DAVID GRAY WIDDER

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PROFILE

I use qualitative and quantitative methods to help developers and their teams choose and use tools more effectively.

EDUCATION

Software Engineering PhD Student, School of Computer Science, Carnegie Mellon University
Aug 2017 – Present. Advisor: Bogdan Vasilescu. Collaborators: Michael Hilton, Christian Kästner.

BS Computer Science, Magna Cum Laude, Clark Honors College, University of Oregon, June 2017

RESEARCH PROJECTS

Continuous Integration Tool Choice
- Surveyed 144 developers (34% yield) to understand why GitHub communities change or abandon their CI system
- Built a novel mechanism to target developers most likely to have CI knowledge to gain rich insight into their decision
- Open card sorted survey responses in order to categorize tool issues for quantitative operationalization
- Conducted and open coded 12 purposively sampled interviews to deeply understand survey response categories
- Developed large scale repository mining scripts to understand what makes a community better suited to a given CI
- Built logistic regression models to understand which factors affect CI abandonment and switching at scale

Android and ROS Framework Usability Barriers
- Conducted 18 think aloud studies with 12 developers with a wide range of framework expertise
- Transcribed voiced thoughts and onscreen actions for further grounded theory analysis
- Iteratively coded transcripts to identify specific framework debugging barrier categories

Continuous Integration Tool Abandonment, presented at MSR 2018
- Collected existing and novel metrics from GitHub repositories to understand why some projects abandon CI
- Used logistic regression to model the effect of each metric on chances of projects abandoning CI

Understanding the Problems Scientific Programmers Face
- Conducted 11 breadth sampled interviews with scientific programmers to understand their unique coding challenges
- Built and analyzed pre-interview questionnaires in advance to enable more productive use of participant's limited time
- Thematically coded interview transcripts to understand programmers' barriers and the extent to which solutions exist

RESEARCH SKILLS

Qualitative Skills
- Designing and adapting qualitative methods to suit specific research questions
- Building targeted surveys, conducting semi-structured interviews, and think aloud studies
- Methodically conducting open coding, iterative coding, thematic coding, and card sorting

Quantitative Skills
- Engineering novel metrics to measure qualitatively witnessed phenomena
- Experience with the SQL-Python-R workflow to mine and analyze data at scale
- Data analysis using logistic and linear regression, interrupted time series, and social network analysis

SERVICE

Climate Committee Co Chair to improve department climate, inclusiveness, and diversity, CMU, 2018-Present
Undergraduate Research Mentor to two summer research undergraduates, CMU, 2018
Dean's SCS4ALL Committee to improve PhD student experience and social integration, CMU, 2017-Present
Admissions Committee for Research Experience for Undergrads in Software Engineering program, CMU, 2018
Sub-reviewer for Automated Software Engineering and Transactions on Software Engineering, CMU, 2018
Designed and taught an Intro to CS course for non majors, UO, 2015