

Christopher Parnin

Contact Information

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Education

Ph.D. in Computer Science, Georgia Tech, current

Advised by Dr. Spencer Rugaber.

Master of Science in Computer Science, Georgia Tech, 2006**Bachelor of Science in Computer Science, Georgia Tech, 2003**

Employment, Microsoft Research

Research Intern

May 2009 – August 2009

Developed research prototypes for Visual Studio and performed studies to understand how to assist programmers recovering from interrupted programming tasks. Supervised by Rob DeLine.

Employment, Georgia Tech Research Institute

Research Scientist II

Jan 2010 – current

Developing software for managing the internal operation of the United States Air Force and other Intel units. Software is deployed in over 600 squadrons across the world.

Coop/Graduate Research Assistant

Summer 2000 to Spring 2007

Developed software for controlling classified military radar systems and aircraft responses to threats. Lead development team to design, build, document, and deploy a system for managing aircraft threats and responses. Developed data binding and management framework used in five other company products.

Employment, Georgia Tech

Graduate Research Assistant*January 2007 – Spring 2009*

Developed self-adapting game playing agents for NSF Science of Design program.

Teaching Assistant*Fall 2001 to Spring 2003*

Responsible for teaching weekly recitation, holding weekly labs, and grading assignments.

Research Experience

Oakland Cemetery*Fall 2007*

Developed tools for taking audio-visual tour of the Oakland Cemetery on a cell phone.

Google Summer of Code*Summer 2007*

Developed tools for the Mono open source project to understand client usage patterns of their framework and prioritize unit testing efforts.

Software

CodePad : CodePad is an interactive multitouch workspace for supporting software development activities such as refactoring or program navigation.

Ganji : Ganji is an Visual Studio plugin for summarizing and visualizing recent programming sessions. Ganji works by collecting event histories such as navigation, saved document snapshots, run-time exceptions, searches and then analyzes and extracts relevant summaries to provide an overview of recent programming work.

NosePrints : NosePrints is a visualization tool for detecting and inspecting code smells for peer review. As many developers are not familiar with code smells, NosePrints provides a mini-diagram depiction of the situation, which allows the reviewer to consider the evidence and impact for a particular design flaw.

CIL Suite : CIL Suite is a suite of tools for performing common tasks with analyzing ECMA CIL bytecode. CILDiff is a tool for extracting structured differences between two program versions. CILFlow recovers flow graph and statement structures from bytecode instructions. FieldStat is a tool for visiting and collecting data over a large collection of assemblies. Initially developed during to support Mono in improving unit test coverage of widely used calls.

Research Publications

Journal Publications (refereed)

1. E. Murphy-Hill, C. Parnin, A. Black. How We Refactor, and How We Know It *IEEE Transactions on Software Engineering*, preprint , April 2011, pages X-14.

2. C. Parnin, S. Rugaber. Resumption strategies for interrupted programming tasks *Software Quality Journal*, August 2010, pages 5-34.

Conference Presentations with Proceedings(refereed)

1. C. Parnin, A. Orso. Are Automated Debugging Techniques Actually Helping Programmers? *Proceedings of the ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2011)*, Toronto, Ontario, Canada, July 2011, pages X-11.(full paper, 35 of 121 submissions accepted 29%)
2. C. Parnin. Subvocalization – Toward Hearing the Inner Thoughts of Developers. *Proceedings of the 19th International Conference on International Conference on Program Comprehension (ICPC 2011)*, Kingston, Ontario, Canada, June 2011, pages X-4.(short paper)
3. C. Parnin, C. Bird, E. Murphy-Hill. Java Generics Adoption: How New Features are Introduced, Championed, or Ignored. *Proceeding of the 8th working conference on Mining software repositories (MSR 2011)*, Honolulu, Hawaii, USA, May 2011, pages 3-12.(full paper, 20 of 61 submissions accepted 33%)
4. C. Parnin, R. DeLine. Evaluating Cues for Interrupted Programming Tasks. *Proceedings of the 28th ACM Conference on Human Factors in Computing Systems (CHI 2010)*, Atlanta, Georgia, USA, April 2010, pages 93-102.(full paper, 296 of 1346 submissions accepted 22%)
5. E. Murphy-Hill, C. Parnin, A. Black. How We Refactor, and How We Know It. *Proceedings of the 31st International Conference on Software Engineering (ICSE 2009)*, Vancouver, Canada, May 2009, pages 287-297.(full paper, 50 of 405 submissions accepted 12.3%)
6. C. Parnin, S. Rugaber. Resumption Strategies for Interrupted Programming Tasks. *Proceedings of the 17th International Conference on Program Comprehension (ICPC 2009)*, Vancouver, Canada, May 2009, pages 80-89.(full paper, 20 of 74 submissions accepted 27%)
7. C. Parnin, C. Görg, Nnadi. A Catalogue of Lightweight Visualizations to Support Code Smell Inspection. *Proceedings of the Fourth ACM Symposium on Software Visualization (SoftVIS 2008)*, Herrsching, Germany, September 2008, pages 77-86. (full paper, 16 of 38 submissions accepted 42%)
8. C. Parnin, C. Görg. Improving Change Descriptions with Change Contexts. *Proceedings of the Fifth International ICSE Working Conference on Mining Software Repositories (MSR 2008)*, Leipzig, Germany, May 2008, pages 51-60.(full paper, 40%)
9. C. Parnin, C. Görg. Building Usage Contexts During Program Comprehension. *Proceedings of the 14th IEEE International Conference on Program Comprehension (ICPC 2006)*, Athens, Greece, June 2006. pages 13-22. (full paper, 23 of 73 submissions accepted - 32%)

Workshop Presentations with Proceedings(refereed)

1. C. Parnin, C. Treude. Measuring API documentation on the web. *Proceeding of the 2nd international workshop on Web 2.0 for software engineering (Web2SE 2011)*, Honolulu, Hawaii, USA, pages 25-30.

2. C. Parnin. A Cognitive Neuroscience Perspective on Memory for Programming Tasks. *Proceedings of the Psychology of Programming Interest Group (PPIG 2010)*, Madrid, Spain.
3. E. Murphy-Hill, A. Black, D. Dig, C. Parnin. Gathering Refactoring Data: a Comparison of Four Methods. *Proceedings of the Second ACM Workshop on Refactoring Tools (WRT'08)*, Nashville, Tennessee, USA. Plenary session paper.
4. C. Parnin, C. Görg. Design Guidelines for Ambient Software Visualization in the Workplace. *Proceedings of the Fourth IEEE International ICPC Workshop on Visualizing Software for Understanding and Analysis (VISSOFT 2007)*, Banff, AB, Canada, pages 18-25. (54%)
5. C. Parnin, C. Görg, S. Rugaber. Enriching Revision History with Interactions. *Proceedings of the Third International ICSE Workshop on Mining Software Repositories (MSR 2006)*, Shanghai, China, May 2006, pages 155-158.(short paper, 62%)

Research Posters, Tool Demos

1. C. Parnin, C. Görg. Lightweight Visualizations for Inspecting Code Smells, at the *ACM Symposium on Software Visualization (SOFTVIS 2006)*. Brighton, UK, September 2006.
2. C. Parnin, C. Görg, S. Rugaber. Task Board: Tracking Pertinent Task Artifacts and Plans, at the *Proceedings of the 17th International Conference on Program Comprehension (ICPC 2009)*. Vancouver, Canada, May 2009.

Talks

1. Java Generics Adoption. NC State Seminar. Raleigh, NC, May 2011.
2. Analyzing Software Development History. Google Tech Talk. Atlanta, GA, April 2011.
3. Ambient Software Visualization. SPARC seminar. College of Computing, Georgia Tech, Atlanta, GA, September 2007.
4. Usage Contexts. SPARC seminar. College of Computing, Georgia Tech, Atlanta, GA, October 2006.
5. Object-oriented Frameworks. GTRI Brown Bag. Georgia Tech Research Institute, Atlanta, GA, June 2006.
6. Developing Visual Studio Plugins. GTRI Brown Bag. Georgia Tech Research Institute, Atlanta, GA, May 2006.
7. Detecting Bad Smells. GTRI Brown Bag. Georgia Tech Research Institute, Atlanta, GA, March 2006.
8. Understanding the DEF Framework. GTRI Brown Bag. Georgia Tech Research Institute, Atlanta, GA, Feb 2006.

Honors and Awards

SIGSOFT Distinguished Paper Award ICSE 2009 Selected by program committee. At most, 10% of papers in conference program can be designated with award.

Best CS7001 Research Project Award Selected by faculty for best research project among new Ph.D. students, Spring 2007.

Verizon Scholarship from Verizon to promote research opportunities for minority graduate students, August 2005. (Only two are awarded each academic term.)

GTRI Shackelford Fellowship from the Georgia Tech Research Institute, May 2003. (One award per year is granted for funding three years of graduate school.)

Service, Conferences

1. Tool Demonstrations Co-Chair, 20th IEEE International Conference on Program Comprehension (ICPC 2012), Passau, Bavaria, Germany, June 2012.
2. Program Committee Member, 6th IEEE International Workshop on Visualizing Software for Understanding and Analysis (VISSOFT 2011), Williamsburg, Virginia, USA, September 2011.
3. Student Volunteer, 16th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2008), Atlanta, Georgia, USA, November 2008.
4. Local Arrangements Chair, 22nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2007), Atlanta, Georgia, USA, November 2007.
5. Work-in-Progress Reviewer, 25th ACM International Conference on Human Computer Interaction (CHI 2007), San Jose, California, USA, April 2007.

Service, Georgia Tech

1. College of Computing Awards Committee Member. Spring 2007
2. Graduate Student Community Relations Member. Fall 2007
3. College of Computing Travel Funds Committee Member. Fall 2007