

Kamal Aboul-Hosn

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RESEARCH INTERESTS

- **Formal methods for software verification:** I have done work in the use of Kleene algebra with tests for representing and reasoning about programs.
- **Mathematical knowledge management:** I have worked in the formal representation of theorems, proofs, and their relationships.

EDUCATION

- August 2002-January 2007** **Cornell University**
Ph.D. in Computer Science completed January 2007
Masters in Computer Science completed August 2005
Minor in Economics
Advisor: Dexter Kozen
GPA: 3.89
- August 1998-December 2001** **The Pennsylvania State University**
Honors B.S. in Computer Science
Minor in Mathematics
GPA: 3.87

PROFESSIONAL EXPERIENCE

- February 2007-Present** **Bloomberg, LP**
Programmer in UI Framework Group
- Currently heading SVG-based charting effort
 - Recruiting for Western New York region (Syracuse, Rochester, Cornell, and Buffalo)
 - Working with C, C++, Javascript, Lua, and SVG
- May 2006-January 2007** **Intel**
Research intern in Programming Systems Lab
- Helped design a language for specifying instruction set architectures
 - Specified much of Intel's IA ISA in the language
 - Designed a translation from specification language to a functional simulator in C
- May 2003-December 2006** **Cornell University**
Research assistant for Dexter Kozen
- Implemented KAT-ML, an interactive theorem prover for Kleene algebra with tests
 - Oversaw development of tactics for KAT-ML by undergraduate assistant
 - Developed formal methods for representing relationships between theorems, proofs, and proof tactics

January 2002-August 2002

The Pennsylvania State University

λ Prolog programmer and research assistant for Dale Miller

- Implemented parser generator
- Created strings package
- Created Emacs module

PUBLICATIONS

- Kamal Aboul-Hosn and Dexter Kozen. . *Local variable scoping and Kleene algebra with tests*. Journal of Logic and Algebraic Programming. To appear.
- Kamal Aboul-Hosn. *An Axiomatization of Arrays for Kleene Algebra with Tests*. In R. A. Schmidt, editor, Proc. 9th Int. Conf. Relational Methods in Computer Science and 4th Int. Workshop Applications of Kleene Algebra (RelMiCS/AKA'06), volume 4136 of Lecture Notes in Computer Science, pages 63-77. Springer, August 2006.
- Kamal Aboul-Hosn and Dexter Kozen. *Local variable scoping and Kleene algebra with tests*. In R. A. Schmidt, editor, Proc. 9th Int. Conf. Relational Methods in Computer Science and 4th Int. Workshop Applications of Kleene Algebra (RelMiCS/AKA'06), volume 4136 of Lecture Notes in Computer Science, pages 78-90. Springer, August 2006.
- Kamal Aboul-Hosn. *A Proof-Theoretic Approach to Tactics*. In Borwein, Jonathan M.; Farmer, William M., editors, Proc. 5th Int. Conf. Mathematical Knowledge Management (MKM'06), volume 4108 of Lecture Notes in Computer Science, pages 54-66. Springer, August 2006.
- Kamal Aboul-Hosn and Dexter Kozen. *Relational semantics for higher-order programs*. In Tarmo Uustalu, editor, Proc. 8th Int. Conf. Mathematics of Program Construction (MPC'06), volume 4014 of Lecture Notes in Computer Science, pages 29-48. Springer, July 2006.
- Kamal Aboul-Hosn and Dexter Kozen. *KAT-ML: An Interactive Theorem Prover for Kleene Algebra with Tests*. Journal of Applied Non-Classical Logics, 2006(1). 2006.
- Kamal Aboul-Hosn and Terese Damhøj Andersen. *A Proof-Theoretic Approach to Hierarchical Math Library Organization*. In Proc. 4th Int. Mathematical Knowledge Management Conference, pages 1-16. International University of Bremen, October 2005.
- Kamal Aboul-Hosn and Dexter Kozen. *KAT-ML: An Interactive Theorem Prover for Kleene Algebra with Tests*. In Proc. 4th Int. Workshop on the Implementation of Logics, pages 2-12. University of Manchester, September 2003.
- Kamal Aboul-Hosn. *Programming with Private State*. Honors Thesis, The Pennsylvania State University, December 2001.

CONFERENCE PRESENTATIONS

- *Local Variable Scoping and Kleene Algebra with Tests*. RelMiCS 06, Manchester, UK.
- *An Axiomatization of Arrays for Kleene Algebra with Tests*. RelMiCS 06, Manchester, UK.
- *A Proof-Theoretic Approach to Tactics*. MKM 06, Wokingham, UK.
- *Relational Semantics for Higher-Order Programs*. MPC 06, Kuressaare, Estonia.
- *A Proof-Theoretic Approach to Hierarchical Math Library Organization*. MKM 05, Bremen, Germany.
- *KAT-ML: An Interactive Theorem Prover for Kleene Algebra with Tests*. WIL 03, Almaty, Kazakhstan.

TEACHING ASSISTANT EXPERIENCE

- CS 100J: Introduction to Computer Programming, Fall and Spring 2005
- CS 472/473: Foundations of Artificial Intelligence, Fall 2004
- CS 130: Introduction to Web Documents, Summer 2003
- CS 312: Data Structures and Functional Programming, Spring 2003
- CS 481: Automata and Computability, Fall 2002

PROJECTS

- **“Can Computers Think?”**: An eight-session course aimed at high school students regarding artificial intelligence and its future. <http://www.cs.cornell.edu/~kamal/cct>
- **Radar In Motion**: A weather map widget for Mac OS X Dashboard and Yahoo! Widgets. Downloaded over 1,000,000 times from <http://www.dividedsoul.net/RadarInMotion>.