

# Robert Tairas

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## Education

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| <b>University of Alabama at Birmingham (UAB)</b><br>Ph.D. candidate in Computer Science   | Birmingham, AL<br><i>January 2006 - present</i> |
| <b>University of Alabama at Birmingham (UAB)</b><br>M.Sc. in Computer Science<br>Specialization in Software Engineering<br><i>GPA: 3.81</i> | Birmingham, AL<br><i>December 2005</i>          |
| <b>Samford University</b><br>B.Sc. in Computer Science and Mathematics<br><i>GPA: 3.92 (summa cum laude)</i>                                | Birmingham, AL<br><i>May 1997</i>               |

## Projects

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### **Clone Detection with Microsoft Phoenix**

An investigation into an automatic clone detection technique developed as a plug-in for Microsoft's Phoenix framework that finds exact matching function level clones in a program using abstract syntax trees and suffix trees.

Project web site: <http://www.cis.uab.edu/tairasr/phoenix>

### **Visualization of Clone Detection Results**

An alternative approach of visualizing detected clones (found by the CloneDR™ clone detection tool) by extending the AspectJ Development Tools Visualiser plugin.

Project web site: <http://www.cis.uab.edu/tairasr/visual>

### **CoCloRep: A DSL for Code Clones**

A representation of code clones in a domain-specific language for analysis purposes that is developed in the AMMA platform (ATLAS Model Management Architecture).

Project web site: <http://www.cis.uab.edu/tairasr/coclorep>

### **An Information Retrieval Process to Aid in the Analysis of Code Clones**

Latent Semantic Indexing (LSI) is used to cluster clone classes that have been identified initially by a clone detection tool with a goal to detect associations among the clustered clone classes and determine if they provide further comprehension to assist in the maintenance of clones.

## Publications

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- Journals* Robert Tairas and Jeff Gray, "An Information Retrieval Process to Aid in the Analysis of Code Clones," *Empirical Software Engineering* (Special Issue on Information Retrieval for Program Comprehension), 2008, to appear.
- Jing Zhang, Yuehua Lin, Jeff Gray, and Robert Tairas, "Aspect Mining from a Modeling Perspective," *International Journal of Computer Applications in Technology* (Special Issue on Concern-Oriented Software), Vol. 31, No. 1/2, 2008, pp. 74-82.
- Conferences* Yu Sun, Zekai Demirezen, Frédéric Jouault, Robert Tairas, and Jeff Gray, "Tool Interoperability through Model Transformations," *Tool Demonstration, International Conference on Software Language Engineering (SLE)*, Toulouse, France, September 2008, to appear.
- Robert Tairas, Jeff Gray, and Ira Baxter, "Visualizing Clone Detection Results," *Tool Demonstration, International Conference on Automated Software Engineering (ASE)*, Atlanta, GA, November 2007, pp. 549-550.
- Robert Tairas, "Clone Detection and Refactoring," *Doctoral Symposium, International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Portland, OR, October 2006, pp. 780-781.
- Robert Tairas and Jeff Gray, "Phoenix-Based Clone Detection using Suffix Trees," *ACM Southeast Conference*, Melbourne, FL, March 2006, pp. 679-684.
- Workshops* Robert Tairas, Marjan Mernik, and Jeff Gray, "Using Ontologies in the Domain Analysis of Domain-Specific Languages," *Workshop on Transformation and Weaving Ontologies in Model-Driven Engineering (TWOMDE), International Conference on Model Driven Engineering, Languages, and Systems (MoDELS)*, Toulouse, France, September 2008, pp. 20-31.
- Robert Tairas, Shi-Hsi Liu, Frédéric Jouault, and Jeff Gray, "CoCloRep: A DSL for Code Clones," *International Workshop on Software Language Engineering (ATEM), International Conference on Model Driven Engineering, Languages, and Systems (MoDELS)*, Nashville, TN, October 2007, pp. 91-99.
- Robert Tairas, Jeff Gray, and Ira Baxter, "Visualization of Clone Detection Results," *Eclipse Technology Exchange Workshop (ETX), International Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*, Portland, OR, October 2006, pp. 50-54.

*Abstracts* Robert Tairas, "Applying Model-Driven Engineering Techniques to Represent Code Clones," *UAB Graduate Student Research Days*, Birmingham, AL, February 2008.

Robert Tairas, "Visualization of Clone Detection Results," *UAB Graduate Student Research Days*, Birmingham, AL, March 2007, p. 86. (Third Place: Session 12 – Mathematics and Computer & Information Sciences)

Robert Tairas, "Clone Detection with Microsoft Phoenix," *Alabama Academy of Sciences*, Troy, AL, March 2006.

Robert Tairas, "Searching for Code Clones using Suffix Trees in the Phoenix Framework," *UAB Graduate Student Research Days*, Birmingham, AL, March 2006, p. 77. (First Place: Session 6 – Mathematics and Computer & Information Sciences)

Robert Tairas, "Phoenix-Based Clone Detection using Suffix Trees," *ACM Mid Southeast Conference*, Gatlinburg, TN, November 2005, p. 53. (First Place: Master's Division)

## Presentations

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"Improving the Maintainability of Cloned Clone through a Coordinated Process of Clone Analysis and Refactoring," *Dissertation Research Proposal*, Birmingham, AL, April 29, 2008.

"Applying Model-Driven Engineering Techniques to Represent Code Clones," *UAB Graduate Student Research Days*, Birmingham, AL, February 28, 2008.

"CoCloRep: A DSL for Code Clones," *International Workshop on Software Language Engineering (ATEM), International Conference on Model Driven Engineering, Languages, and Systems (MoDELS)*, Nashville, TN, October 1, 2007.

"Visualization of Clone Detection Results," *UAB Graduate Student Research Days*, Birmingham, AL, March 2, 2007.

"Clone Detection and Refactoring," *Doctoral Symposium, International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Portland, OR, October 23, 2006.

"Visualization of Clone Detection Results," *Eclipse Technology Exchange Workshop (ETX), International Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*, Portland, OR, October 22, 2006.

"Clone Detection with Microsoft Phoenix," *Alabama Academy of Sciences*, Troy, AL, March 17, 2006.

“Phoenix-Based Clone Detection using Suffix Trees,” *ACM Southeast Conference*, Melbourne, FL, March 11, 2006.

“Searching for Code Clones using Suffix Trees in the Phoenix Framework,” *UAB Graduate Student Research Days*, Birmingham, AL, March 2, 2006.

“Phoenix-Based Clone Detection using Suffix Trees,” *ACM Mid Southeast Conference*, Gatlinburg, TN, November 11, 2005.

## Funding

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National Science Foundation (NSF), Computing Processes and Artifacts (CPA), “A Transformational Approach to Clone Refactoring.”

## Professional Activities

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- Reviewer*
- International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) (2008)
  - European Conference on Model-Driven Architecture (ECMDA) (2008)
  - International Conference on Aspect-Oriented Software Development (AOSD) (2008)
  - IET Software (2007)
  - International Workshop on Software Language Engineering (ATEM) (2007)
  - TOOLS Europe (2007)
  - International Symposium on Distributed Objects and Applications (DOA) (2006)
  - International Conference on Generative Programming and Component Engineering (2006)
  - ACM Southeast Conference (2006)
  - Journal of Object Technology (2005)

- Conferences/ Meetings Attended*
- ACM Mid Southeast Conference (2005)
  - ACM Southeast Conference (2006)
  - Alabama Academy of Science (2006)
  - International Conference on Automated Software Engineering (ASE) (2007)
  - Eclipse Technology Exchange Workshop (ETX) (2006)
  - International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) (2006)
  - International Workshop on Software Language Engineering (ATEM) (2007)

- External Committees*
- Web Chair, Aspect-Oriented Software Development (AOSD) (2009)

## Awards and Honors

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- Graduate Awards*
- 3rd place in the Mathematics and Computer and Information Sciences session at the *UAB Graduate Student Research Days* (2007)
  - Passed Ph.D. Level 1 Qualifying Exam “With Distinction” (2007)
  - 1st place in the Mathematics and Computer and Information Sciences session at the *UAB Graduate Student Research Days* (2006)
  - 1st place in the Masters Division at the *ACM Mid-Southeast Conference* (2005)

- Travel Grants*
- From ACM SIGSOFT CAPS to attend ASE (2007)
  - From UAB GSA to attend ATEM at MoDELS (2007)
  - From ACM to attend the OOPSLA Doctoral Symposium (2006)
  - From UAB GSA to attend the ACM Mid Southeast Conference (2005)

- Undergraduate Awards*
- Outstanding Computer Science Senior, Samford University (1996)
  - Recipient of the Greg Walker Memorial Scholarship Award for Outstanding Computer Science Junior, Samford University (1995)

## Memberships

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Association for Computing Machinery (ACM)  
(including ACM SIGPLAN and ACM SIGSOFT)  
2006 – present

Institute of Electrical and Electronics Engineers (IEEE)  
2007 – present

## Work Experience

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2003-2004 **Georgia State University, Atlanta, Georgia – Programmer Analyst**

Enhanced the University Library's web site with the design and development of features including a content management system for various parts of the web site.

Designed and developed various projects including the web display of XML documents based on the Encoded Archival Description (EAD) standard using XSL stylesheets and an interface on a handheld for selection of collections for specialized display on the web site.

1998-2003 **SpryData Internet Solutions, Inc., Birmingham, Alabama – Systems Analyst**

Designed and developed content management and e-commerce systems in both the Windows and Unix/Linux environment.

Communicated with clients throughout the life cycle of projects regarding project status, resolution of problems, client review of project, and post-development support.

1997-1998 **The Global Center, Samford University – Research and Information Coordinator**

Designed and developed customized functions in ESRI's ArcView to enable access of GIS data on Sun SPARC stations in the Global Center exhibit area.

Assisted in the deployment and maintenance of a Virtual Research Center system obtained from an educational sharing agreement with NASA's Marshall Flight Center in Huntsville, Alabama. The system was maintained at the Global Center and was utilized by various academic departments at Samford University.

## Teaching Experience

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*Instructor* - CS101 – Fluency in Information Technology (Fall 2006)

*Lab Instructor* - CS101L – Fluency in Information Technology (Fall 2006)  
- CS201L – Introduction to Object-Oriented Programming (Spring 2006, Summer 2006)  
- CS303L – Algorithms and Data Structures (Spring 2007)

*Teaching Assistant* - CS303 – Algorithms and Data Structures (Spring 2007)  
- CS405/505 – Programming Languages (Spring 2007)  
- CS436/636/736 – Computer Security (Spring 2006)  
- CS620/720 – Software Development I (Spring 2006)  
- CS650/750 – Automata, Languages, and Computation (Fall 2006)  
- CS622/722 – Reflective and Adaptive Systems (Fall 2006)

## Educational Outreach

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### **Linux Workshop**

February 13, 2008; September 15 & 18, 2008

(Position: Presenter of a tutorial on Linux that was sponsored by the UAB student chapter of ACM)

### **State-wide Workshop for K-12 Computer Science Teachers**

July 31, 2006

(Position: Presenter of “Introduction to Robocode and its use in CS201 –Introduction to Object-Oriented Programming labs”)

### **UAB High School Programming Competition**

May 13, 2006; May 10, 2008

(Position: Head Volunteer, Volunteer Grader)