

# Rafael Castro Gonçalves Silva

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## *Cover Letter*

To whom it may concern.

I am a working computer scientist and a developer. I will talk a bit about myself and what my academic interests are.

I am pursuing a PhD at the University of Copenhagen since early 2022, and my research is about the formal verification of stream processing systems.

Since my Bachelor studies, I have learned about technologies that improve the trustworthiness of software. My journey started with Automata Theory, went through robust static type systems, and moved towards proof assistants.

As I learned about proof assistants like Coq and Isabelle, and languages with dependend types like Agda and Idris, I became very excited about those technologies, and about what people were doing with them. Eventually, I decided that I wanted to contribute for development of formally verified software that can actually be used in the real world. This pursuit started in my masters, where I have used Coq to verify a type inference algorithm, and now continues in my PhD research using Isabelle/HOL.

After I finished my masters I ended up working in the software industry as most people do. I was lucky enough to find a very interesting project to be part of, being brief: it was a stream processing system that had to maintain the eventual consistency of materialized views. This end-up being a good coincidence for the PhD opportunity that I found later.

At the moment, I am seeking this opportunity to learn more about the Isabelle Refinement Framework, and working with Prof. Peter Lammich, as something that can bring new frontiers and perspectives for my PhD work.

Best regards, Rafael.