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Pedro da Costa Abreu Jr.

"Nullius in verba"

Education

2018– **Programming Languages PhD Student**, *Purdue University*, IN, Advised by Dr. Benjamin Delaware.

2011–2017 **Bachelor Degree in Computer Science**, *University Of Brasilia (UnB)*, Brasilia.

Honours Thesis

Title *Mechanization and Overhaul of Feature Featherweight Java using Coq*

Supervisor Rodrigo Bonifácio

Description In this work, we detail design decisions related to our process of first specifying *Featherweight Java* in Coq and then evolving such a specification to prove the safety of the type system an overhaul version of *Feature Featherweight Java*—a core-calculus for a family of languages that address variability management in highly configurable systems, such as software product lines.

Experience

Vocational

Summer 2019 **Intern**, *Amazon/RTI/ElectionGuard Team*, Galois, Portland.
Specifying and proving safety property of real world software using SAW-Script. And also a little of Coq specification for a voting protocol (it was an intense summer).

2018/1 **Intern**, *Kami Team*, SiFive, San Mateo.
On proving the correctness of the Floating Point Unit used by the RiscV processor, using Coq.

2017 **Researcher**, *Finatec & Brazilian Army*, Unb, Brasilia.
Modelling of the Army distribution system, using Alloy.

2015–2017 **Intern**, *Tribunal de Contas da União*, Brasilia.
Development and maintenance of different kinds of tests, such as integration, end to end, component, performance, *etc.*

Summer 2014 **Intern**, *Trustworthy Systems*, NICTA, Sydney.
On the Verification of file systems using Isabelle.

2013–2014 **Scientific Initiation**, *CIC/UNB Formal Reasoning Group*, UnB, Brasilia.
Researched how to extend the rewrite tactics on Coq for a formalization of the lambda calculus with explicit substitutions.

Miscellaneous

2018/2 **Algebraic Effects**.
On the formalization of algebraic effects and the freer monad in Coq `https://github.com/jwiegley/refine-freer`

2016/2 **Java Virtual Machine**, *UnB*.
Lead a team of 5 to develop a fully working JVM for bytecode generated with javac 5, `https://github.com/pedrotst/JVM`

2014–2015 **Exchange**, *University of Sydney*, Sydney.
Fully funded by CNPq via the Science Without Borders program to study one year at USyd.

Languages

Portuguese	**Mother Tongue**
English	**Fluent**
Spanish	**Intermediate Understanding, Basic Speech**
French	**Basic**
Esperanto	**Advanced**

Computer skills

Programming Language	C/C++, Java, Python, Haskell, Coq, Isabelle
Familiar With	C#, SML/NJ, Java Bytecode, Alloy
Web	HTML, Javascript, Typescript, Angular2
Test Frameworks	Jasmine, Protractor, Concordion, JMeter, WebDriver
IDE	Vim, Spacemacs, Intellij Idea, Eclipse
VCS	Git

Attended Conferences

- Deepspec Summer School 2018, Princeton, United States
- PLMW at POPL 2017 (Funded by ACM), Los Angeles, United States
- ITP 2017, Brasilia, Brazil
- OPLSS 2017 (Funded by Finatec and OPLSS), Portland, United States
- SBMF 2016 (Funded by UnB), Natal, Brazil
- CBSoft 2013 (Worked as Staff), Brasilia, Brazil

References

- Benjamin Delaware, Purdue – bendy@purdue.edu
- Muralidaran Vijayaraghavan, SiFive – vmurali@sifive
- Rodrigo Bonifácio, UnB – rbonifacio@cic.unb.br