

Vasileios Koutavas

Northeastern University
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EDUCATION

Northeastern University, Boston, MA, USA 2004 – Aug 2008
Ph.D. Candidate

- **Research field:** Programming languages
- **Dissertation:** “Equational Reasoning for Higher-Order and Imperative Languages”
- **Advisor:** Dr. Mitchell Wand

Northeastern University, Boston, MA, USA 2003 – 2004
M.Sc., Computer Science

National Technical University of Athens, Athens, Greece 1997 – 2002
Dipl.Eng., B.Sc., Electrical and Computer Engineering

- **Specialization:** Computer science
- **Undergraduate Thesis:** “Programming with Proofs: A Compiler from a Declarative Language to NFLINT”
- **Thesis Supervisor:** Dr. Nikolaos Papaspyrou

RESEARCH INTERESTS

Functional, imperative, object-oriented, and concurrent languages, distributed systems, program and observational equivalence, bisimulations, logical relations, reasoning about program behavior, correctness of transformations, operational semantics, denotational semantics, game semantics, logics for store, separation logic, abstract interpretation, type systems.

EMPLOYMENT

Microsoft Research, Cambridge, UK May 2007 – Aug 2007
Research Intern

Worked with Nick Benton to develop a sound and complete equivalence reasoning method for the nu-calculus, a typed functional language with minimal effects, formalized its metatheory in the Coq theorem prover, and mechanically verified a number of equivalences.

Semantic S.A., Athens, Greece 2001 – 2003
Software Engineer

Took part in the design and implementation of a Data Clearing House for roaming charges of mobile subscribers on behalf of Vodafone GR. Took part in the design and implementation of a compiler from ASN.1 specifications to C code. Designed and implemented an interpreter module for a large subset of ANSI C. (C/C++, Java, compiler technologies, database technologies)

Navel LTD, Athens, Greece 2000 – 2001
Programmer/Analyst

Took part in the design and implementation of a 3-tier platform for indexing of intranet documents. (Java, Javascript, XML, Web technologies)

Greek Institute of Language Processing 2001
Programmer/Analyst

Took part in the development of a grammatical and stylistic analyzer and checker for Greek technical documents. (Java, Javascript, XML, XSL, Database technologies)

Independent Programmer

1998 – 2008

Produced software for, and provided technical support to, the accounting office of the Samela medical clinic and an independent publication. Designed and managed a web site of a construction company. (Delphi, Visual Basic for Applications, Apache Forrest, XML, XSLT, HTML, Javascript)

CONFERENCE PUBLICATIONS

- P3. Vasileios Koutavas and Mitchell Wand, “Bisimulations for Untyped Imperative Objects”, in Peter Sestoft, editor, *Programming Languages and Systems, 15th European Symposium on Programming, ESOP 2005, Vienna, Austria*, vol. 3924 of *Lecture Notes in Computer Science*, pp. 146–161, ISBN: 3-540-33095-X, Springer-Verlag, March 2006.
- P2. Vasileios Koutavas and Mitchell Wand, “Small Bisimulations for Reasoning About Higher-Order Imperative Programs”, in J. Gregory Morrisett and Simon L. Peyton Jones, editors, *Proceedings of the 33rd ACM SIGPLAN-SIGACT symposium on Principles of Programming Languages, POPL 2006, Charleston, South Carolina, USA*, pp. 141–152, ISBN: 1-59593-027-2, New York, NY, USA, January 2006, ACM Press.
- P1. Nikolaos S. Papaspyrou, Dimitrios Ch. Vytiniotis and Vassilios M. Koutavas, “Logic-Enhanced Type Systems: Programming Language Support for Reasoning about Security and Other Program Properties”, in *Proceedings of the 4th Panhellenic Logic Symposium*, pp. 141–145, ISBN: 960-431-859-4, Thessaloniki, Greece, July 7-10, 2003, Ziti Publishing.

OTHER PUBLICATIONS

- O2. Nick Benton and Vasileios Koutavas, “A Mechanized Bisimulation for the Nu-Calculus”, November 2007. Draft.
- O1. Vasileios Koutavas and Mitchell Wand, “Reasoning About Class Behavior”, January 2007. Appeared in FOOL/WOOD 2007 workshop.

INVITED TALKS

- *Inductive Reasoning about Contextual Equivalence*. Dagstuhl Seminar 08061 on Types, Logics and Semantics for State, Wadern, Germany. February 2008.
- *Reasoning about Class Behavior*. Softlab Programming Languages Seminar, National Technical University of Athens, Athens, Greece. December 2006.
- *Reasoning About Store*. PLClub, University of Pennsylvania, Philadelphia, Pennsylvania. July 2006.
- *Reasoning About Store and Higher-Order Procedures*. Department of Computer Science, University of Bologna, Bologna, Italy. March 2006.
- *Small Bisimulations for Reasoning About Higher-Order Imperative Programs*. Softlab Programming Languages Seminar, National Technical University of Athens, Athens, Greece. December 2005.
- *Bisimulations for Storage*. Softlab Programming Languages Seminar, National Technical University of Athens, Athens, Greece. December 2004.
- *Semantics of Aspect Oriented Programming*. Softlab Programming Languages Seminar, National Technical University of Athens, Athens, Greece. December 2003.

AWARDS

- *Dissertation Completion Fellowship* by the Vice-Provost for Graduate Education, Northeastern University, 2008.

CONFERENCE SERVICE

Sub-referee for LICS 2008, AOSD 2007. External reviewer for ICFP 2008, ICFP 2005, ESOP 2003.

TEACHING

Northeastern University, Boston, MA, USA

2003 – 2007

Teaching Assistant

- CSG 711, *Intensive Principles of Programming Languages*, Ph.D. course. Instructor: Mitchell Wand. Spring 2007.
- CSG 111, *Principles of Programming Languages*, Master's course. Instructors: Mitchell Wand and Will Clinger. Spring 2005, and Spring 2007.
- CSU 370, *Object-Oriented Design*, undergraduate course. Instructor: Will Clinger. Fall 2004 and Fall 2005.

National Technical University of Athens, Athens, Greece

2002 – 2003

Teaching Assistant

- *Programming Techniques*, undergraduate course. Instructors: Nikolaos Papaspyrou and Stathis Zachos. Spring 2003.
- *Introduction to Computer Programming*, undergraduate course. Instructors: Nikolaos Papaspyrou and Stathis Zachos. Fall 2002.

GRADUATE COURSEWORK

- CSG 379, *Decision Procedures for Verification*. Instructor: Pete Manolios. (Audit.) Fall 2007.
- CSG 399, *Reasoning about Security*. Instructor: Riccardo Pucella. (Audit.) Spring 2006.
- CSG 264, *Semantics of Programming Languages*. Instructor: Mitchell Wand. Spring 2005.
- CSG 714, *Theory of Computation*. Instructor: Paul Attie. Spring 2005.
- CSG 713, *Advanced Algorithms*. Instructor: Javed Aslam. Fall 2004.
- CSG 369, *History of Programming Languages*. Instructor: Matthias Felleisen. Spring 2004.
- CSG 712, *Intensive Operating Systems*. Instructor: Kenneth P. Baclawski. Spring 2004.
- CSG 711, *Intensive Principles of Programming Languages*. Instructor: Mitchell Wand. Fall 2003.
- CSG 274, *Formal Methods and Software Analysis*. Instructor: Paul Attie. Fall 2003.