# Pedro Ferrazoli Ciambra

*Computer Engineer*

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## ACADEMIA

Advisor: Prof. Hervé Yviquel    *2022*

### Co-optimizing Dataflow Graphs and Actors with MLIR

**Objective**: Use graph and implementation data together when optimizing dataflow
**Challenge**: Current solutions are difficult to integrate with modern IR tools
**Solution**: New compiler that uses MLIR to facilitate integration with current projects.
*Submitted to SiPS22 (review pending)*

Advisor: Prof. Fábio Luiz Usberti    *2018*

### Graduation Thesis

**Objective**: *An implementation of the Greedy Heuristic algorithms for the Maximal Blood Collection Problem*
**Challenge**: Bad performance of existing solution
**Solution**: Pure C++ implementation, orders of magnitude of improvement in performance

Advisor: Prof. Diego Aranha    *2015-2016*

### Cryptography for IoT

**Objective**: Implementation of state-of-the-art cryptographic algorithms for ARM
**Challenge**: Exsisting implementations' poor performance and vulnerability to side-channel attacks
**Solution**: Development techniques for robust and optimized C code

Advisor: Prof. Vlado Kesselj    *2015*

### Research Assistant

**Objective**: A web-based calendar application
**Challenge**: Flexible input recognition
**Solution**: Parsing and processing of english text and rendering of complex tables with Perl

Advisor: Prof. André Santanchè    *2013-2014*

### Cellular Automata applied to Education

**Objective**: Web-based graphical simulation
**Challenge**: Lack of formal Cellular Automata rule description language
**Solution**: Creation of model and use of JS + HTML5 for custom UI and simulation runtime

## EDUCATION

MSc in Computer Science    *2020-2022*
### University of Campinas (UNICAMP)

Specializing in Compilers, LLVM/MLIR, Dataflow

BSc in Computer Engineering    *2012-2018*
### University of Campinas (UNICAMP)

Attended Game Jams: GGJ (every year), Meeting Jam (local, was part of the staff), LibreJam
Game development student club
Competitive programming classes and tournaments

International Exchange    *2014-2015*
### Dalhousie University

Science Without Borders scholarship program
Atlantic ACM programming contest
NorthSec 2015 (cybersecurity CTF competition)

## WORK EXPERIENCE

Javary Co.    *2018-2019*
### Software Developer

Mobile games startup
Focus on the Godot Game Engine
GDScript, C++, Java, Objective-C++
Team leadership and organization
Responsible for UX-UI and tools development

Kryptus Cybersecurity    *2017*
### Software Development Intern

Cybersecurity and cryptography firm
Full stack (down to UEFI extension code)
Emphasis in C and x86 assembly
Reverse engineered legacy hardware
Documented findings
Refitted legacy code
Product was put back on sale

## LANGUAGES & SKILLS

**Brazilian Portuguese**: Native
**English**: Fluent (1 year residence, TOEFL iBT)
**French**: Intermediate
**Design**: Diagramming freelance jobs. Experience with Adobe suite, AutoCAD, Blender, Inkscape, Krita
**Programming**: Unix/Bash (6 years), C/C++ (5 years), Python (4 years), JavaScript (1 year), ML Toolkits (TensorFlow, PyTorch) (6 months), Java, C# (2 years), Django (6 months), Objective-C (6 months), Rust (1 year), LLVM/MLIR (1 year)