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

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

Grants, honors & awards

ACM SIGSOFT CAPS recipient
Honorable Mention, NSF Graduate Research Fellowship

Publications & talks

CONFERENCE PAPERS

- Edward K. Smith, Christian Bird, Thomas Zimmermann. Build it yourself: Homegrown Tools at a Large Software Company. *ICSE 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.
- Christopher M. Hayden, <u>Edward K. Smith</u>, 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, <u>Edward K. Smith</u>, 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, <u>Edward K. Smith</u>, 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.
- Christopher M. Hayden, <u>Edward K. Smith</u>, 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

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

TALKS

- Build it yourself: Homegrown Tools at a Large Software Company. ICSE, 2015
- Kitsune: Efficient, General-purpose Dynamic Software Updating for C. OOPSLA, 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 environ-

ment, 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 anal-

ysis 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

IntroClass Benchmarks: A suite of 998 buggy programs designed for large-scale evaluation

 $of \ automated \ program \ repair \ tools. \ A vailable \ at \ http://repairbenchmarks.cs.umass.edu/.$

2013 <u>Kitsune</u>: A practical, modern dynamic software updating framework for C. Available, in-

cluding benchmarks, at http://kitsune-dsu.com

Ekiden: 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://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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