

Nikolas Havrikov

Curriculum Vitæ

Education

- Jul 2015 – Mar 2021 **PhD in Computer Science**, *Saarland University*, Saarbrücken.
“Efficient Fuzzing Leveraging Input, Code, and Execution”
- Apr 2013 – Jun 2015 **Master of Science**, *Saarland University*, Saarbrücken, GPA 3.7.
“Search-Based Fuzzing of Binaries”
- Oct 2009 – Apr 2013 **Bachelor of Science**, *Saarland University*, Saarbrücken, GPA 3.0.
“Generating XML for Search-Based Testing”

Master Thesis

- Title *Search-Based Fuzzing of Binaries*
- Supervisors Prof. Dr. Andreas Zeller and Prof. Dr. Christian Rossow
- Grade *A+*
- Description Implementation of an automated test input generator leveraging format description grammars, employing search-based algorithms, and utilizing guidance criteria designed for common vulnerability classes.

Work Experience

- May 2019 – Aug 2019 **Reliability Engineering Intern**, *Google Switzerland*, Zurich.
– designed and implemented a chaos testing tool aimed at improving reliability
– successfully integrated the approach into Google's Dataproc platform
- Feb 2014 – May 2015 **Software Developer**, *Testfabrik Consulting + Solutions AG*, Saarbrücken.
– developed tools for orchestration of virtual machines based on vCloud Director in Scala
– executed website crossbrowser compatibility tests with tool-support
– created Selenium-based functionality tests for websites
- Dec 2013 – Mar 2014 **Research Assistant**, *Saarland University*, Supervisor: Andreas Zeller.
– extended own work on *evolutionary XML test input generation*
– published a scientific paper at an international conference on software engineering
- Jun 2013 – Aug 2013 **Research Assistant**, *Saarland University*, Supervisor: Andreas Zeller.
– implemented a prototypical tool for finding input parsing defects in programs
– evaluated the prototype on relevant open source applications with success
- Apr 2012 – Oct 2012 **Tutor**, *Saarland University*, Software Engineering Lecture, Supervisor: Andreas Zeller.
– supervised three developer teams implementing software projects for university customers
– coordinated communication between team members, customers, and course organizers

Teaching

- Aug 2018 – Oct 2018 **Teaching Assistant**, *Software Lab*, Saarland University.
– adapted a programming task for groups of five undergraduate students
– supervised a team of eight tutors distributing responsibilities and adhoc tasks
– gave lectures on software engineering practices to a class of 150 students
- Oct 2017 – Feb 2018 **Teaching Assistant**, *Lecture “Security Testing”*, Saarland University.
– designed exercises for student projects
– supervised class of 20 students during implementation of exercises

- Mar 2017 – Apr 2017 **Teaching Assistant**, *Block Course “Security Testing”*, Saarland University.
- designed and deployed exercises for individual student projects
 - implemented reference solutions for the exercises
 - supervised students during implementation
- Aug 2016 – Oct 2016 **Teaching Assistant**, *Software Lab*, Saarland University.
- designed a programming task for groups of five to seven undergraduate students
 - supervised a team of seven tutors distributing responsibilities and adhoc tasks
 - gave lectures on software engineering practices to a class of 130 students
- Oct 2015 – Nov 2015 **Teaching Assistant**, *Seminar “Security Testing”*, Saarland University.
- managed submissions of student summaries
 - created tasks for student projects
- Apr 2015 – Sep 2015 **Teaching Assistant**, *Lecture “Programming for Engineers”*, Saarland University.
- supervised students during the exam
 - graded the exam together in a team of five tutors

Languages

Russian	native
Ukrainian	native
German	native
English	fluent (<i>UNlcert[®] Level III</i>)
French	basic
Latin	(intermediate Latin certificate)

Programming Languages

Most experienced with	Java, Kotlin, Scala, Python
Some experience with	C, C++, PHP
Dabbled in	Bash, JavaScript, Ruby, Delphi

Computer Skills

Build Tools	Gradle, Maven, sbt, ant
VCS	Git, Mercurial, SVN
Misc	vCloud Director, Selenium, \LaTeX

Activities

Leadership

- Jun 2016 – Sep 2019 **Board Member**, *Non-profit amateur theater association “Thunis e.V.”*.
- co-organized actor training
 - coordinated internal communication
 - managed and extended the IT infrastructure
- Mar 2017 **Organizer**, *Chair-Internal Reading Group*.
- Organized a reading group on good scientific practices to impart to students at the chair

Professional

- Mar 2017 and 2013 **Presenter**, *CeBIT expo*, Hannover, Germany.
- Jun 2016 **Artifact Evaluation Committee Member**, *ISSTA 2016*.

Hobbies

2013 – present **Director/Actor**, *Thunis*, Theater Association of Saarland University.
German plays “No Exit” by Jean-Paul Sartre, “Count Öderland” by Max Frisch, “Zusammengesetzt” (loosely “Composed”), “stückzahlen” (loosely “piece numbers”), “The Good Person of Szechwan” by Bertolt Brecht, Web Series “Dr. Security”

Publications

- [1] Rahul Gopinath, Alexander Kampmann, Nikolas Havrikov, Ezekiel O. Soremekun, and Andreas Zeller. Abstracting Failure-Inducing Inputs. In *Proceedings of the 29th ACM SIGSOFT International Symposium on Software Testing and Analysis, ISSTA 2020*. ACM, 2020.
- [2] Nikolas Havrikov. Efficient fuzz testing leveraging input, code, and execution. In *Proceedings of the 39th International Conference on Software Engineering Companion, ICSE-C '17*, pages 417–420, Piscataway, NJ, USA, 2017. IEEE Press.
- [3] Nikolas Havrikov, Alessio Gambi, Andreas Zeller, Andrea Arcuri, and Juan Pablo Galeotti. Generating unit tests with structured system interactions. In *Proceedings of the 12th International Workshop on Automation of Software Testing, AST '17*, pages 30–33, Piscataway, NJ, USA, 2017. IEEE Press.
- [4] Nikolas Havrikov, Matthias Höschle, Juan Pablo Galeotti, and Andreas Zeller. XML-Mate: Evolutionary XML test generation. In *Proceedings of the 22Nd ACM SIGSOFT International Symposium on Foundations of Software Engineering, FSE 2014*, pages 719–722, New York, NY, USA, 2014. ACM.
- [5] Nikolas Havrikov and Andreas Zeller. Systematically Covering Input Structure. In *Proceedings of the 34th ACM/IEEE International Conference on Automated Software Engineering, ASE 2019*, New York, NY, USA, 2019. ACM.
- [6] Alexander Kampmann, Nikolas Havrikov, Ezekiel Soremekun, and Andreas Zeller. When does my Program do this? Learning Circumstances of Software Behavior. In *Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering, ESEC/FSE 2020*, New York, NY, USA, 2020. ACM.
- [7] Esteban Pavese, Ezekiel O. Soremekun, Nikolas Havrikov, Lars Grunske, and Andreas Zeller. Inputs from hell: Generating uncommon inputs from common samples. *CoRR*, abs/1812.07525, 2018.
- [8] Ezekiel Soremekun, Esteban Pavese, Nikolas Havrikov, Lars Grunske, and Andreas Zeller. Inputs from Hell: Learning Input Distributions for Grammar-Based Test Generation. *Transaction on Software Engineering (TSE)*, 2020.