Rodrigo Mesquita

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EDUCATION

MSc. Computer Science and Engineering   2018 - Today
NOVA School of Science and Technology   Lisboa, Portugal

RESEARCH

Typechecking Linearity in Core   Oct. 2022 - Today
NOVA School of Science and Technology   Lisboa, Portugal

> The master thesis I'm working on concerns itself with typechecking linearity in Core such that optimizing transformations don't break syntatic linearity (which they currently do), and implementing it on GHC

Synthesis Of Linear Functional Programs   Mar. 2021 - Jul. 2021
NOVA School of Science and Technology   Lisboa, Portugal

> I had the opportunity to be advised by Prof. Dr. Bernardo Toninho in writing this work, which was awarded the highest grade

WORK EXPERIENCE

NOVA School of Science and Technology   Sept. 2022 - Jan. 2023
Teaching assistant   Lisbon, Portugal

- Teaching the practical course of Introduction to Programming in Python

Glasgow Haskell Compiler   Feb. 2022 - Today
Contributor   Online, GHC

- Making the Haskell AST GHC-independent following *Trees that Grow* by Simon P.J. and Shayan Najd.
- Drafting *e-graphs* specialized to equality saturation for use in the pattern-match checker.

Universität Koblenz   Jun. 2022 - Aug. 2022
Research assistant, guest lecturer   Koblenz, Germany

- Writing two modules to extend the course *Introduction to Functional Programming*.
- Giving a guest lecture on the added modules.

Connektor   Feb. 2022 - Mar. 2022
Software developer (half-time)   Lisboa, Portugal

- Development of app to manage PATS (*technical assistance requests in Portuguese*)

Cult of Bits   Nov. 2021 - Feb. 2022
Software developer (internship)   Lisboa, Portugal

- Created a dashboard system for *Efficio Consulting*
- Wrote a Haskell interface to the CoB platform

Biofix   Sep. 2020 - May 2021
Software developer (half-time)   Lisboa, Portugal

- Development of a web-app for a salesforce to track their interactions.

RELEVANT PROJECTS

Ghengin Shader centric, vulkan-based Haskell game engine, (ab)using fir (by Sam Derbyshire)	2022 - 2023
Hegg Haskell e-graphs and equality saturation based on egg (POPL 2021)	2022
GHC Linear Synthesis A GHC plugin for synthesizing programs using bottom-up proof search in linear logic with focusing	2022
C compiler which compiles C to LLVM; written in C	2022
Gameboy emulator which runs Tetris and passes the initial standard CPU and MBC1 support tests; written in C	2021
CHIP-8 emulator that runs on a gameboy, written directly in gameboy assembly (RGBASM)	2021

RELEVANT EVENTS

ZuriHac – a Haskell Hackathon where I got to chat and discuss ideas with brilliant people	2022