

**Bernardo Borges**

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**Bernardo Borges**

October 7, 2024

Dear PROFESSOR,

My name is Bernardo Borges, and I am writing to express my interest in pursuing a PhD opportunity at UNIVERSITY under your esteemed guidance. I have been working as a researcher under Professor Haniel Barbosa at Universidade Federal de Minas Gerais, Brazil, in my graduation in Computer Science. I have been working in the field of Formal Methods applied to his research in Satisfiability Modulo Theories, what prompted me to learn Lean 4 and use it to formalize proof steps to be used in the cvc5 tool. In general I am interested in Functional Programming, Type Theory and Verification, as well as logic.

Given your work related to Lean, I am motivated to explore the possibility of contributing and learning from your research group. I would be grateful if you could provide information on any available PhD positions within your group or any upcoming opportunities to collaborate. Additionally, I would appreciate any guidance on the application process and requirements for prospective PhD candidates.

Thank you very much for considering my inquiry. I look forward to the possibility of discussing this further.

Best regards,

**Bernardo Borges**

# Bernardo Borges

## Curriculum Vitae

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### Personal Details

Birth 2000/04/04, Patos de Minas - MG, Brazil  
Nationality Brazillian

### Work Experience

2023-2024 **Research Assistant**, *Universidade Federal de Minas Gerais*  
Research on Lean 4 and Theorem Proving

2021-2023 **Web and Mobile Developer**, *iJunior - Junior Enterprise*  
Application development and engineering for real clients, from sales and conception to delivery and support.

### Projects

2024 **Formalization of Cutting Planes Reasoning**, *smite - UFMG*, Belo Horizonte  
Lean 4 library to model the foundational concepts of cutting planes calculus, verifying the correctness of its rules.

### Language Skills

Portuguese	Native	<i>Born and raised in Minas Gerais - Brazil</i>
English	Fluent	<i>Engaged for 7 years in English Courses, reaching C1 level and Contact with native speakers through exchange program contacts</i>
German	Fluent	<i>Attained both theoretical and practical language skills through AFS Exchange Program in NRW-Germany, active participation in conversation groups, and accomplishment of the B2 Certificate by OnSet.</i>

### Other Abilities and Interests

- Functional Programming
- Category Theory and Type Theory
- Verification and Formal Methods
- Programming Languages: Haskell, Lean 4, Rust, TypeScript, C++, C, Python