

Ariel Fuxman

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Research Interests

Data management and data integration. In particular, I am interested in techniques that make the process of searching and organizing data more flexible and interactive.

Education

- Ph.D.** Computer Science, University of Toronto (expected) 2006
Dissertation: Efficient Management of Inconsistent Databases
Advisor: Renée J. Miller
- M.Sc.** Computer Science, University of Toronto 2001
Thesis: Formal Analysis of Early Requirements Specifications
Advisor: John Mylopoulos
- B.Sc.** Computer Science, Universidad Nacional del Sur, Argentina. 1999

Professional Experience

Research Assistant, University of Toronto Since 2002

Advisor: Renée J. Miller

Designed and implemented *ConQuer*, the first efficient and scalable system to allow query answering over integrated databases that may contain errors and inconsistencies. This system helps the user to take advantage of the query results in order to interactively clean the database.

Research Intern, IBM Almaden Research Center Summer 2005

Mentor: Mauricio Hernandez

Designed and implemented a new mapping engine for the *Clio* schema mapping tool. The new engine supports *nested schema mappings*. Compared to the mappings previously used in *Clio*, nested mappings are more expressive and lead to more efficient transformation queries. *Clio* is a major component of IBM's next generation data integration offering, Rational Data Architect.

Research Associate, University of Toronto

2001-2002

Supervisor: Alberto Mendelzon

Designed and implemented tools for the *ToX* XML data management system. Coordinated the programming activities of five graduate students.

Student visitor, Centro per la la Ricerca Scientifica e Tecnologica (Trento, Italy) 2001

Mentors: Paolo Traverso and Marco Pistore

Conducted research on model checking of early requirements specifications.

Research Assistant, University of Toronto

1999-2001

Advisor: John Mylopoulos

Designed and implemented *Formal Tropos*, a system for model-checking early requirements specifications that builds on top of the NuSMV model checker.

Software Developer (Bahia Blanca, Argentina)

1996-1999

Participated in a number of software development projects. These include a medical records system currently being used at several doctor's offices, and an administrative system for a medium-size company selling instrumentation and control products.

Awards and Distinctions

- Ontario Graduate Scholarship, September 2004–present.
- NSERC (National Science and Engineering Research Council) Fellowship, September 2002–August 2004. Top student award in Canada, equivalent to an NSF Fellowship. This award can only be held for two years.
- Ontario Graduate Scholarship, September 2002. Declined in order to accept the NSERC Fellowship.
- *Concejo Deliberante* Award, 2000. Given by the City Council of Bahia Blanca (Argentina) to the ten most outstanding undergraduate students from the city.
- *25 de Mayo* Award, Universidad Nacional del Sur (Argentina), June 1999. Award given by the university to the student with the highest GPA.
- Scholarship for Introduction to Research Work for Undergraduate Students, Universidad Nacional del Sur, April 1998 – March 1999.

Publications

1. P. Andritsos, A. Fuxman, R. J. Miller. Clean Answers over Dirty Databases: A Probabilistic Approach. To appear in *International Conference on Data Engineering (ICDE)*, 2006.
2. A. Fuxman, E. Fazli, R. J. Miller. ConQuer: Efficient Management of Inconsistent Databases. In *ACM SIGMOD Conference*, 155-166, 2005.
3. A. Fuxman, D. Fuxman, R. J. Miller. ConQuer: A System for Efficient Querying Over Inconsistent Databases. In *International Conference on Very Large Data Bases (VLDB)*, 1354-1357, 2005.
System demonstration.
4. A. Fuxman, P. Kolaitis, R. J. Miller, W. Tan. Peer Data Exchange. In *ACM Symposium on Principles of Database Systems (PODS)*, 160-171, 2005.
Invited for submission to a special issue of *Transactions of Database Systems (TODS)* with the best papers from PODS 2005.
5. A. Fuxman, R. J. Miller. First-Order Query Rewriting for Inconsistent Databases. In *International Conference of Database Theory (ICDT)*, 337-351, 2005.
Invited for submission to a special issue of *Journal of Computer and Systems Sciences (JCSS)*.
6. P. Andritsos, A. Fuxman, A. Kementsietsidis, R. J. Miller, Y. Velegarakis. Kanata: Adaptation and Evolution in Data Sharing Systems. *SIGMOD Record* 33(4): 32-37, 2004.
7. A. Fuxman, R. J. Miller. Towards Inconsistency Management in Data Integration Systems. In *Information Integration on the Web*, 143-148, 2003.
8. P. Andritsos, R. Fagin, A. Fuxman, L. Haas *et al.* Schema Management. In *IEEE Data Engineering Bulletin*, 25(3):32-38, 2002.
9. A. Fuxman, L. Liu, M. Pistore, M. Roveri, J. Mylopoulos. Specifying and Analyzing Early Requirements in Tropos. In *Requirements Engineering Journal*, 9(2): 132-150, 2004. Special issue with selected papers from RE 2003 paper.
10. A. Fuxman, L. Liu, M. Pistore, M. Roveri, J. Mylopoulos. Specifying and Analyzing Early Requirements: Some Experimental Results. In *IEEE International Requirements Engineering Conference*, 105-115, 2003.
Invited to a special issue of *Requirements Engineering Journal* with the best papers from RE 2003.
11. A. Fuxman, P. Giorgini, M. Kolp, J. Mylopoulos. Information Systems as Social Structures In *Formal Ontologies in Information Systems*, 10-21, 2001.

12. A. Fuxman, M. Pistore, J. Mylopoulos, and P. Traverso. Model Checking Early Requirements Specifications in Tropos. In *IEEE International Symposium on Requirements Engineering*, 174-181, 2001.
13. J. Mylopoulos, A. Fuxman, and P. Giorgini. From Entities and Relationships to Social Actors and Dependencies. In *International Conference on Conceptual Modeling*, 27-36, 2000.
14. A. Fuxman and P. Fillotrani. Descubrimiento dinámico de recursos en sistemas de objetos distribuidos (Dynamic Resource Discovery in Object-oriented Distributed Systems). In *Argentinian Conference of Computer Science*, 1999.

Invited Talks

- ConQuer: Efficient Management of Inconsistent Databases. University of California at Santa Cruz, California. October 2005.
- Efficient Query Rewriting for Inconsistent Databases. ARISE Workshop at IBM Toronto Lab. Toronto, Canada. October 2004.
- Managing Inconsistent Data. IBM Almaden Research Center. San Jose, California. February 2004.
- Tractability and Expressibility Results in Consistent Query Answering. Dagstuhl Seminar on Inconsistency Tolerance. Dagstuhl Schloss, Germany. June 2003.

Teaching Experience

- Teaching assistant at the Computer Science Department, University of Toronto (1999 – present). Assigned to “Introduction to Databases” and “Database Systems Technology” courses.
- Teaching assistant at the Computer Science Department, Universidad Nacional del Sur (1997–1999). Assigned to “Data Structures and Algorithms”, “Programming Languages” and “Object-Oriented Programming” courses.

Service Activities

- Program Committee member of the EDBT Workshop on Inconsistency and Incompleteness in Databases, to take place in March 2006.
- Journal Reviewer for TODS.
- External Reviewer for VLDB (2002,2004), SIGMOD (2005), CIDR (2005), and ICDE (2006).