

CONTACT INFORMATION

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CURRENT POSITION

Since October 2010, a research staff member in the Intelligent Information Systems Department at IBM Research—Almaden, reporting to Howard Ho.

RESEARCH INTERESTS

Databases: information retrieval on structured data, uncertain (probabilistic) data, query optimization, formal query languages and automata, incomplete information, XML, data exchange. **Algorithms:** enumeration and ranking.

EDUCATION

- 2005–2008:** Ph.D. in *Computer Science*, The Hebrew University of Jerusalem
- Research advisor: Yehoshua Sagiv
 - Thesis topic: *Querying Paradigms for the Web*
 - *Summa cum laude*
- 2003–2004:** M.Sc. in *Computer Science*, The Hebrew University of Jerusalem
- Research advisor: Yehoshua Sagiv
 - Thesis topic: *Interconnection Semantics for XML*
 - Thesis grade: 100 (cumulative average: 98)
 - *Summa cum laude*
- 2000–2002:** B.Sc. in *Computer Science* (major) and *Mathematics* (minor), The Hebrew University of Jerusalem
- Cumulative average: 99.12
 - *Summa cum laude*

EMPLOYMENT HISTORY

- 2008–2010:** Postdoctoral Researcher, Computer Science Principles and Methodologies Department (the *Theory Group*), IBM Research—Almaden, reporting to Ronald Fagin (full time).
- 2004–2008:** Teaching Assistant, *Representation and Management of Data on the Internet* (<http://www.cs.huji.ac.il/~dbi>, Course 67633) The Hebrew University of Jerusalem, Israel (part time).
- 2004–2005:** Tutor, *Coding Theory* (Course 20296), The Open University, Israel (part time).

PROFESSIONAL ACTIVITIES

- Program-committee member:
 - International Conference on Information and Knowledge Management (CIKM), 2010 and 2011
 - International Conference on Very Large Data Bases (VLDB), 2009 and 2011
 - International Workshop on Logic in Databases (LID), 2011
 - ACM Symposium on Principles of Database Systems (PODS), 2010
 - International Conference on Database Theory (ICDT), 2010
 - World Wide Web Conference (WWW), 2009
 - International Conference on Data Engineering (ICDE), 2009
 - Intl. Workshop on Web Information and Data Management (WIDM), 2007
- Referee for journal submissions:
 - Journal of the ACM
 - ACM Transactions on Information Systems
 - ACM Transactions on Database Systems
 - IEEE Transactions on Knowledge and Data Engineering
 - Journal of Computer and System Sciences
 - The International Journal on Very Large Databases
 - Theory of Computing Systems
 - Information Systems

AWARDS AND SCHOLARSHIPS

- Extended scholarship program for excellent doctorate students of The Hebrew University, 2007–2008.
- Leibniz student fellowship, 2005–2007.
- The Dimitris N. Chorafas Foundation Prize for research on Data Extraction on the Internet, 2006.

- The Israeli-Knesset Prize for academic excellence, 2001 and 2004.
- Rector's prize, The Hebrew University, 2001 and 2004.
- Dean's prize, The Hebrew University, 2002.

SCIENTIFIC PUBLICATIONS

Journal Articles

- [1] Sara Cohen, Benny Kimelfeld, and Yehoshua Sagiv. Incorporating constraints in probabilistic XML. *ACM Trans. Database Syst.*, 34(3), 2009.
- [2] Sara Cohen, Benny Kimelfeld, and Yehoshua Sagiv. Generating all maximal induced subgraphs for hereditary and connected-hereditary graph properties. *Journal of Computer and System Sciences*, 74(7):1147–1159, 2008.
- [3] Benny Kimelfeld and Yehoshua Sagiv. Efficiently enumerating results of keyword search over data graphs. *Information Systems*, 33(4-5):335–359, 2008.
- [4] Benny Kimelfeld, Yuri Kosharovskiy, and Yehoshua Sagiv. Query evaluation over probabilistic XML. *The VLDB Journal*, 18(5):1117–1140, 2009.
- [5] Serge Abiteboul, Benny Kimelfeld, Yehoshua Sagiv, and Pierre Senellart. On the expressiveness of probabilistic XML models. *The VLDB Journal*, 18(5):1041–1064, 2009.

Conference Papers

- [6] B. Kimelfeld, J. Vondrák, and R. Williams. Maximizing conjunctive views in deletion propagation (extended version). To appear in PODS, 2011.
- [7] Benny Kimelfeld and Yehoshua Sagiv. Finding a minimal tree pattern under neighborhood constraints. To appear in PODS, 2011.
- [8] Ronald Fagin, Benny Kimelfeld, Yunyao Li, Sriram Raghavan, and Shivakumar Vaithyanathan. Rewrite rules for search database systems. To appear in PODS, 2011.
- [9] Zhuowei Bao, Benny Kimelfeld, and Yunyao Li. A graph approach to spelling correction in domain-centric search. To appear in ACL, 2011.
- [10] Ronald Fagin, Benny Kimelfeld, Yunyao Li, Sriram Raghavan, and Shivakumar Vaithyanathan. Understanding queries in a search database system. In *Proceedings of the Twenty-Ninth ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 273–284. ACM, 2010.

- [11] Benny Kimelfeld and Christopher Ré. Transducing Markov sequences. In *Proceedings of the Twenty-Ninth ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 15–26. ACM, 2010.
- [12] Ronald Fagin, Benny Kimelfeld, and Phokion Kolaitis. Probabilistic data exchange. In *13th International Conference on Database Theory (ICDT)*, pages 76–88. ACM, 2010.
- [13] Sara Cohen and Benny Kimelfeld. Querying parse trees of stochastic context-free grammars. In *13th International Conference on Database Theory (ICDT)*, pages 62–75. ACM, 2010.
- [14] Sara Cohen, Benny Kimelfeld, and Yehoshua Sagiv. Running tree automata on probabilistic XML. In *Proceedings of the Twenty-Eighth ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 227–236. ACM, 2009.
- [15] Foto Afrati, Rada Chirkova, Manolis Gergatsoulis, Vassia Pavlaki, Benny Kimelfeld, and Yehoshua Sagiv. On rewriting XPath queries using views. In *12th International Conference on Extending Database Technology (EDBT)*, pages 168–179. ACM, 2009.
- [16] Sara Cohen, Benny Kimelfeld, and Yehoshua Sagiv. Incorporating constraints in probabilistic XML. In *Proceedings of the Twenty-Seventh ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 109–118. ACM, 2008.
- [17] Konstantin Golenberg, Benny Kimelfeld, and Yehoshua Sagiv. Keyword proximity search in complex data graphs. In *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD Conference)*, pages 927–940. ACM, 2008.
- [18] Benny Kimelfeld, Yuri Kosharovskiy, and Yehoshua Sagiv. Query efficiency in probabilistic XML models. In *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD Conference)*, pages 701–714. ACM, 2008.
- [19] Benny Kimelfeld and Yehoshua Sagiv. Revisiting redundancy and minimization in an XPath fragment. In *11th International Conference on Extending Database Technology (EDBT)*, volume 261 of *ACM International Conference Proceeding Series*, pages 61–72. ACM, 2008.
- [20] Benny Kimelfeld and Yehoshua Sagiv. Matching twigs in probabilistic XML. In *Proceedings of the Thirty Third International Conference on Very Large Data Bases (VLDB)*, pages 27–38. ACM, 2007.
- [21] Benny Kimelfeld and Yehoshua Sagiv. Maximally joining probabilistic data. In *Proceedings of the Twenty-Sixth ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 303–312. ACM, 2007.

- [22] Benny Kimelfeld and Yehoshua Sagiv. Combining incompleteness and ranking in tree queries. In *Eleventh International Conference on Database Theory (ICDT)*, volume 4353 of *Lecture Notes in Computer Science*, pages 329–343. Springer, 2007.
- [23] Benny Kimelfeld, Eitan Kovacs, Yehoshua Sagiv, and Dan Yahav. Using language models and the HITS algorithm for XML retrieval. In *Comparative Evaluation of XML Information Retrieval Systems, Fifth International Workshop of the Initiative for the Evaluation of XML Retrieval (INEX)*, volume 4518 of *Lecture Notes in Computer Science*, pages 253–260. Springer, 2006.
- [24] Sara Cohen, Itzhak Fadida, Yaron Kanza, Benny Kimelfeld, and Yehoshua Sagiv. Full disjunctions: Polynomial-delay iterators in action. In *Proceedings of the Thirty Second International Conference on Very Large Data Bases (VLDB)*, pages 739–750. ACM, 2006.
- [25] Benny Kimelfeld and Yehoshua Sagiv. Incrementally computing ordered answers of acyclic conjunctive queries. In *Next Generation Information Technologies and Systems (NGITS), Sixth International Workshop*, volume 4032 of *Lecture Notes in Computer Science*, pages 33–38. Springer, 2006.
- [26] Benny Kimelfeld and Yehoshua Sagiv. Twig patterns: From XML trees to graphs. In *Ninth International Workshop on the Web and Databases (WebDB)*, 2006.
- [27] Benny Kimelfeld and Yehoshua Sagiv. Finding and approximating top- k answers in keyword proximity search. In *Proceedings of the Twenty-Fifth ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*, pages 173–182. ACM, 2006.
- [28] Sara Cohen, Yaron Kanza, Benny Kimelfeld, and Yehoshua Sagiv. Interconnection semantics for keyword search in XML. In *Proceedings of the 2005 ACM International Conference on Information and Knowledge Management (CIKM)*, pages 389–396. ACM, 2005.
- [29] Benny Kimelfeld and Yehoshua Sagiv. Efficiently enumerating results of keyword search. In *Tenth International Symposium on Database Programming Languages (DBPL)*, volume 3774 of *Lecture Notes in Computer Science*, pages 58–73. Springer, 2005.
- [30] Benny Kimelfeld and Yehoshua Sagiv. Efficient engines for keyword proximity search. In *Eighth International Workshop on the Web and Databases (WebDB)*, pages 67–72, 2005. Also published in: *Dynamics of Search Engines: An Introduction*, pages 13-30, 2007. Edited by Ravi Kumar and Jain Bandamutha. The Icfai University Press.

Demo Papers

- [31] Hilit Achiezra, Konstantin Golenberg, Benny Kimelfeld, and Yehoshua Sagiv. Exploratory keyword search on data graphs. In *Proceedings of the ACM SIGMOD*

International Conference on Management of Data (SIGMOD Conferece), pages 1163–1166. ACM, 2010.

- [32] Benny Kimelfeld, Yehoshua Sagiv, and Gidi Weber. ExQueX: Exploring and querying XML documents. In *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD Conferece)*, pages 1103–1106. ACM, 2009.

Surveys and Tutorials

- [33] Benny Kimelfeld and Yehoshua Sagiv. Modeling and querying probabilistic XML data. *SIGMOD Record*, 33(4-5):335–359, 2008.
- [34] Sara Cohen, Benny Kimelfeld, and Yehoshua Sagiv. Enumerating large query results, 2009. A tutorial given in *25th International Conference on Data Engineering (ICDE)*.