraduate].  
Seminar in Information Systems and Knowledge Engineering [senior level undergraduate].  
Distributed Database Systems [graduate and senior level undergraduate].

## **TECHNION ACTIVITIES**

**2001–2004** Member of the Computer Infrastructure committee at the Technion.  
**2001-2002** Research seminar coordinator for the Information Systems Engineering seminar.  
**2002** Member of Kaplan Prize committee.  
**2002-present** Academic program advisor to the MBA technological track.  
**2002–2005** Student counsellor for Information Systems Engineering undergraduate students.  
**2006-present** Assistant to the Dean, in charge of promoting Faculty curricula.

## **EDITORIAL DUTIES**

**2001–2004:** Associate Editor, ACM SIGMOD Record.  
**2007:** Editorial Board, Encyclopedia of Database Systems.

## **PUBLIC PROFESSIONAL ACTIVITIES**

Numerous reviews to journals such as Journal of the ACM (JACM), ACM Transactions on Database Systems (TODS), IEEE Transactions on Knowledge and Data Engineering, VLDB Journal, ACM Transactions on Internet Technology (TOIT), ACM Computing Surveys.

Numerous reviews for funding agencies such as NSF (US) and Research Grants Council (RGC), Hong Kong, China.

**1998:** Guest editor for the International Journal of Cooperative Information Systems.

**2003-2007** Member of numerous MALAG (Council for Higher Education) committees, evaluating a B.Sc. program in Information Systems Engineering and Management Information Systems.

## MEMBERSHIP IN PROFESSIONAL SOCIETIES

1. IEEE Computer Society.
2. Association for Computing Machinery.

## HONORS

**1987-1989** Dean's List for Outstanding Achievements- Technion, Israel Institute of Technology.

**1990** President's List for Highly Outstanding Achievements- Technion, Israel Institute of Technology.

**1993-1995** The Miriam and Aaron Gutwirth for Outstanding Research Achievements (Highly Outstanding Research Achievements for 1995).

**1998** Best Paper Award for the paper "Information Services for the Web: Building and Maintaining Domain Models" at CoopIS'98.

**2002-2004** IBM Faculty Award for \$20,000 annually.

**2002-2004** Alexander Goldberg Academic Lectureship in Industrial Engineering and Management - England (including an award for \$800 annually).

**2006-present** IEEE Computer Society Senior member.

## POST-DOCTORAL FELLOWS

**September 2004-August 2006** Aviv Segev

## GRADUATE STUDENTS

### PhD Theses:

**December 2005 Mati Golani:** Topic: "Dynamic Model for Business Process Management in Workflows." Ph.D. (**completed**).

**July 2007 Rami Rashkovits:** Topic: "Managing Dynamic Web Object Caching: the Latency versus Obsolescence Tradeoff." Ph.D. (**completed**).

**Haggai Roitman:** Topic: "Profile-Based Online Data Delivery (PBODD): Models and Algorithms." Ph.D. (expected date of completion: November 2008).

**Segev Wasserkrug: (Joint with Dr. Opher Etzion)** Topic: "A Language and an Execution Model for Uncertain Inference and Prediction of Events in Active Systems." Ph.D. (expected date of completion: June 2008).

### MSc Theses and Master Projects:

**June 2003 Ateret Anaby-Tavor:** Topic: "Enhancing the Formal Similarity based Model of Schema Matching." M.Sc. (**completed**).

- February 2004 Gabi Koifman: (Joint with Dr. Onn Shehori)** Topic: “Multi-Agent Negotiation over Database-based Information Goods.” M.Sc. (**completed**).
- June 2004 Yochai Ben-Haim:** Topic: “Multi-Directional Asynchronous Updates of Replicas with Auto-Counter Primary Key Attributes.” M.Sc. (**completed**).
- September 2004 Jacob Avidar:** Topic: “Run-Time Process Scheduling in Hard Real Time Systems with Process Dependency Constraints.” M.Sc. (**completed**).
- April 2005 Sarit Reiner:** Topic: “A Generic Software for Transcription Policy Analysis.” Master project. (**completed**).
- June 2006 Shimon Golan: (Joint with Prof. Ron Pinter)** Topic: “Efficient Algorithms for Computing Resource Availability and Update Patterns.” M.Sc. (**completed**).
- June 2006 Inbal Yahav:** Topic: “Bid-Based Online Scheduling of Unit-Length Tasks with Hard Deadlines” M.Sc. (**completed**).
- May 2007 Ami Eyal:** Topic: “Self Organizing Semantic Topologies in Peer Database Systems.” M.Sc. (**completed**).
- March 2008 Anan Marie:** Topic: “Machine Learning Approach to Schema Matcher Orchestration.” M.Sc. (**completed**).

## RESEARCH GRANTS

- February 2004-October 2006** Commission Of The European Communities, 6<sup>th</sup> Framework programme, Information Society Technology, Specific Targeted Research Project, "Quality of Service and Legitimacy in eGovernment", €1,709,910. Technion share: €115,160.
- January 2004-May 2007** Commission Of The European Communities, 6<sup>th</sup> Framework programme, Information Society Technology, Integrated Project, "Impact of eGovernment on Local Government Services", €5,952,798. Technion share: €128,000 (joint with Prof. Dov Dori).
- January 2004-December 2007** Commission Of The European Communities, 6<sup>th</sup> Framework programme, e-Health, Integrated Project, "Building knowledge driven and dynamically networked communities within European healthcare systems", €6,700,000. Technion share: €180,000 (joint with Prof. Dov Dori).
- September 2003-August 2006:** The National Science Foundation, Information Technology Research, "Digital Resource Profiling for Wide Area Applications", \$325,589 (consultant).
- September 2002-August 2003:** The Davidson Fund for Management Sciences and Applications, "Information Management of Dynamic Web Pages in Cache Memory", \$6,000.
- July 2001-June 2002:** State of Israel — Ministry of Science, Culture and Sport and Republic of Italy — Consiglio Nazionale delle Ricerche, “Metadata Imprecision in Heterogeneous Data Sources”, ~\$4,500

## LIST OF PUBLICATIONS:<sup>1</sup>

### Thesis:

D.Sc., “TALE—Temporal Active Language and Execution Model” (Technion, 1995).

### Refereed in Journals and Collected Articles:

1. A. Gal, O. Etzion, A. Segev - Representation of Highly-Complex Knowledge in a Database. *Journal of Intelligent Information Systems*, 3(2):185-203, Mar. 1994.
2. A. Gal, O. Etzion - Maintaining Data Driven Rules in Databases. *IEEE Computer*, 28(1):28-38, Jan. 1995.
3. D. Dori, A. Gal, O. Etzion - Temporal Active Database: a Key to Computer Integrated Manufacturing. *International Journal of CIM*, 9(2):89-104, 1996.
4. A. Gal, O. Etzion - Parallel Execution Model for a Temporal Databases. *International Journal of Computer Systems Science and Engineering*, 12(5):317-327, 1997.
5. A. Gal, O. Etzion - A Multi-Agent Update Process in a Database with Temporal Data Dependencies and Schema Versioning. *IEEE Transactions on Knowledge and Data Engineering*, 10(1):21-37, 1998.
6. A. Gal - Semantic Interoperability in Information Services: Experiencing with CoopWARE. *SIGMOD Record*, 28(1):68-75, 1999. (part of a special issue on Semantic Interoperability in Global Information Systems which had a 26% acceptance ratio).
7. A. Gal, S. Kerr, J. Mylopoulos - Information Services for the Web: Building and Maintaining Domain Models. *International Journal of Cooperative Information Systems*, 8(4):227-254, 1999.
8. A. Gal, J. Mylopoulos - Supporting Distributed Autonomous Information Services Using coordination. *International Journal of Cooperative Information Systems*. 9(3):255-282, 2000.
9. A. Gal, J. Mylopoulos - Towards Web-Based Application Management Systems. *IEEE Transactions on Knowledge and Data Engineering*. 13(4): 683-702, 2001.
10. A. Gal, J. Eckstein - Managing Periodically Updated Data in Relational Databases: A Stochastic Modeling Approach. *Journal of the ACM*. 48(6): 1141-1183, 2001.
11. V. Atluri, A. Gal - An Authorization Model for Temporal and Derived Data: Securing Information Portals. *ACM Transactions on Information and System Security (TISSEC)*, 5(1):62-94, 2002.
12. A. Gal, J. Eckstein, and Z. Stoumbos - Scheduling of Data Transcription in Periodically Connected Databases. *Stochastic Analysis and Applications*, 21(5):1021-1058, 2003.
13. \* A. Gal, A. Anaby-Tavor, A. Trombetta, D. Montesi - A Framework for Modeling and Evaluating Automatic Semantic Reconciliation. *VLDB Journal*, 14(1):50-67, 2005.

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<sup>1</sup>Publications marked with \* represent a joint work with a student or a post-doctoral fellow.

14. A. Gal - Managing Uncertainty in Schema Matching with Top-K Schema Mappings. *Journal on Data Semantics*, 6:90-114, 2006.
15. L. Bright, A. Gal, L. Raschid - Adaptive Pull-Based Policies for Wide Area Data Delivery. *ACM Transactions on Database Systems (TODS)*, 31(2):631 - 671, 2006.
16. A. Gal - Why is Schema Matching Tough and What Can We Do About It? *SIGMOD Record*, 35(4):2-5, 2007.
17. \* C. Domshlak, A. Gal, H. Roitman - Rank Aggregation for Automatic Schema Matching. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 19(4):538-553, 2007.
18. \* A. Segev, A. Gal - Putting Things in Context: A Topological Approach to Mapping Contexts to Ontologies. *Journal on Data Semantics*, 9:113-140, 2007.
19. E. Toch, A. Gal, I. Reinhartz-Berger, D. Dori - A Semantic Approach to Approximate Service Retrieval. *ACM Transactions on Internet Technology (TOIT)*, 8(1), November 2007.
20. \* J. Eckstein, A. Gal, S. Reiner - Monitoring an Information Source under a Politeness Constraint. *INFORM Journal on Computing*. forthcoming.
21. \* A. Segev, A. Gal - Enhancing Portability with Multilingual Ontology-Based Knowledge Management. *Decision Support Systems*. forthcoming.
22. V. Zadorozhny, L. Raschid and A. Gal - Scalable Catalog Infrastructure for Managing Access Costs and Source Selection in Wide Area Networks. *International Journal of Cooperative Information Systems (IJCIS)*. forthcoming.
23. \* S. Wasserkrug, A. Gal , O. Etzion - Detection of Uncertain Events in Intelligence and Security Informatics. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*. forthcoming.

**Submitted to Journals and Collected Articles:**

1. \* A. Gal, M. Golani - Flexible Exception Handling Management using Forward Stepping and Alternative Paths
2. \* H. Roitman, A. Gal, L. Raschid, L. Bright, V. Zadorozhny - A Dual Framework and Algorithms for Targeted Online Data Delivery

**Invited Publications in Journals and Collected Articles:**

1. \* A. Gal, G. Modica. H. Jamil, A. Eyal - Automatic Ontology Matching using Application Semantics. *AI Magazine*. 26(1):21-32, 2005.
2. \* A. Gal, A. Segev, C. Tatsiopoulos, K. Sidiropoulos, P. Georgiades - Agent Oriented Data Integration. *Lecture Notes in Computer Science*, Springer 2005.

### Refereed Conference Proceedings:

1. O. Etzion, A. Gal, A. Segev - A Temporal Support in Active Databases, *Proc. Workshop on Information Technologies and Systems 92*, Dallas, TX, December 1992, pp. 245-254.
2. O. Etzion, A. Gal, A. Segev - Temporal Active Databases, *Proc. Int. Workshop on Temporal Databases*, Arlington, TX, June 1993.
3. A. Gal, O. Etzion, A. Segev - Representation of Highly-Complex Knowledge in a Database. *Proc. NGITS '93 - Int. workshop on Next Generation Information Technologies and Systems*, Haifa, Israel, June 1993, pp. 67-75. (31% acceptance ratio for regular papers).
4. O. Etzion, A. Gal, A. Segev - Retroactive and Proactive Processing, *Fourth International Workshop on Research Issues in Data Engineering: Active Database Systems*, Houston, Texas, February 14-15, 1994. IEEE-CS 1994, ISBN 0-8186-5360-4, pp. 126-131.
5. A. Gal, O. Etzion - A Parallel Execution Model for Updating Temporal Databases. *Proc. ISCA Seventh International Conference on Parallel and Distributed Computing Systems*, Las Vegas, Nevada, October 1994, ICSC, ISBN 1-880843-09-9, pp. 34-39. (30% acceptance ratio).
6. A. Gal, O. Etzion - CODES — A Design Tool for Computerized System, *Proc. NGITS '95 - Int. workshop on Next Generation Information Technologies and Systems*, Naharia, Israel, June 1995, pp. 116-123. (31% acceptance ratio).
7. A. Gal, O. Etzion - Handling Change Management using Temporal Active Repositories. *M. Papazoglou (Ed) - Object Oriented: Entity Relationship*, Springer Verlag, pp. 378-387, 1995. (The paper was originally presented at the ER'95 conference, which had a 30% acceptance ratio).
8. A. Gal, O. Etzion, A. Segev - A Language for the Support of Constraints in Temporal Active Databases. *Proc. ILPS'95-Workshop on Constraints, Databases and Logic Programming*, Portland, Oregon, December 1995, pp. 42-58.
9. A. Gal, D. Dori - Combining Simultaneous Values and Temporal Data Dependencies. *Proc. Third International Workshop on Temporal Representation and Reasoning (TIME'96)*, Key West, Florida, May 1996, pp. 112-119. (44% acceptance ratio).
10. A. Gal, O. Etzion, A. Segev - TALE — A Temporal Active Language and Execution Model. *P. Constantopoulos, J. Mylopoulos, Y. Vassiliou (Eds) - Advanced Information Systems Engineering*, Springer, pp. 60-81, 1996. (The paper was originally presented at the CAISE\*96 conference, which had a 30% acceptance ratio).
11. A. Gal, O. Etzion - Experimenting Systems Analysis Teaching Using a Comparative Approach. *Proc. Workshop on Evaluation of Modeling Methods in System Analysis and Design*, Crete, Greece, May 1996. (50% acceptance ratio).
12. J. Mylopoulos, A. Gal, K. Kontogiannis, M. Stanley - A Generic Integration Architecture for Cooperative Information Systems. *Proceedings of the First IFCIS International Conference on Cooperative Information Systems (CoopIS'96)*, Brussels, Belgium, June 19-21, 1996,

- Organized by IFCIS, The Intn'l Foundation on Cooperative Information Systems, IEEE-CS Press, 1996, ISBN 0-8186-7505-5, pp. 208-217. (36% acceptance ratio).
13. A. Gal - Modelling Cooperation among Information Systems using Control Elements. *Proc. NGITS '97 - Int. workshop on Next Generation Information Technologies and Systems*, Jerusalem, Israel, June 1997, pp. 125-132. (60% acceptance ratio).
  14. A. Gal - Handling Constantly Changing Metadata. *Proc. Second IEEE Metadata Conference*, Silver Spring, Maryland, September 1997.
  15. S. Kerr, A. Gal, J. Mylopoulos - Information Services for the Web: Building and Maintaining Domain Models. *Proceedings of the 3rd IFCIS International Conference on Cooperative Information Systems*, New York City, New York, USA, August 20-22, 1998, Sponsored by IFCIS, The Intn'l Foundation on Cooperative Information Systems, IEEE-CS Press, 1998, ISBN 0-8186-8380-5, pp. 4-13. (number 1 in evaluation, best paper award, 28% acceptance ratio).
  16. A. Gal, N. Minsky, V. Ungureanu - Regulating Agent Involvement in Inter-Enterprise Electronic Commerce. *Proc. 19th International Conference on Distributed Computing Systems, Workshop on Electronic Commerce and Web-based Applications*, Austin, TX, 1999, pp. 41-46. (33% acceptance ratio).
  17. A. Gal, D. Montesi - Inter-Enterprise Workflow Management Systems: Enhancing Trust in Electronic Commerce. *10th International Workshop on Database & Expert Systems Applications*, Florence, Italy, 1-3 September, 1999, Proceedings. IEEE Computer Society, 1999, ISBN 0-7695-0281-4, pp. 623-627.
  18. A. Gal - Obsolescent Materialized Views in Query Processing of Enterprise Information Systems. *Proceedings of the 1999 ACM CIKM International Conference on Information and Knowledge Management*, Kansas City, Missouri, USA, November 2-6, 1999. ACM Press, ISBN 1-58113-146-1, pp. 367-374. (39% acceptance ratio).
  19. A. Gal, V. Athuri - An Authorization Model for Temporal Data. *Proceedings of the 7th ACM Conference on Computer and Communication Security*, Athens, Greece, November 1-4, 2000, pp. 144-153 (21% acceptance ratio).
  20. G. Modica, A. Gal, H. Jamil - The Use of Machine-Generated Ontologies in Dynamic Information Seeking. *C. Batini, F. Giunchiglia, P. Giorgini, and M. Mecella (Eds.): Cooperative Information Systems, Lecture Notes in Computer Science 2172*, Springer, pp. 433-447, 2001. (The paper was originally presented at the Sixth International Conference on Cooperative Information Systems (CoopIS 2001), which had 38% acceptance ratio).
  21. L. Raschid, H.-F. Wen, A. Gal, V. Zadorozhny - Latency Profiles: Performance Monitoring for Wide Area Applications. *Proceedings of the Third IEEE Workshop on Internet Applications (WIAPP '03)*, San Jose, CA, June 23-24, 2003 (37% acceptance ratio).
  22. \* A. Gal, A. Trombetta, A. Anaby-Tavor, D. Montesi - A Model for Schema Integration in Heterogeneous Databases. *Proceedings of the International Database Engineering & Applications Symposium, IDEAS'03*, July 16-18, 2003, Hong Kong, China. IEEE Computer Society 2003.

23. \* A. Anaby-Tavor, A. Gal, A. Trombetta - Evaluating matching Algorithms: the Monotonicity Principle. *Proceedings of the IJCAI Workshop on Information Integration on the Web*, Acapulco, Mexico, August 8 2003 (45% acceptance ratio).
24. \* S. Wasserkrug, O. Etzion, A. Gal - Inference and Prediction of Uncertain Events in Active Systems: A Language and Execution Model. *Proceedings of the VLDB 2003 PhD Workshop. Co-located with the 29th International Conference on Very Large Data Bases (VLDB 2003)*. Berlin, September 12-13, 2003. CEUR Workshop Proceedings 76 Technical University of Aachen (RWTH) 2003 (ranked one of the top 5 papers out of a total of 34).
25. \* O. Shehory, G. Koifman, and A. Gal - Negotiation-Based Price Discrimination for Information Goods. *Proceedings of the Third International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS'04)*. New York City, July 19-23 July, 2004 (24% acceptance rate).
26. V. Zadorozhny, A. Gal, L. Raschid, and Q. Ye - Wide Area Performance Monitoring Using Aggregate Latency Profiles. *Proceedings of the International Conference on Web Engineering (ICWE 2004)*. Munich, July 28-30, 2004 (36% acceptance rate).
27. \* A. Segev, A. Gal - Putting Things in Context: A Topological Approach to Mapping Contexts and Ontologies. *Proceedings of the AAAI Workshop on Contexts and Ontologies: Theory, Practice and Applications*. Pittsburgh, July 9-13, 2005 (28% acceptance rate).
28. \* S. Wasserkrug, A. Gal, O. Etzion - A Model for Reasoning with Uncertain Rules in Event Composition Systems. *Proceedings of the 21st Conference on Uncertainty in Artificial Intelligence (UAI-2005)*. Edinburgh, Scotland, July 26-29, 2005 (34% acceptance rate).
29. \* M. Golani, A. Gal - Flexible Business Process Management using Forward Stepping and Alternative Paths. *Proceedings of the third Conference on Business Process Modeling (BPM'05)*. Nancy, France, September 6-8, 2005 (13% acceptance rate).
30. S. Berkovsky, Y. Eytani, A. Gal - Measuring the Relative Performance of Schema Matchers. *Proceedings of the 2005 IEEE/WIC/ACM International Conference on Web Intelligence (WI'05)*. Compiègne, France, September 19-22, 2005 (18% acceptance rate).
31. E. Toch, A. Gal, D. Dori - Automatically Grounding Semantically-enriched Conceptual Models to Concrete Web Services. *Proceedings of the 24<sup>th</sup> International Conference on Conceptual Modeling (ER'05)*. Klagenfurt, Austria, October 24-28, 2005 (19% acceptance rate).
32. A. Gal - On the Cardinality of Schema Matching. R. Meersman, Z. Tari (Eds.): *On the Move to Meaningful Internet Systems 2005: Workshops*, Agia Napa, Cyprus, October 31 - November 4 2005, Proceedings. Lecture Notes in Computer Science 3762, Springer 2005.
33. \* R. Rashkovits, A. Gal - A Cooperative Model for Wide Area Content Delivery Applications. R. Meersman, Z. Tari (Eds.): *On the Move to Meaningful Internet Systems 2005: CoopIS, DOA, and ODBASE, OTM Confederated International Conferences*, Agia Napa, Cyprus, October 31 - November 4 2005, Proceedings, Part I. Lecture Notes in Computer Science 3760, Springer 2005 (24% acceptance rate).

34. V. Zadorozhny, L. Raschid, A. Gal, Q. Ye, H. Murthy - Using Non-random Associations for Predicting Latency in WANs. Proceedings of the 6<sup>th</sup> International Conference on Web Information Systems Engineering (WISE 2005). New York City, New York, November 20-22 2005.
35. \* H. Roitman and A. Gal - OntoBuilder: Fully Automatic Extraction and Consolidation of Ontologies from Web Sources using Sequence Semantics. *Proc. International Conference on Semantics of a Networked World: Semantics of sequence and time dependent data*, Munich, Germany, March 30, 2006.
36. \* A. Gal and A. Segev - Putting Things in Context: Dynamic e-Government Re-Engineering using Ontologies and Context. *Proc. Workshop on E-Government: Barriers and Opportunities at WWW'2006*. Edinburgh, Scotland, June 2006.
37. \* Y. Ben-Chaim and A. Gal - Second Order Snapshot-Log Relations: Supporting Multi-Directional Database Replication using Asynchronous Snapshot Replication. *Proc. NGITS '2006 - The 6<sup>th</sup> Int. workshop on Next Generation Information Technologies and Systems*, Kibbutz Shefayim, Israel, July 2006, pp. 221-236. (25% acceptance ratio).
38. \* S. Wasserkrug, A. Gal, and O. Etzion - A Taxonomy and Representation of Sources of Uncertainty in Composite Event Systems. *Proc. NGITS '2006 - The 6<sup>th</sup> Int. workshop on Next Generation Information Technologies and Systems*, Kibbutz Shefayim, Israel, July 2006, pp. 174-185. (25% acceptance ratio).
39. E. Toch, I. Reinhartz-Berger, A. Gal and D. Dori: *OPOSSUM*: Bridging the Gap Between Web Services and the Semantic Web. *Proc. NGITS '2006 - The 6<sup>th</sup> Int. workshop on Next Generation Information Technologies and Systems*, Kibbutz Shefayim, Israel, July 2006, pp. 357-358.
40. H. Roitman, A. Gal and L. Raschid: *ProMo* - A Scalable and Efficient Framework for Online Data Delivery. *Proc. NGITS '2006 - The 6<sup>th</sup> Int. workshop on Next Generation Information Technologies and Systems*, Kibbutz Shefayim, Israel, July 2006, pp. 359-360.
41. \*A. Segev and A. Gal - Ontology Verification Using Contexts. *Proceedings of the 2nd Workshop on Contexts and Ontologies: Theory, Practice and Applications (C&O'2006)*. Riva del Garda, Italy, August 28, 2006.
42. \* M. Golani and A Gal - Optimizing Exception Handling in Workflows using Process Restructuring. *Proceedings of the fourth Conference on Business Process Modeling (BPM'06)*. Vienna, Austria, September 5-7, 2006, pp. 407-413. (26% acceptance rate).
43. \* H. Roitman, A. Gal and L. Raschid. *ProMo* - Hybrid Data Delivery Framework for User Profile Satisfaction. *Proceedings of the VLDB2006 Ph.D. Workshop*, Seoul, Korea, Sept 11, 2006.
44. \* I. Yahav, A. Gal and N. Larson - Bid-Based Approach for Pricing Web Services. *Proceedings of the 14th International Conference on Cooperative Information Systems (CoopIS 2006)*. Montpellier, France, Nov 1 - Nov 3, 2006 (28% acceptance rate).

45. \* A. Segev and A. Gal - Puzzling It Out: Supporting Ontology Evolution with Applications to eGovernment. *Proceedings of IJCAI-Workshop on Modeling and Representation in Computational Semantics (MRCs-2007)*. Hyderabad, India, January 7, 2007.
46. M. Shmueli-Scheuer, A. Chaudhary, A. Gal and C. Li - Communication-Efficient Query Answering with Quality Guarantees in Client-Server Applications. *Proceedings of the 10<sup>th</sup> International Workshop on the Web and Databases (WebDB'2007)*, Beijing, China, June 2007.
47. \* A. Marie and A. Gal - On the Stable Marriage of MaximumWeight Royal Couples. *Proceedings of AAAI Workshop on Information Integration on the Web (IIWeb'07)*. Vancouver, BC, Canada, July 22, 2007 (50% acceptance rate).
48. \* S. Wasserkrug, A. Gal and O. Etzion - Challenges of Uncertainty Management in Event Processing. *Proceedings of the Second International Workshop on Event-driven Architecture, Processing and Systems (EDA-PS'07)*. Vienna, Austria, September 2007.
49. M. Golani, A. Gal and E. Toch - Modeling Alternatives in Exception Executions. *Proceedings of the 3<sup>rd</sup> Workshop on Business Process Intelligence (BPI 07)*. Brisbane, Australia, September 2007.
50. \* A. Marie and A. Gal. Managing Uncertainty in Schema Matcher Ensembles. *Proceedings of the 1<sup>st</sup> International Conference on Scalable Uncertainty Management*. Washington, DC, October 2007, pp. 60-73.
51. \* H. Roitman, A. Gal and L. Raschid. Capturing Approximated Data Delivery Trade-offs. *Proceedings of the 24<sup>th</sup> International Conference on Data Engineering (ICDE 2008)*. Cancun, Mexico, April 2008.
52. \* H. Roitman, A. Gal and L. Raschid. Satisfying Complex Data Needs using Pull-Based Online Monitoring of Volatile Data Sources. *Proceedings of the 24<sup>th</sup> International Conference on Data Engineering (ICDE 2008)*. Cancun, Mexico, April 2008.

### **Refereed Chapters in Books:**

1. O. Etzion, A. Gal, A. Segev - Data-Driven and Temporal Rules in PARDES. *N. Paton, E. Williams (Eds) - Rules in Database Systems*, Springer Verlag, pp. 92-108, 1993.
2. O. Etzion, A. Gal, A. Segev - Extended Update Functionality in Temporal Databases. *E. Etzion, S. Jajodia, and S. Sripada (Eds) - Temporal Databases: Research and Practice*, Springer Verlag, pp. 56-95, 1998.
3. A. Gal — On Transaction Management in Temporal Databases. *O. Etzion, S. Jajodia, and S. Sripada (Eds) - Temporal Databases: Research and Practice*, Springer Verlag, pp. 96-114, 1998.
4. \* A. Gal, E. Michailovsky, and M. Golani - Workflow Reconfiguration Using Chains. *R. Meersman, Z. Tari et al (eds.), Lecture Notes in Computer Science 2889*, Springer, pp. 18-19, 2003.

### **Other Publications:**

**ISE-TR-92-4:** (Technion Technical Report) A. Gal, O. Etzion - Updating Databases with an Invariant Language.

**ISE-TR-92-6:** (Technion Technical Report) O. Etzion, A. Gal, A. Segev - A Temporal Active Database Model. Also Issued as LBL Technical Report 32587.

**ISE-TR-93-4:** (Technion Technical Report) O. Etzion, A. Gal, A. Segev - Data-Driven and Temporal Rules in a Database.

**ISE-TR-93-5:** (Technion Technical Report) O. Etzion, A. Gal, A. Segev - Decision Support in Temporal Active Databases.

**ISE-TR-93-6:** (Technion Technical Report) A. Gal , O. Etzion - New Perspectives in Temporal Databases.

**ISE-TR-93-7:** (Technion Technical Report) O. Etzion, A. Gal - TAPUZ: The Design of a Second generation Active Databases.

**ISE-TR-93-8:** (Technion Technical Report) A. Gal , O. Etzion - High-Level Change Management using Temporal Agents.

**ISE-TR-94-1:** (Technion Technical Report) A. Gal, O. Etzion, A. Segev - Extended Update Functionality in Temporal Databases.

**ISE-TR-94-2:** (Technion Technical Report) A. Gal, O. Etzion - A Multi-Agent Update Process in a Database with Temporal Dependencies and Schema Versioning.

A. Gal and J. Mylopoulos - Information Services: Coping with the Information Crisis (Guest Editors' Introduction). *International Journal of Cooperative Information Systems*, 7(2&3):117-122, 1998.

A. Gal - Data Integration in eCommerce: The Good, the Bad, and the Ugly (tutorial description). SIGMOD 2000, Proceedings ACM SIGMOD International Conference on Management of Data, pp. 578, 2000.

**RRR 37-2000** (RUTCOR Technical Report) A. Gal and J. Eckstein - Managing Periodically Updated Data in Relational Databases: A Stochastic Modeling Approach.

**RRR 25-2001** (RUTCOR Technical Report) A. Gal, J. Eckstein - Scheduling of Data Transcription in Periodically Connected Databases.

A. Gal, V. Atluri and G. Xu: An Authorization System for Temporal Data (demo description). ICDE 2002, Proceedings of the 18th International Conference on Data Engineering, 26 February - 1 March 2002, San Jose, CA, pp. 339-340.

A.Y. Halevy and A. Gal (Program co-Chair introduction). Proceedings of the Next Generation Information Technologies and Systems, 5th International Workshop, NGITS 2002, Caesarea, Israel, June 24-25, 2002.

W.v.d.Aalst, C. Bussler, and A. Gal (Program co-Chair introduction) Proceedings of the Ninth IFCIS Conference on Cooperative Information Systems, CoopIS 2004, Agia Napa, Cyprus, October, 2004.

\* A. Segev and A. Gal - eGovernment Policy Evaluation Support using Multilingual Ontologies. *Proceedings of the eGov-Interop'05 Annual Conference*. Geneva, February 23-24, 2005.

**ISE-TR-2005-2:** (Technion Technical Report) C. Domshlak, A. Gal, H. Roitman - Schema Meta-Matching.

Y. Denekamp and A. Gal - A Clinical Problem-oriented Decision Support Model Based on Extended Temporal Database Functionalities. Poster at the AMIA 2005 Annual Symposium Biomedical and Health Informatics: From Foundations, to Applications to Policy, Washington DC, October 22-26, 2005.

## CONFERENCES

### Plenary talks:

1. XVI Brazilian Symposium on Databases (SBBD'2001), Rio de Janeiro, Brazil, October 2001.  
**Plenary speaker** of "You've Probably Got Mail: on the use of probabilities in databases and database management systems."
2. IADIS International Conference e-Society 2005, Malta, June 2005.  
**Plenary speaker** of "eGovernment, eCitizen, and What's in Between."
3. Seventh International Bi-Conference Workshop on Agent-Oriented Information Systems (AOIS-2005), Klagenfurt, Austria, October 2005.  
**Plenary speaker** of "Agent Oriented Data Integration."

### Active Participation in International Conferences:

1. NGITS '93 - International Workshop on Next Generation Information Technologies and Systems, Haifa, Israel, June 1993.  
**Proceedings chair**.
2. ISCA Seventh International Conference on Parallel and Distributed Computing Systems, Las Vegas, Nevada, October 1994.  
**Session chair** of the session "Distributed Databases."
3. NGITS '95 - International Workshop on Next Generation Information Technologies and Systems, Naharia, Israel, June 1995.  
**Presentation** of "CODES — A Design Tool for Computerized Systems."

4. Workshop on Constraints, Databases and Logic Programming, Portland, Oregon, December 1995.  
**Presentation** of “A Language for the Support of Constraints in Temporal Active Databases.”
5. TIME-96: Third International Workshop on Temporal Representation and Reasoning, Key West, Florida, May 1996.  
**Presentation** of “Combining Simultaneous Values and Temporal Data Dependencies.”
6. CAiSE\*96: The 8th Conference on Advanced Information Systems Engineering, Heraklion, Crete, Greece, May 1996.  
**Presentation** of “TALE: A Temporal Active Language and Execution Model.”
7. CoopIS 96: First IFCIS International Conference on Cooperative Information Systems, Brussels, Belgium, June 1996.  
**Presentation** of “A Generic Integration Architecture for Cooperative Information Systems.”
8. Dagstuhl Seminar 9726: Temporal Databases, Dagstuhl, Germany June 1997.  
**Presentation** of “TALE: A Temporal Active Language and Execution Model.”  
**Presentation** of “On Transaction Management in Temporal Databases.”
9. NGITS '97 - International Workshop on Next Generation Information Technologies and Systems, Neve-Ilan, Israel, July 1997.  
**Session chair** of the session on “Workflow systems.”  
**Panel member** of the panel on “Data mining.”
10. Second IEEE Metadata Conference, Silver Spring, Maryland, September 1997.  
**Presentation** of “Handling Constantly Changing Metadata.”
11. 31st Hawaii International Conference on System Sciences (HICSS-31), Big Island, Hawai'i, January 1998.  
**Coordinator** of a minitrack “Distributed Heterogeneous Information Services.”
12. The 10th Conference on Advanced Information Systems Engineering (CAiSE\*98), Pisa, Italy, June 1998.  
**Tutorial Presentation** of the tutorial “Distributed Heterogeneous Information Services.”
13. Third IFCIS Conference on Cooperative Information Systems (CoopIS'98), NY, NY, August 1998.  
**Session chair** of the session on “Distributed Databases.”
14. The 11th Conference on Advanced Information Systems Engineering (CAiSE\*99), Heidelberg, Germany, June 1999.  
**Tutorial Presentation** of the tutorial “Technological Infrastructures for Electronic Commerce.”

15. The 8th International Conference on Information and Knowledge Management (CIKM'99), Kansas City, Missouri, November 1999.  
**Panel Chair** of the panel "Data Integration in Electronic Commerce: An Aging Problem Receiving a New Dimension."
16. 2000 ACM SIGMOD Intl. Conference on Management of Data (SIGMOD'2000), Dallas, Texas, May 2000.  
**Tutorial Presentation** of "Data Integration in eCommerce: The Good, the Bad, and the Ugly."
17. Fifth IFCIS Conference on Cooperative Information Systems (CoopIS'00), Eilat, Israel, September 2000.  
**General co-Chair**  
**Session chair** of the session on "Workflow Modeling."  
**Panel Chair** of the panel "Inter-Disciplinary Research in CoopIS."
18. Sixth IFCIS Conference on Cooperative Information Systems (CoopIS'01), Trento, Italy, September 2001.  
**Session chair** of the session on "Information Integration."
19. 18th International Conference on Data Engineering, San Jose, California, February 2002.  
**Demo presentation** of "Temporal Data Authorization System."
20. NGITS '2002 - International Workshop on Next Generation Information Technologies and Systems, Caesarea, Israel, June 2002.  
**Program chair**
21. WWW'2003 - the Twelfth International World Wide Web Conference, Budapest, Hungary, 20-24 May 2003.  
**Poster presentation** of "Latency Profiles: Performance Monitoring for Wide Area Applications"
22. IIWeb-03 - Workshop on Information Integration on the Web, Acapulco, Mexico, 9-10 August 2003.  
**Paper presentation** of "Evaluating Matching Algorithms: the Monotonicity Principle"
23. ER'2003 - The 22<sup>nd</sup> International Conference on Conceptual Modeling, Chicago, IL, 13-16 October 2003.  
**Panel chair**  
**Demo presentation** of "OntoBuilder: Fully Automatic Extraction and Consolidation of Ontologies from Web Sources"

24. Semantic Integration Workshop (at the Second International Semantic Web Conference (ISWC 2003)), Sanibel Island, FL, October 20, 2003  
**Demo presentation** of "OntoBuilder: Fully Automatic Extraction and Consolidation of Ontologies from Web Sources"
25. 20th International Conference on Data Engineering, Boston, Mass, March 2004.  
**Demo presentation** of "OntoBuilder: Fully Automatic Extraction and Consolidation of Ontologies from Web Sources"
26. Ninth IFCIS Conference on Cooperative Information Systems (CoopIS'04), Agia Napa, Cyprus, October 2004.  
**Program co-chair**  
**Session chair** of the session on "Schema Integration/Agents."
27. Dagstuhl Seminar 5071: Machine Learning and the Semantic Web, Dagstuhl, Germany February 2005.  
**Presentation** of "Measuring the Relative Performance of Schema Matchers."
28. Tenth IFCIS Conference on Cooperative Information Systems (CoopIS'05), Agia Napa, Cyprus, October 2005.  
**Presentation** of "A Cooperative Model for Wide Area Content Delivery Applications."  
**Session chair** of the session on "Semantics."
29. First IFIP WG 2.12 & WG 12.4 International Workshop on Web Semantics (SWWS'05), Agia Napa, Cyprus, October 2005  
**Presentation** of "On the Cardinality of Schema Matching."
30. 3<sup>rd</sup> Workshop on Information Integration on the Web (IIWeb'2006), Edinburgh, UK, May 2006.  
**Program co-chair**
31. The E-Government: Barriers and Opportunities, Edinburgh, UK, May 2006.  
**Presentation** of "Putting Things in Context: Dynamic e-Government Re-Engineering using Ontologies and Context."
32. NGITS'2006 - International Workshop on Next Generation Information Technologies and Systems, Shefayim, Israel, July 2006.  
**Presentation** of "Second Order Snapshot-Log Relations: Supporting Multi-Directional Database Replication using Asynchronous Snapshot Replication."  
**Session chair** of the session on "Simulation and Incremental Computing."
33. Eleventh IFCIS Conference on Cooperative Information Systems (CoopIS'06), Montpellier, France, October 2006.  
**Presentation** of "Bid-Based Approach for Pricing Web Services."  
**Session chair** of the session on "Distributed Information Systems II."

## Participation in Organizing Conferences

2000: General co-Chair, 5<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2000), Eilat, Israel.

2000–2001: Program Committee member, Very Large DataBases conference (VLDB'2001), Rome, Italy.

2001: Program committee member, International Conference on Information and Knowledge Management (CIKM'2001), Atlanta, Georgia.

2002: Program Committee co-Chair, The Fifth Workshop on Next Generation Information Technologies and Systems (NGITS'2002), Caesarea, Israel.

2002: Program committee member, 7<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2002), Irvine, California.

2002: Program committee member, International Conference on Ontologies, Databases and Applications of Semantics (ODBASE'2002), Irvine, California.

2002: Program Committee member, XVII Brazilian Symposium on Databases (SBBD'2002), Gramado, Rio Grande do Sul, Brazil.

2002: Program committee member, International Conference on Information and Knowledge Management (CIKM'2002), McLean, Virginia.

2003: Program committee member, ACM SIGMOD International Conference on Management of Data (SIGMOD'2003), San Diego, California.

2003: Program committee member, International Joint Conference on Artificial Intelligence (IJCAI'2003), Acapulco, Mexico.

2003: Program committee member, 8<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2003), Sicily, Italy.

2003: Program committee member, International Conference on Ontologies, Databases and Applications of Semantics (ODBASE'2003), Sicily, Italy.

2003: Program committee member, International Semantic Web Conference (ISWC'2003), Sanibel Island, Florida.

2003: Program Committee member, XVIII Brazilian Symposium on Databases (SBBD'2003), Manaus, Amazonas, Brazil.

2003: Panel co-Chair: International Conference on Conceptual Modeling (ER'2003), Chicago, Illinois.

2004: Program Committee member: Internet Data Management Track of the ACM Symposium on Applied Computing 2004, Nicosia, Cyprus.

2004: European and Middle East area coordinator: Very Large DataBases conference (VLDB'2004), Toronto, Canada.

2004: Program co-Chair, 9<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2004), Agia Napa, Cyprus.

2004: Program Committee member: Workshop on Information Integration on the Web (IIWeb-04), Toronto, Canada.

2005: Demo co-Chair: International Conference on Mobile Data Management (MDM'2005), Cyprus.

2005: Demo Committee member: 21<sup>st</sup> International Conference on Data Engineering (ICDE 2005), Tokyo, Japan

2005: Program committee member, 10<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2005), Agia Napa, Cyprus.

2006: Program Committee member: 22<sup>nd</sup> International Conference on Data Engineering (ICDE 2006), Atlanta, Georgia

2006: Program Committee co-Chair: 3<sup>rd</sup> Workshop on Information Integration on the Web (IIWeb'2006), Edinburgh, Scotland

2006: Program committee member, 11<sup>th</sup> IFCIS International Conference on Cooperative Information Systems (CoopIS'2005), Montpellier, France.

2008: Program committee member, The 2<sup>nd</sup> International Conference on Distributed Event-Based Systems (DEBS), Rome, Italy.

2008: Program committee member, The 27<sup>th</sup> International Conference on Conceptual Modeling (ER), Barcelona, Spain.

2008: Program committee member, 16<sup>th</sup> International Conference on Cooperative Information Systems (CoopIS), Monterrey, Mexico.