

Moeketsi Raselimo

Experienced Research Scientist & Engineer

Researcher and programmer interested in **automated software engineering**

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 [mraselimo](#) •  [moeketsi](#)

Employment

Berlin, DE Postdoctoral Researcher July '23 – Present

Software Engineering Group · Humboldt-Universität

- Lead research in automated software engineering, developing novel methods to improve the reliability, security, and trust of complex software systems.
- Review research papers and software for top-tier software engineering conferences.
- Lead the development of a prototype to find incomplete/bad bug fixes; used the tool to confirm such bad fixes in popular C open-source projects.
- Collaborate on a static analysis tool and paper to find precise bug descriptions.
- Teach advanced topics in automated software engineering such as automated test case generation and program analysis.
- Supervise and mentor graduate students.

Stellenbosch, ZA Extraordinary (Adjunct) Lecturer Sept. '24 – Present

Computer Science Department · Stellenbosch University

- Collaborate on a research prototype that learns the structure of the input space of software systems; useful for bug finding and program comprehension.
- Supervise and mentor graduate students.

Selected Projects

lexinfer

A prototypical software that learns the structure of the input space of black-box systems from a set of positive training examples. It found bugs and inconsistencies in popular open-source systems where these systems do not correctly implement the intended specification.



Languages: Python, C, Java, Dockerfile, Bash

idefuzz

An LLVM-based patch testing framework that leverages two powerful automated test generation techniques to identify bad fixes. Successfully confirmed bad fixes in popular C open-source libraries.

Languages: C++, C, Python, Bash, CMake, Dockerfile

gfixr

A configurable prototype that takes a faulty input space specification (e.g., grammar) and a testsuite, finds bugs in the specification via execution differences and automatically fixes those bugs.



Languages: Java, Python, Bash, Maven, Dockerfile

gtestr

A tool for compiler testing and other language-based systems that generates comprehensive test suites from language specifications. It produces both valid and invalid test programs and has successfully uncovered bugs in compilers such as gccgo.

Languages: Prolog, Java, Dockerfile

Education

Ph. D. Computer Science March '23

Stellenbosch University · Stellenbosch, South Africa

- **Specialization:** Program analysis and Testing · **Advisor:** Prof. Bernd Fischer
- **Dissertation:** *Fault Localization and Repair for Grammarware*

BSc (Hons) Computer Science
Stellenbosch University · Stellenbosch, South Africa

- Graduated Cum Laude










December '18

BSc Computer Science
Savitribhai Phule Pune University · Pune, India

- Graduated with Distinction

May '17

Selected Publications

- APR '25** **Which Inputs Trigger my Patch?** 
Martin Eberlein, **Moeketsi Raselimo**, Lars Grunske
- MSR '24** **P3: A dataset of Partial Program Patches** 
Dirk Beyer, Lars Grunske, Matthias Kettl, Marian Lingsch-Rosenfeld, **Moeketsi Raselimo**
- JSS '24** **Spectrum-based rule- and item-level localization of faults in context-free grammars** 
Moeketsi Raselimo, Bernd Fischer
- ATEST '23** **Static Test Case Prioritization Strategies for Grammar-Based Testing** 
Moeketsi Raselimo, Lars Grunske, Bernd Fischer
- SLE '21** **Automatic Grammar Repair** 
Moeketsi Raselimo, Bernd Fischer
- SLE '20** **Grammar-Based Testing for Little Languages: An experience report with student compilers** 
Phillip van Heerden, **Moeketsi Raselimo**, Kostis Sagonas, Bernd Fischer
- SLE '20** **An interactive feedback system for grammar development (tool paper)** 
Chelsea Barraball, **Moeketsi Raselimo**, Bernd Fischer
- SLE '19** **Breaking Parsers: mutation-based generation of programs with guaranteed syntax errors** 
Moeketsi Raselimo, Jan Taljaard, Bernd Fischer
[ACM Distinguished Paper Award](#)
- SLE '19** **Spectrum-Based Fault Localization for Context-Free Grammars** 
Moeketsi Raselimo, Bernd Fischer

Skills

- Core Expertise** Program analysis, Compiler testing, Specification inference, Fuzzing
- Programming Languages** Java (Expert), Python (Expert), C (Intermediate), C++ (Intermediate), Javascript (Intermediate), Kotlin (Intermediate)
- Frameworks & Tools** LLVM, Maven, Git, Sqlite, CMake, Docker, Pandas, Matplotlib, GitHub Actions
- Research Skills** Empirical Evaluation, Benchmarking, Data Analysis, Technical Writing
- Languages** English (C2), German (A2: Currently enrolled), Sesotho (Native)

Academic Service

- PC Member** ICSE '25, SLE '25, SLE '21
- Reviewer** ICSE '26, ASE '26, FSE '26, FASE '26, ICSE '24, ASE '24, FSE '24