Nikolas Havrikov

Curriculum Vitæ

✉ nikolas.havrikov@cispa.saarland
🖰 havrikov.github.io

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	Implemented an automated test input generator leveraging format description grammars, employing search-based algorithms, and utilizing guidance criteria designed for common vulnerability classes.

Work Experience

Jun 2020 – Oct 2020	**Software Engineering Intern**, *Google Germany GmbH*, Munich.
	– extended the Google TV Compatibility Test Suite covering picture-in-picture functionality
	– contributed to the launch of the Duo app on Google TV
May 2019 – Aug 2019	**Reliability Engineering Intern**, *Google Switzerland GmbH*, Zürich.
	– designed and implemented a chaos testing tool for improving reliability of Google Cloud services
	– successfully integrated the approach into Google's Dataproc platform
Feb 2014 – May 2015	**Junior Software Engineer**, *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

Languages

English	native-level
German	native-level
Russian	native
Ukrainian	native
French	basic
Latin	(intermediate Latin certificate)

Programming Languages and Frameworks

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

Vocational

Mar 2017 and 2013	**Presenter**, *CeBIT expo*, Hannover, Germany.
Jun 2016	**Artifact Evaluation Committee Member**, *ISSTA 2016*.
2015 – 2021	**Academic Supervisor**, *Supervised eleven bachelor and master theses*.

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 Höschele, 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.