

Benjamin Delaware

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Education

- University of Texas at Austin**, Ph.D. Computer Science 2013
Advisors: William Cook and Don Batory
Dissertation: *Feature Modularity in Mechanized Reasoning*
- Washington University in St. Louis**, M.Sc. Computer Science 2007
Advisor: Aaron Stump
Thesis: *Bagahk: Developing Sound and Complete Decision Procedures in Coq*
- Truman State University**, B.S. Computer Science, B.A. Russian 2005
Summa Cum Laude with Departmental Honors in Math and Computer Science

Employment

- Purdue University** 2015 - 2016
Assistant Professor, Department of Computer Science
- Massachusetts Institute of Technology** 2014 - 2015
Research Scientist, Programming Languages and Verification Group
- Massachusetts Institute of Technology** 2007-2014
Postdoctoral Researcher, Programming Languages and Verification Group

Publications

Refereed Conference Papers

1. John Wiegley, Benjamin Delaware. **Using Coq to Write Fast and Correct Haskell**. *ACM SIGPLAN Haskell Symposium 2017 (Haskell'17)*. September 2017.
2. Adam Chlipala, Benjamin Delaware, Samuel Duchovni, Jason Gross, Clément Pit--Claudel, Sorawit Suriyakarn, Peng Wang, and Katherine Ye. **The End of History? Using a Proof Assistant to Replace Language Design with Library Design**. *The 2nd Summit on Advances in Programming Languages (SNAPL'17)*. May 2017.
3. Benjamin Delaware, Clément Pit--Claudel, Jason Gross, Adam Chlipala. **Fiat: Deductive Synthesis of Abstract Data Types in a Proof Assistant**. *Proceedings of the 42nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL'15)*. January 2015.
4. Benjamin Delaware, Steven Keuchel, Tom Schrijvers, Bruno C. d. S. Oliveira. **Modular Monadic Meta-Theory**. *Proceedings of the 18th ACM SIGPLAN International Conference on Functional Programming (ICFP'13)*. September 2013.
5. Benjamin Delaware, Bruno C. d. S. Oliveira, Tom Schrijvers. **Meta-Theory à la Carte**. *Proceedings of the 40th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL'13)*. January 2013

6. Benjamin Delaware, William R. Cook, Don Batory. **Product Lines of Theorems.** *Proceedings of the 26th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA'11).* October 2011.
7. Benjamin Delaware, William R. Cook, Don Batory. **Fitting the Pieces Together: A Machine-Checked Model of Safe Composition.** *The 7th joint meeting of the European Software Engineering Conference (ESEC) and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE'09).* August 2009.

Dissertation and Theses

8. Benjamin Delaware. **Feature Modularity in Mechanized Reasoning.** PhD Dissertation, University of Texas at Austin. December 2013.
9. Benjamin Delaware. **Bagahk: Developing Sound and Complete Decision Procedures in Coq.** Master's Thesis, Washington University in St. Louis. August 2007.

Drafts and Technical Reports

10. Benjamin Delaware, Sorawit Suriyakarn, Adam Chlipala. **Extensible Data-Representation Selection for Correct-by-Construction Program Derivation.**
11. Clément Pit-Claudel, Peng Wang, Benjamin Delaware, Jason Gross, Adam Chlipala. **Compilation Using Correct-by-Construction Program Synthesis.**
12. William R. Cook, Benjamin Delaware, Thomas Finsterbusch, Ali Ibrahim, Ben Wiedermann. **Model Transformation by Partial Evaluation of Model Interpreters.** Technical Report TR-09-09, UT Austin Department of Computer Science.
13. Benjamin Delaware, William R. Cook. **Generic Operations and Partial Evaluation using Models.**

Academic Service

Organization

Artifact Evaluation Co-Chair for Principles of Programming Languages (POPL 2019)

Student Research Competition Chair for Principles of Programming Languages (POPL 2018)

Committee Member

Principles of Programming Languages, Program Committee	2019
Asian Symposium on Programming Languages and Systems (APLAS), Program Committee	2018
Implementation and Application of Functional Languages, Program Committee	2018
Asian Symposium on Programming Languages and Systems (APLAS), Program Committee	2017
Workshop on Feature-Oriented Software Development (FOSD), Program Committee	2017
International Conference on Modularity, External Review Committee	2017
Principles of Programming Languages, External Review Committee	2017
Syntax and Semantics of Low-Level Languages (LOLA), Program Committee	2015
Object-Oriented Programming Systems Languages and Applications (OOPSLA), Artifact Evaluation Committee	2013

Refereeing and Reviewing

ACM Transactions on Programming Languages and Systems (TOPLAS)	2014
Symposium On Applied Computing (SAC)	2014
Principles of Programming Languages (POPL)	2013, 2010
Object-Oriented Programming Systems Languages and Application (OOPSLA)	2013, 2012
European Conference on Object-Oriented Programming (ECOOP)	2013, 2008
Journal of Functional Programming (JFP)	2013
Acta Informatica	2011
International Conference on Functional Programming (ICFP)	2011
International Conference on Objects, Models, Components and Patterns (TOOLS)	2011, 2010
ACM Transactions on Software Engineering and Methodology (TOSEM)	2010

Grants

PI, CRII: SHF: Bespoke Data Representation Synthesis via Contextual Data Refinement , NSF CCF-1755880	2018-2020
Key Personnel, BRASS RINGS: Adaptability is the Prize DARPA	2015-2020
Key Personnel, Fiat: Correct-by-Construction and Mostly Automated Derivation of Programs with an Interactive Theorem Prover NSF, CCF-1512611	2015-2019

Honors and Awards

James C. Browne Graduate Fellowship , University of Texas at Austin	2013
MCD Doctoral Fellowship , University of Texas at Austin	2007-2010
Dean's Excellence Award, College of Natural Sciences , University of Texas at Austin	2007
Distinguished Master's Fellowship , Washington University in St. Louis	2005-2006
Phi Beta Kappa , Truman State University	2004
Presidential Leadership Scholarship , Truman State University	2001-2005

Teaching

CS 565: Programming Languages	Fall 2018, Fall 2016
CS 456: Programming Languages	Spring 2018
CS 590: Software Synthesis	Spring 2017
CS 105: PHP and SQL, University of Texas at Austin	Spring 2013, Fall 2013

Students

Paul Krogmeir	2016-Present
Qianchaun Ye	2017-Present
Sorawit Suriyakarn, <i>EECS Advanced Undergraduate Research Program</i>	2014-2016
Katherine Ye, <i>Summer Internship with PLV Group</i>	2015

Talks

A Case for Tactics with (Limited) Side Effects

Second International Workshop on Coq for PL (CoqPL), Workshop Talk January 2016

Fiat: Deductive Synthesis of Abstract Data Types in a Proof Assistant

University of California, Los Angeles, Seminar February 2015

42nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL), Conference Talk January 2015

University of California, Berkeley (Chaperone Group), Seminar October 2014

Stanford University (Software Research Group), Seminar October 2014

Modular Monadic Meta-Theory

18th ACM SIGPLAN International Conference on Functional Programming (ICFP), Conference Talk September 2013

Meta-Theory à la Carte

40th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL), Conference Talk January 2013

University of Ghent, Seminar December 2012

Product Lines of Theorems

26th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA), Conference Talk October 2011

2nd Conference on Interactive Theorem Proving (ITP), Joint Keynote with Don Batory August 2011

Engineering Modular Mechanized Meta-Theory

Dagstuhl Seminar on Feature-Oriented Software Development, Invited Talk January 2011

Fitting the Pieces Together: A Machine-Checked Model of Safe Composition.

The 7th Joint European Software Engineering Conference and Foundations of Software Engineering (ESEC/FSE), Conference Talk August 2009

Foundations of Aspect-Oriented Languages (FOAL), Workshop Talk March 2009