Martin Kellogg

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Education

Expected June 2022	**University of Washington**, Seattle, WA Ph. D. in Computer Science and Engineering. Thesis title: *Lightweight Verification via Specialized Pluggable Typecheckers.* Advisor: Michael D. Ernst.
May 2016	**University of Virginia**, Charlottesville, VA BS in Computer Science, Minor in Classics Dean's List, Gpa: 3.81/4.00; Major Gpa: 3.95/4.00

Research Interests

I am interested in making verification practical. Verifying software is the only way to be certain that it is correct, but most current verification approaches scale poorly. My work focuses on pushing the boundary on what properties can practically be verified and on finding important problems that are well-suited for verification.

Publications and Awards

M. Kellogg, N. Shadab, M. Sridharan, M. D. Ernst. *Lightweight and Modular Resource Leak Verification.* Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2021.

M. Kellogg, M. Schäf, S. Tasiran, M. D. Ernst. *Continuous Compliance.* Automated Software Engineering (ASE), 2020.

M. Kellogg, M. Ran, M. Sridharan, M. Schäf, M. D. Ernst. *Verifying Object Construction.* International Conference on Software Engineering (ICSE), 2020.

M. Kellogg. *Compile-time Detection of Machine Image Sniping.* Student research competition, Automated Software Engineering (ASE), 2019 (gold medal winner, graduate category).

M. Kellogg, V. Dort, S. Millstein, and M. D. Ernst. *Lightweight Verification of Array Indexing.* International Symposium on Software Testing and Analysis (ISSTA), 2018.

NSF Graduate Research Fellowship, Honorable Mention, 2016.

M. Kellogg. *Combining Bug Detection and Test Case Generation.* Student research competition, Foundations of Software Engineering (FSE), 2016 (gold medal winner, undergraduate category; bronze medal winner, ACM SRC Grand Finals 2016 undergraduate category).

M. Kellogg, B. Floyd, S. Forrest, and W. Weimer. *Combining Bug Detection and Test Case Generation.* Technical report, https://www.cs.washington.edu/tr/2016/09/UW-CSE-16-09-01.pdf, 2016.

Service

External review committee member, OOPSLA 2022
Artifact evaluation committee member, PLDI 2020
Program committee member, testing tools track, ICST 2020
Artifact evaluation committee member, VMCAI 2020

Teaching Experience

TA experience:
UW CSE 503, Software Engineering (graduate), Winter 2020
UW CSE P590, Debugging and Testing (masters), Spring 2019
UW CSE 403, Software Engineering (undergraduate), Spring 2018 and Winter 2019
UW CSE 331, Software Design and Implementation (undergraduate), Winter 2018

UVa CS 4501, Language Design and Implementation (undergraduate), Spring 2016
UVa CS 2150, Program and Data Representation (undergraduate), Fall 2014, Spring 2015, Fall 2015, Spring 2016
UVa CS 4730, Computer Game Design (undergraduate), Spring 2014 and Summer 2015
UVa CS 1110, Introduction to Computer Science (undergraduate), Fall 2013

Work Experience

Jun 2016-Present	**Ph. D. Student at the University of Washington** I do research at the intersection of programming languages and software engineering. My work focuses on developing practical verification approaches for real problems. I also TA for several advanced courses in software engineering.
Jun 2020-Sep 2020	**Applied Scientist Intern at Amazon Web Services** Designed and prototyped a new analysis tool to track the flow of sensitive data through multiple Java applications.
Sep 2019-Dec 2019	**SDE Intern at Amazon Web Services** Built whole-program inference to run typecheckers on large codebases without manual intervention. Developed a typechecker for detecting malformed DynamoDB queries.
Jun 2018-Dec 2018	**SDE Intern at Amazon Web Services** Developed several typecheckers to address business needs, including one for proving that a service actually upheld a guarantee it gives to customers and another for proving that services are compliant with audit requirements. Both were deployed in production.
Jun 2017-Sep 2017	**SDE Intern at Amazon Web Services** Integrated the Checker Framework into Amazon's build tools, implemented an Amazon-specific checker to address a business need, and encouraged adoption within the company.
Aug 2014-May 2016	**Research Assistant at the University of Virginia** Prototyped N-Prog, a tool for bug detection and test case generation, while working in Professor Westley Weimer's research group; wrote a paper describing N-Prog.
May 2014-Aug 2014	**Intern Software Developer and Analyst at Intentional Software** Developed a touch-enabled menu, a touch gesture system, and a tutorial for introducing new employees to the Intentional ecosystem.
August 2013-May 2016	**Teaching Assistant at the University of Virginia** Ran labs, held office hours, and graded assignments and exams for Program and Data Representation, Game Design, and Introduction to CS.
Summers 2010-2013	**Programming Counselor at TIC Summer Camp** Taught LOGO, Java, C#, and KodeLlama to children aged 7–16.

Extracurricular Activities

UW CSE PhD admissions	Student Area Chair 2020-2021; Reader 2019
UAW 4121	Department steward, 2018-present
ACM International Collegiate Programming Contest	Co-coach, UW team, 2016-2018
ACM@UVa	Chair, 2015-2016; Social Chair, 2014-2015
UVa Student Game Developers	Vice President, 2014-2015; Treasurer, 2013-2014
ACM Internatonal Collegiate Programming Contest	Regional Finalist, 2014, 2015
UVa High School Programming Contest	Judge, 2014-2015, Site Coordinator, 2016