Pedro Henrique Di Francia Rosso

Campinas – São Paulo – Brasil
pedrohrosso@gmail.com • phrosso • PedrooHR

Professional Summary

Researcher specializing in High-Performance Computing (HPC) with a focus on FPGA acceleration and distributed programming models. Experience in software development, parallel computing, accelerated computing, and fault tolerance for HPC clusters.

Experience

Computer Systems Laboratory, Unicamp **Campinas, Brazil**
Ph.D. Fellow *2021–Present*
Research on abstractions for FPGA acceleration using OpenMP.
- Achieved up to 41% reduction in programming effort for distributed applications [Publication 1].

Research Labs, Advanced Micro Devices (AMD) **Dublin, Ireland**
Research Intern *2023*
Integrated Ph.D. research with AMD's FPGA networking tools (ACCL).
- Demonstrated up to 41.5% improvement in bandwidth usage after integrating ACCL [Publication 1].

Heuristics Analysis and Learning Laboratory, UFABC **São Paulo, Brazil**
M.Sc. Fellow *2019–2021*
Developed implementation-independent fault tolerance tools for MPI.
- Achieved up to 30% message reduction during Fault Tolerance broadcasts [Publication 3].

Robotics and Automation Laboratory, UFSC **Araranguá, Brazil**
Undergraduate Researcher *2017–2018*
Developed a wearable electromyography device for outdoor measurements with wireless sensor networks.

Education

Unicamp **Campinas, Brazil**
Ph.D. in Computer Science *2021–Present*
Title: Integrating Multi-FPGA Acceleration to OpenMP Distributed Computing.
FAPESP Fellow (Grant No. 2021/09355-2).

UFABC **São Paulo, Brazil**
M.Sc. in Computer Science *2019–2021*
Title: OCFTL: An MPI Implementation-Independent Fault Tolerance Library for Task-Based Applications.
Finalist for Best Thesis Award (WSCAD-CTD 2021).

UFSC **Araranguá, Brazil**
B.Sc. in Computer Engineering *2014–2018*
Title: Elastic Maps Based Image Recoloring for Dichromats.
Awarded Best Academic Performance (CREA-SC and UFSC, GPA: 9.04/10).

Technical Skills

Programming Languages: C/C++, Python, Shell, Verilog, OpenMP, MPI, CUDA, HLS.

Tools: Git, Docker, Linux, Visual Studio Code, LaTeX, SSH.

Expertise: Parallel and Distributed Computing, HPC, FPGA Acceleration, Fault Tolerance.

Selected Publications

[1]: **P. H. Rosso**, L. Petrica, N. J. Lisa, et al. *Integrating Multi-FPGA Acceleration to OpenMP Distributed Computing*. IWOMP 2024.

[2]: **H. Yviquel**, M. Pereira, E. Francesquini, et al. *The OpenMP cluster programming model*. ICPP 2022.

[3]: **P. H. Rosso**, E. Francesquini. *OCFTL: An MPI Implementation-Independent Fault Tolerance Library*. CARLA 2021.

For a complete list of publications, please visit my Google Scholar profile.

Awards and Recognitions

2019: **Best Academic Performance** (UFSC & CREA-SC): Top student in Computer Engineering.

2020/2021: **Honorable Mentions** (ERAD-SP): Best graduate papers.

Additional Activities

Tutorials:

- **2023:** Hands-on workshop on distributed FPGA acceleration using OpenMP (XII INFIERI School, Brazil).
- **2024:** Introduction to distributed FPGA acceleration (XVI Santos Dumont Summer School, remote).