# 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 (*UNIcert® Level III*) |
| 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 Höschele, Juan Pablo Galeotti, and Andreas Zeller. XMLMate: 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] 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.