

Pedro da Costa Abreu Júnior

Brasília, Brasil
✉ pdacost@purdue.edu
📁 [pedroabreu0.github.io](https://github.com/pedroabreu0)

"Nullius in verba"

Education

- 2018–2024 **MS in Computer Science**, *Purdue University*, IN, Advised by Dr. Benjamin Delaware.
Translating GADTs from OCaml to Coq
- 2011–2017 **Bachelor Degree in Computer Science**, *University Of Brasilia (UnB)*, Brasilia.
Honours Advised by Dr. Rodrigo Bonifácio

Experience

Publications

- POPL'23 **A Type-Based Approach to Divide-and-Conquer Recursion in Coq**, Abreu, Pedro and Delaware, Benjamin and Hubers, Alex and Jenkins, Christa and Morris, J. Garrett and Stump, Aaron, <https://dl.acm.org/doi/abs/10.1145/3571196>.

Vocational

- Winter of 2023 **Researcher**, *Pruvendo*, Remote.
Designed a specification of the communication mechanism between multiple Smart Contracts for the EverScale blockchain platform.
- Summer 2020 **Intern**, *coq-of-ocaml*, Nomadic Labs, Paris/Remote.
Translating GADTs from OCaml to Coq, some details on [this blog post](#).
- 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.
- 2018/1 **Intern**, *Kami Team*, SiFive, San Mateo.
On proving the correctness of the Floating Point Unit used by the RiscV processor, using Coq.
- 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.

Miscellaneous

- 2020 – **Type Theory Forall Podcast**, *Host*.
The [Type Theory Forall Podcast](#) has the mission to make Type Theory research and related topics more accessible to a wider audience not necessarily from academia.
- 2019 – 2020 **Coquedille**, *Purdue*.
Translating the Intrinsic Type Theory of Coq to the Extrinsic Type Theory of Cedille
<https://github.com/pedrotst/coquedille>

- 2017/1 **Head of TAs**, *Introduction to Computer Science*, UnB.
In charge for the selection and management of the teaching assistant body for the discipline of Introduction to Computer Science, consisting of 36 tutors.
- 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.

Awards

- 2019 **ACM Graduate Teaching Assistant Award**, Purdue.
I was awarded by the Purdue ACM Chapter as the best Graduate TA in the department for the academic year of 2019, working under the supervision of Jeff Turkstra for the class CS240: Programming in C

Languages

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

Computer skills

- Programming Language C/C++, Java, Python, Haskell, OCaml, Coq, Isabelle, Cedille
- Familiar With Java Bytecode, Alloy, SAW, Dafny, LLVM

Attended Conferences

- Present Poster at POPL 2020, New Orleans, United States
- 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 (Student Volunteer), Brasilia, Brazil

References

- Benjamin Delaware, Purdue – bendy@purdue.edu
- Jeffrey Turkstra, Purdue – jeff@purdue.edu
- Rodrigo Bonifácio, UnB – rbonifacio@cic.unb.br