

Edward K. Smith

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Current position

PhD Student, School of Computer Science, University of Massachusetts, Amherst

Research Interests

My research interests are in the intersection of programming languages and empirical software engineering. I want to study how developers use programming languages and environments in real-world scenarios to inform the design and development of novel programming interactions, methods, and tools.

Education

2008-2013 BS in Computer Science, University of Maryland, College Park
2008-2013 BS in Psychology, University of Maryland, College Park

Experience

2013-Present PhD Student, University of Massachusetts, Amherst
2014 Research Intern, Microsoft Research, RiSE Group
2007-2013 Undergraduate Research Asst, University of Maryland, College Park

Grants, honors & awards

2015 ACM SIGSOFT CAPS recipient
2014 Honorable Mention, NSF Graduate Research Fellowship

Publications & talks

CONFERENCE PAPERS

- 2015 Edward K. Smith, Christian Bird, Thomas Zimmermann. Build it yourself: Homegrown Tools at a Large Software Company. *ICSE 2015*.
- 2015 Edward K. Smith, Earl T. Barr, Claire Le Goues, Yuriy Brun. Is the Cure Worse than the Disease? A Large-Scale Analysis of Overfitting in Automated Program Repair. *ESEC/FSE 2015*.
- 2012 Christopher M. Hayden, Edward K. Smith, Michael Hicks, Jeffrey S. Foster. Kitsune: Efficient, General-purpose Dynamic Software Updating for C. *OOSPLA*, October 2012.

JOURNAL PAPERS

- Pending Claire Le Goues, Neal Holtschulte, Edward K. Smith, Yuriy Brun, Premkumar Devanbu, Stephanie Forrest, Westley Weimar. The ManyBugs and IntroClass Benchmarks for Automated Program Repair. *IEEE Transactions on Software Engineering*, Pending publication.
- 2014 Christopher M. Hayden, Karla Saur, Edward K. Smith, Michael Hicks, Jeffrey S. Foster. Efficient, General-purpose Dynamic Software Updating for C. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, Vol. 36, No. 4, Oct. 2014.
- 2011 Christopher M. Hayden, Edward K. Smith, Eric A. Hardisty, Michael Hicks, and Jeffrey S. Foster. Evaluating Dynamic Software Update Safety Using Efficient Systematic Testing. *IEEE Transactions on Software Engineering*, Vol. 38, Issue 6, October 2011

WORKSHOP PAPERS

- 2013 Edward K. Smith, Robert Loftin, Emerson Murphy-Hill, Christian Bird, and Thomas Zimmermann. Improving Developer Participation Rates in Surveys. *CHASE*, May 2013.
- 2013 Edward K. Smith, James D. Purtilo. Baloo: Personal Informatics for Decision-Making. *Personal Informatics*, 2013.
- 2012 Edward K. Smith, Michael Hicks, and Jeffrey S. Foster. Towards Standardized Benchmarks for Dynamic Software Updating Systems. *Hot Topics in Software Upgrades*, June 2012.
- 2011 Christopher M. Hayden, Edward K. Smith, Michael Hicks, Jeffrey S. Foster. State Transfer for Clear and Efficient Runtime Updates. *Hot Topics in Software Upgrades*, April 2011.

TALKS

- 2015 Build it yourself: Homegrown Tools at a Large Software Company. *ICSE*, 2015
- 2012 Kitsune: Efficient, General-purpose Dynamic Software Updating for C. *OOPSLA*, 2012
- 2012 Towards Standardized Benchmarks for Dynamic Software Updating. *Hot Topics in Software Upgrades (HotSWUp)* 2012

Skill Summary

Technical	Proficient in C, OCaml, and Python. Deep knowledge of the C/POSIX runtime environment, dynamic linking and loading.
Research	Proficient with experimental design, survey design, interview scripting, structured and semi-structured interviewing, qualitative analysis, and user study design. Statistical analysis with SPSS (and similar) and R.
Other	Proficient knowledge of cognitive heuristics/biases, bias mitigation, and memory/learning. Broad knowledge of current literature in cognitive psychology, persuasion psychology, and persuasive (“nudge”) design.

Software

ACADEMIC

2015	<u>IntroClass Benchmarks</u> : A suite of 998 buggy programs designed for large-scale evaluation of automated program repair tools. Available at http://repairbenchmarks.cs.umass.edu/ .
2013	<u>Kitsune</u> : A practical, modern dynamic software updating framework for C. Available, including benchmarks, at http://kitsune-dsu.com
2011	<u>Ekiden</u> : A flexible system for dynamic software updating for C using state transfer.

PERSONAL

2012-Present	<u>Space</u> : a markup language front-end to spaced-repetition memory (SRM) systems, allowing users to generate a large number of cards optimized for recall. Integrates with the Anki SRM program. Built with OCaml and Python. Available at https://launchpad.net/space .
2010-2014	<u>Habit Tracker</u> : A simple desktop application to help people instill habits. Built with Python, pyGTK, Apache Couchdb, Ubuntu Desktop integration. Available at https://launchpad.net/habittrack .
Other	https://code.launchpad.net/~tedks https://github.com/tedks https://bitbucket.org/tedks

REFERENCES

Prof. Yuriy Brun, brun@cs.umass.edu, 413-577-0233
Prof. Michael Hicks, mwh@cs.umd.edu, 301-405-9800
Prof. Jeffrey Foster, jfoster@cs.umd.edu, 301-405-2751
Dr. Christian Bird, cbird@microsoft.com

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