

# BEATRIZ SOUZA

✉ beatrizbsouza@gmail.com • 🏠 <https://biabs1.github.io/>

## EDUCATION

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- APR 2023-now | **University of Stuttgart**, Germany  
PhD in Computer Science  
Advisor: Michael Pradel  
Research Area: AI4Code, Execution, Program Analysis
- OCT 2021-FEB 2023 | **Federal University of Pernambuco**, Brazil  
Master's in Computer Science  
Advisor: Marcelo d'Amorim  
Thesis: Learning to Detect Text-Code Inconsistencies with Weak and Manual Supervision
- MAY 2017-JUNE 2021 | **Federal University of Campina Grande**, Brazil  
Bachelor's in Computer Science  
Advisor: Rohit Gheyi  
Thesis: Most Higher Order Mutants are Useless for Method Level Operators
- MAY 2013-SEPT 2016 | **Federal Institute of Education, Science and Technology of Paraíba**, Brazil  
High School with a Technical Degree in Computer Science  
Advisor: Gustavo Vieira

## WORK EXPERIENCE

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- 2026  
(JUNE-AUG) | **Microsoft Research**, Redmond, WA, USA - APPLIED SCIENCES INTERN  
Mentor: Ashish Tiwari - PROSE  
Project: *TBD*
- 2024  
(APR-JULY) | **Microsoft Research**, Redmond, WA, USA - RESEARCH INTERN  
Mentor: Suman Nath - Cloud Systems Reliability  
Project: *runtime monitoring* of distributed systems.
- 2022  
(JULY-DEC) | **Software Lab**, Stuttgart, Germany - RESEARCH INTERN  
Advisor: Michael Pradel  
Project: *LExecutor*, a learning-guided approach for executing arbitrary code.
- MAY 2020-FEB 2021 | **Analytics Lab**, Campina Grande, Brazil - SOFTWARE DEVELOPER  
Mentors: João Brunet and Nazareno Andrade  
Projects: *Tá de Pé?* and *Monitor Cidadão*, web applications to identify risks in contracts.
- NOV 2019-OCT 2020 | **UFCEG**, Campina Grande, Brazil - RESEARCH ASSISTANT  
Advisor: Rohit Gheyi  
Project: Identifying useless mutants using Z3.
- AUG 2018-JULY 2019 | **SPLAB**, Campina Grande, Brazil - RESEARCH ASSISTANT  
Advisor: Patrícia Machado  
Project: Investigating the effectiveness of automated test generators.
- JULY 2016-SEPT 2016 | **Papagaio**, João Pessoa, Brazil - WEB DEVELOPER INTERN  
Mentor: Gustavo Vieira  
Project: Development of an e-commerce platform.
- AUG 2015-JULY 2016 | **IFPB**, Cajazeiras, Brazil - RESEARCH ASSISTANT  
Advisors: Gustavo Vieira and Wilza Moreira  
Project: *Segundo Mendel*, a mobile application to learn genetic concepts.

## SERVICE

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- Student volunteer: ASE 2020 and ICSE 2026.

- PREPRINT'26 **FlyCatcher: Neural Inference of Runtime Checkers from Tests.**  
Beatriz Souza, Chang Lou, Suman Nath, Michael Pradel.
- ICSE'25 **Treefix: Enabling Execution with a Tree of Prefixes.**  
Beatriz Souza and Michael Pradel.  
*International Conference on Software Engineering*
- FSE'25 **ChangeGuard: Validating Code Changes via Pairwise Learning-Guided Execution.**  
Lars Gröninger, Beatriz Souza and Michael Pradel.  
*Symposium on the Foundations of Software Engineering*
- FSE'23 **LExecutor: Learning-Guided Execution.**  
Beatriz Souza and Michael Pradel.  
*Symposium on the Foundations of Software Engineering*
- PREPRINT'22 **Code Generation Tools (Almost) for Free?  
A Study of Few-Shot, Pre-Trained Language Models on Code.**  
Patrick Bareiß, Beatriz Souza, Marcelo d'Amorim, Michael Pradel.
- IST'21 **Identifying Method-Level Mutation Subsumption Relations using Z3.**  
Rohit Gheyi, Márcio Ribeiro, Beatriz Souza, Marcio Guimarães, Leo Fernandes, Marcelo d'Amorim,  
Vander Alves, Leopoldo Teixeira, Balduino Fonseca.  
*Elsevier Information and Software Technology*
- SBES'20 **A Large Scale Study On the Effectiveness of Manual and Automatic Unit Test Generation.**  
Beatriz Souza and Patrícia Machado.  
*Brazilian Symposium on Software Engineering*
- SBES'20 **A Lightweight Technique to Identify Equivalent Mutants.**  
Beatriz Souza and Rohit Gheyi.  
*Brazilian Symposium on Software Engineering*
- ASE'20 **Identifying Mutation Subsumption Relations.**  
Beatriz Souza.  
*International Conference on Automated Software Engineering*
- SPLASH'19 **Is Mutation Score a Fair Metric?.**  
Beatriz Souza.  
*International Conference on Systems, Programming, Languages, and Applications: Software for Humanity*

AWARDS AND HONORS

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- Selected for the 12th Heidelberg Laureate Forum as a young researcher.
- ACM SIGSOFT Distinguished Paper Award at The Symposium on the Foundations of Software Engineering (FSE'23) for the work *LExecutor: Learning-Guided Execution*.
- Best paper at The Brazilian Symposium on Software Engineering (SBES'20) for the work *A Large Scale Study On the Effectiveness of Manual and Automatic Unit Test Generation*.
- First Place at The Undergraduate Research on Software Engineering Competition (SBES'20) for the work *A Lightweight Technique to Identify Equivalent Mutants*.
- Third Place at The ACM Student Research Competition (ASE'20) for the work *Identifying Mutation Subsumption Relations*.
- Third Place at The ACM Student Research Competition (SPLASH'19) for the work *Is Mutation Score a Fair Metric?.*

## MENTORING

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### Bachelor theses

- Aleksis Vezenkov. Performance-Improving Refactorings for Python. 2025

### Master theses

- Lars Gröninger. Reasoning about Code Changes via Pairwise Learning-Guided Execution. 2024

## TEACHING EXPERIENCE

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APR 2025-SEPT 2025	<b>Teaching assistant</b> at SOLA, Stuttgart, Germany
OCT 2024-MAR 2025	Programming Paradigms - I created and graded exercise lists and addressed
APR 2023-SEPT 2023	questions for a class of 80+ students.
MAR 2018-AUG 2018	<b>Teaching assistant</b> at UFCG, Campina Grande, Brazil
	Mathematical Foundations for Computer Science - I helped professor by grad-
	ing exercise lists and addressing questions for a class of 46 students.
JULY 2015-DEC 2015	<b>Teaching assistant</b> at IFPB, Cajazeiras, Brazil
	Competitive Programming - I collaborated in a course to prepare high school
	and undergraduate students for programming contests using C as program-
	ming language.

## TALKS

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### Keep Running: Towards AI-Assisted Approaches for Enabling and Monitoring Program Execution

- Max Planck Institute for Software Systems. September, 2025.
- 12th Heidelberg Laureate Forum. September, 2025.

### Learning-Guided Execution

- ELLIS Unit Stuttgart. July, 2025
- Microsoft Research Redmond. May, 2024