

Ana Milanova
Department of Computer Science
Rensselaer Polytechnic Institute

EDUCATION

- Ph.D. in Computer Science, Rutgers University, October 2003
 Ph.D. Advisor: Prof. Barbara G. Ryder
 Thesis: *Precise and Practical Flow Analysis of Object-Oriented Software*
- M.S. in Computer Science, Rutgers University, October 1999
- B.A. in Computer Science, American University in Bulgaria, 1993-1997
- B.A. in Business Administration, American University in Bulgaria, 1993-1997

PROFESSIONAL EXPERIENCE

Rensselaer Polytechnic Institute, Department of Computer Science

Assistant Professor, August 2003 to present

Rutgers University, Department of Computer Science

Research Assistant, Programming Languages Research Group, July 1999 to July 2003

On leave, August 2001 to June 2002

Teaching Assistant, September 1997 to June 1999

RESEARCH INTERESTS

Software engineering, programming languages, compilers, static and dynamic program analysis, software testing, software understanding, verification, software security, highly reliable software systems.

PUBLICATIONS

Journal Publications

1. Ana Milanova, "Composition Inference for UML Class Diagrams", *International Journal of Automated Software Engineering (JASE)*, vol. 14, issue 2, pp. 179-213, June 2007. Kluwer Academic Publishers. Special issue with the best papers from ASE'05.
2. Chen Fu, Ana Milanova, Barbara Ryder, and David Wannacott, "Robustness Testing of Java Server Applications", *IEEE Transactions on Software Engineering (TSE)*, vol. 31, no. 4, pp. 292-311, April 2005. Special issue with the best papers from ISSTA'04.
3. Ana Milanova, Atanas Rountev, and Barbara G. Ryder, "Parameterized Object Sensitivity for Points-to Analysis for Java", *ACM Transactions on Software Engineering and Methodology (TOSEM)*, vol. 14, no. 1, pp. 1-41, January 2005. Invited as one of the best papers from ISSTA'02.
4. Atanas Rountev, Ana Milanova, and Barbara G. Ryder, "Fragment Class Analysis for Testing of Polymorphism in Java Software", *IEEE Transactions on Software Engineering (TSE)*, vol. 30, no. 6, pp. 372-387, June 2004. Special issue with the best papers from ICSE'03.
5. Ana Milanova, Atanas Rountev, and Barbara G. Ryder, "Precise Call Graphs for C Programs with Function Pointers", *International Journal of Automated Software Engineering (JASE)*, volume 11, issue 1, pages 7-26, January 2004, Kluwer Academic Publishers. Special issue with the best papers from SCAM'02.

Conference and Workshop Publications

1. Ana Milanova, "Light Context-sensitive Points-to Analysis for Java", in *7th ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (PASTE'07)*, June 13-14, 2007, San Diego, CA (acceptance rate 31%, 11/35).

2. Yin Liu and Ana Milanova, "Ownership and Immutability Inference for UML-Based Object Access Control", in *29th ACM SIGSOFT/IEEE International Conference on Software Engineering (ICSE'07)*, May 20-26, 2007, Minneapolis, MN (acceptance rate 15%, 50/334).
3. Ana Milanova, Sonia Fahmy, David Musser and Bulent Yener, "A Secure Programming Paradigm for Network Virtualization", in *3rd IEEE International Conference on Broadband Communications, Networks and Systems (BROADNETS'06)*, October 1-5, 2006, San Jose, CA, USA (invited paper).
4. Yin Liu and Ana Milanova, "Static Analysis for Dynamic Coupling Measures", in *16th IBM Centers for Advanced Studies Annual International Conference on Computer Science and Software Engineering (CASCON'06)*, October 16-19, 2006, Toronto, Canada (acceptance rate 27%, 24/90). **Nominated for Best Student Paper Award.**
5. Ana Milanova, "Precise Identification of Composition Relationships for UML Class Diagrams", in *20th IEEE/ACM International Conference on Automated Software Engineering (ASE'05)*, November 7-11, 2005, Long Beach, CA, USA. ACM 2005, pages 76-85 (acceptance rate 10%, 28/291). **Nominated for Best Paper/ACM SIGSOFT Distinguished Paper Award (6 nominations).**
6. Ana Milanova and Barbara Ryder, "Annotated Inclusion Constraints for Precise Flow Analysis", in *21st IEEE International Conference on Software Maintenance (ICSM'05)*, 25-30 September 2005, Budapest, Hungary. IEEE Computer Society 2005, pages 187-196 (acceptance rate 31%, 55/180).
7. Chen Fu, Barbara G. Ryder, Ana Milanova, and David Wonnacott, "Testing of Java Web Services for Robustness", in *ACM SIGSOFT International Symposium on Softwares Testing and Analysis (ISSTA'04)*, July 2004 (acceptance rate 27%, 26/93).
8. Atanas Rountev, Ana Milanova and Barbara G. Ryder, "Fragment Class Analysis for Testing of Polymorphism in Java Software", in *ACM SIGSOFT/IEEE International Conference on Software Engineering (ICSE'03)*, May 2003 (acceptance rate 13%, 42/324).
9. Ana Milanova, Atanas Rountev and Barbara G. Ryder, "Precise Call Graph Construction in the Presence of Function Pointers", in *Second IEEE International Workshop on Source Code Analysis and Manipulation (SCAM'02)*, October 2002.
10. Ana Milanova, Atanas Rountev and Barbara G. Ryder, "Constructing Precise Object Relation Diagrams", in *IEEE International Conference on Software Maintenance (ICSM'02)*, October 2002 (acceptance rate 47%, 61/127).
11. Ana Milanova, Atanas Rountev and Barbara G. Ryder, "Parameterized Object Sensitivity for Points-to and Side-Effect Analyses for Java", in *ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'02)*, July 2002 (acceptance rate 18%, 18/99).
12. Atanas Rountev, Ana Milanova and Barbara G. Ryder, "Points-to Analysis for Java Using Annotated Constraints", in *ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA'01)*, October 2001 (acceptance rate 19%, 27/145).

Thesis

1. Ana Milanova, "*Precise and Practical Flow Analysis of Object-Oriented Software*", Ph.D. thesis, Department of Computer Science, Rutgers University, Number DCS-TR-539, October 2003

FUNDING

1. "CAREER: A Framework for Customizable Program Flow Analysis", National Science Foundation CCF:CPA-0642911, PI: Ana Milanova, \$400,000, August 2007-July 2012
2. "Verifying Ownership and Immutability with Eclipse", IBM Eclipse Innovation Award, PI: Ana Milanova, \$18,000, August 2006

PROFESSIONAL ACTIVITIES

Technical Program Committee Member

- ACM International Symposium on Software Testing and Analysis (ISSTA'08)
- 17th International Conference on Compiler Construction (CC'08)
- 5th Eclipse Technology eXchange (ETX) Workshop at OOPSLA 2007 (ETX'07)
- 22nd IEEE/ACM Conference on Automated Software Engineering (ASE'07)
- 17th IBM Centers for Advanced Studies Conference (CASCON'07)
- ACM Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA'07)
- 7th IEEE International Workshop on Source Code Analysis and Manipulation (SCAM'07)
- 23rd IEEE International Conference on Software Maintenance (ICSM'07)
- 5th International Workshop on Dynamic Analysis (WODA'07)
- ACM International Symposium on Software Testing and Analysis (ISSTA'07)
- 16th IBM Centers for Advanced Studies Conference (CASCON'06)
- 22nd IEEE International Conference on Software Maintenance (ICSM'06)
- 21st ACM Symposium on Applied Computing (SAC'06), Programming Languages Track

External Reviewer

- ACM Symposium on the Foundations of Software Engineering (FSE)
- ACM Conference on Programming Languages Design and Implementation (PLDI)
- IEEE/ACM International Conference on Software Engineering (ICSE)
- ACM International Symposium on Software Testing and Analysis (ISSTA)
- ACM Symposium on Principles of Programming Languages (POPL)
- IEEE Transactions on Software Engineering (IEEE TSE)
- ACM Transactions on Programming Languages, Systems and Applications (TOPLAS)
- ACM Transactions on Software Engineering and Methodology (TOSEM)
- Journal of Information and Software Technology

Penalist for two NSF panels.

Professional Societies

Member of ACM, SIGSOFT, SIGPLAN, and IEEE Computer Society

INVITED TALKS

1. "Getting Started in Program Analysis Research", invited speaker at the CRA-W/CDC Programming Languages Summer School, University of Texas at Austin, Austin, TX, May 2007
2. "Static Analysis for Understanding, Testing and Debugging of Software", Computer Science Seminar Series, Union College, Schenectady, NY, April 2007
3. "Constructing Precise Object Relation Diagrams", Advanced Seminar on Compilation and Run-time Systems for Object-Oriented Languages, McGill University, Montreal, Canada, October 2002.

TEACHING

- Software Design and Documentation (CSCI 4440): Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007
- Software Engineering I (ECSE 6770): Fall 2005, Fall 2006, Fall 2007 (cross-listed with CSCI 4440)
- Program Analysis for Software Tools and Engineering (CSCI 6967): Spring 2004, Spring 2006
- Software Engineering II (CSCI 6961/ECSE 6780): Spring 2007

STUDENT SUPERVISION

Current Students

- PhD thesis advisor: Yin Liu, PhD expected July 2009

Former Students

- MS Advisor: Orri Eiriksson, RPI, December 2006, Thesis Title: *Improving Static Points-to Analysis Using the Object Graph*
- PhD Committee: Wei-Jen Wang, RPI, December 2006, Thesis title: *Mobile Actor Garbage Collection in Distributed Large-Scale Computing*
- MS Advisor: Jim Lewis, RPI, August 2003 to May 2004, Project title: *Evaluating Software Engineering Project Estimates Using Statistical Analysis*
- PhD Committee: Doug Gregor, RPI, April 2004, Thesis title: *High-level Static Analysis For Generic Libraries*
- MS Co-Advisor (with Dave Musser): Shyam Sunder, RPI, August 2004, Thesis title: *Class Analysis for Efficient Aspect Weaving*

DEPARTMENTAL SERVICE

- Programming Languages Qualifying Exam Committee: 2003 to present
- Graduate Admissions Committee: 2004/2005
- Undergraduate Curriculum Committee: 2006/2007

PERSONAL INFORMATION

Bulgarian Citizen, H-1B; Married, 2 children