Thomas Dillig

EMPLOYMENT
Assistant Professor
Computer Science
University of Texas, Austin

CONTACT
INFORMATION
E-mail: tdillig@cs.utexas.edu

RESEARCH
INTERESTS
Static analysis, verification, SMT solving, program reliability

EDUCATION

2006-2011 **PhD, Computer Science**
Stanford University, Stanford, CA
Advisor: Alex Aiken

2006-2011 **MS, Computer Science**
Stanford University, Stanford, CA

2002-2006 **BS, Computer Science** with honors and distinction
Stanford University, Stanford, CA
GPA: 4.1 (major), 3.97 (overall)

JOURNAL
PUBLICATIONS
Reasoning About the Unknown in Static Analysis. Isil Dillig, Thomas Dillig, Alex Aiken. Research highlight, Communications of the ACM (CACM), August 2010.

Cuts from Proofs: A Complete and Practical Technique for Solving Linear Inequalities over Integers. Isil Dillig, Thomas Dillig, Alex Aiken. Invited paper, Formal Methods in System Design (FMSD) CAV '09 special issue.

Publishing Content on the Web: Content Management Fitting Any Structure. Isil Dillig, Thomas Dillig. Stanford Undergraduate Research Journal, Spring 2005.

REFEREED
CONFERENCE &
WORKSHOP
PUBLICATIONS
Consolidation of Queries with User-Defined Functions. Marcelo Sousa, Isil Dillig, Dimitrios Vytionitis, Thomas Dillig, Christos Gkantsidis. Programming Languages Design and Implementation (PLDI) 2014.

Automated Inference of Library Specifications for Source-Sink Property Verification. Haiyan Zhu, Thomas Dillig, Isil Dillig. Asian Symposium on Programming Languages and Systems (APLAS) 2013.

Inductive Invariant Generation via Abductive Inference. Isil Dillig, Thomas Dillig, Boyang Li, Ken McMillan. Object-Oriented Programming, Systems, Languages & Applications (OOPSLA) 2013.

EXPLAIN: A Tool for Performing Abductive Inference. Isil Dillig, Thomas Dillig. Proceedings of Computer Aided Verification (CAV 2013).

Synthesis of Circular Compositional Program Proofs via Abduction.
Boyang Li, Isil Dillig, Thomas Dillig, Kenneth L. McMillan, Mooly Sagiv. To appear in the International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS) 2013.

Minimum Satisfying Assignments for SMT. Isil Dillig, Thomas Dillig, Ken McMillan, Alex Aiken. Proceedings of Computer Aided Verification (CAV) 2012.

Automated Error Diagnosis Using Abductive Inference. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Programming Languages Design and Implementation (PLDI) 2012.

Simplifying Loop Invariant Generation Using Splitter Predicates. Rahul Sharma, Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Computer Aided Verification (CAV) 2011.

Precise and Compact Modular Procedure Summaries for Heap Manipulating Programs. Isil Dillig, Thomas Dillig, Alex Aiken, Mooly Sagiv. Proceedings of Programming Language Design and Implementation (PLDI) 2011.

Precise Reasoning for Programs Using Containers. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Principles of Programming Languages (POPL) 2011.

Symbolic Heap Abstraction with Demand-Driven Axiomatization of Memory Invariants. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Object-Oriented Programming, Systems, Languages & Applications (OOPSLA) 2010.

Small Formulas for Large Programs: On-line Constraint Simplification in Scalable Static Analysis. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of the International Static Analysis Symposium (SAS) 2010.

Fluid Updates: Beyond Strong vs. Weak Updates. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of the European Symposium on Programming (ESOP) 2010.

Cuts from Proofs: A Complete and Practical Technique for Solving Linear Inequalities over Integers. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Computer Aided Verification (CAV) 2009.

Sound, Complete, and Scalable Path-Sensitive Analysis. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Programming Language Design and Implementation (PLDI), June 2008.

The CLOSER: Automating Resource Management in Java. Isil Dillig, Thomas Dillig, Eran Yahav, Satish Chandra. Proceedings of the International Symposium on Memory Management (ISMM), June 2008.

Static Error Detection Using Semantic Inconsistency Inference. Isil Dillig, Thomas Dillig, Alex Aiken. Proceedings of Programming Language Design and Implementation (PLDI), June 2007.

An Overview of the Saturn Project. Alex Aiken, Suhabe Bugrara, Isil Dillig, Thomas Dillig, Peter Hawkins and Brian Hackett. Proceedings of the Workshop on Program Analysis for Software Tools and Engineering (PASTE), June 2007.

DISSERTATION   *A Modular and Symbolic Approach to Static Program Analysis.* Thomas Dillig. PhD Dissertation, Stanford University January 2012.

UNPUBLISHED MANUSCRIPTS   *SAIL: Static Analysis Intermediate Language with a Two-Level Representation.* Isil

Dillig, Thomas Dillig, Alex Aiken. Technical Report, Stanford University 2009.

The Saturn Program Analysis System. A. Aiken, S. Bugrara, I. Dillig, T. Dillig, B. Hackett, and P. Hawkins. Stanford University, Computer Science Technical Report, December 2006.

Work Experience	Assistant Professor UT Austin, Computer Science Department 2014-present
	Senior Lecturer University College London 2013-2014
	Consultant Microsoft Research Cambridge 2013-2014
	Assistant Professor College of William and Mary, Computer Science Department 2011-2013
	Graduate Research Assistant Stanford University, Computer Science Department 2006-2011
	Research Internship IBM T.J Watson Research Lab, Hawthorne, NY June 2007-September 2007 Mentors: Satish Chandra and Eran Yahav
	CURIS Program for Undergraduate Research Stanford University, Computer Science Department June 2005-September 2005
	Internship at Carnegie Institution for Science Stanford, CA June 2004-September 2004
Teaching Experience	Taught CS780: Program Verification Fall Semester 20112/2013 College of William & Mary
	Taught CS312: Principles of Programming Languages Spring Semester 20111/2012 College of William & Mary
	Teaching Assistant for CS143: Compilers Fall Quarter, 2009 and Fall Quarter, 2010 Stanford University

Section Leader for CS106B: Programming Abstractions
2004-2005
Stanford University

<table>
<tr><td>AWARDS</td><td>2009-2010</td><td>Recipient of the Siebel Fellowship</td></tr>
<tr><td></td><td>2005-2006</td><td>Computer Science honors student, Stanford University</td></tr>
<tr><td></td><td>2005</td><td>Stanford Undergraduate Research Award (for publication in the Stanford Undergraduate Research Journal 2005)</td></tr>
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PROFESSIONAL ACTIVITIES

Program Committee
Conference on Principles of Programming Languages (POPL) 2014.

Program Committee
Conference on Programming Language Design and Implementation (PLDI) 2013.

Program Committee
Conference on Computer Aided Verification (CAV) 2012

External Reviewer
Conference on Principles of Programming Languages (POPL) 2011.

External Reviewer
Verification, Model Checking, and Abstract Interpretation (VMCAI) 2011.

External Reviewer
Conference on Programming Language Design and Implementation (PLDI) 2010.

RESEARCH FUNDING

"STAMP: STatic Analysis of Mobile Programs." DARPA #FA8750-12-2-0020, February 2012. Alex Aiken (main PI), Isil Dillig, Thomas Dillig, John Mitchell, Mayur Naik. Funding amount: $1,562,002 (for phase 1 of 2)

SOFTWARE PROJECTS

Mistral SMT Solver
Available under GPL license at http://cs.utexas.edu/~tdillig/mistral.tar.gz

SAIL Program Analysis Front-end for C and C++
Available under BSD license at http://cs.utexas.edu/~idillig/sail/

SATURN Program Analysis System
Co-developed with Brian Hackett, Yichen Xie, Peter Hawkins, Suhabe Bugrara, and Isil Dillig
Available under BSD license at http://saturn.stanford.edu/

CITIZENSHIP

Germany, US Permanent Resident