

# The OpenMP Cluster (OMPC)

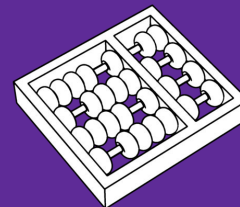
Accelerating scientific applications using FPGAs

Sandro Rigo, Hervé Yviquel, Marcio Pereira & The OMPC Team

[srigo@unicamp.br](mailto:srigo@unicamp.br) [hyviquel@gmail.com](mailto:hyviquel@gmail.com) [mpereira@ic.unicamp.br](mailto:mpereira@ic.unicamp.br)  
[ompcluster@gmail.com](mailto:ompcluster@gmail.com)

*University of Campinas (Unicamp)*  
*Institute of Computing (IC)*

INFIERI • August/September 2023



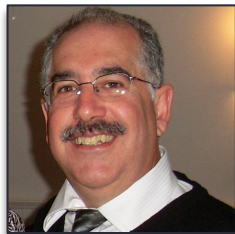
UNICAMP



## Sandro Rigo

*Associate Professor at Institute of Computing - UNICAMP*

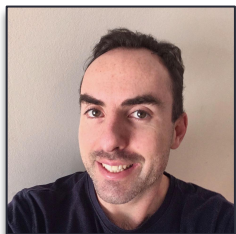
Member of the Computer Systems Laboratory (LSC). Interested in several aspects of computer systems design. Like high-performance computing, edge computing and IoT, code generation, distributed training of AI models, approximate computing, etc



## Marcio M Pereira

*Researcher at Institute of Computing - UNICAMP*

Member of the Computer Systems Laboratory (LSC). Interested in several aspects of computer systems design, like high-performance computing, Neuromorphic compilers, LLVM code generation and code parallelization, distributed training of AI models, concurrent computing, etc.



## Hervé Yviquel

*Assistant Professor at Institute of Computing - UNICAMP*

Member of the Computer Systems Laboratory (LSC). Interested in many aspects of parallel computing and computer systems design. Like high-performance computing, programming models, runtime and compilers.



## Pedro Henrique Rosso

*PhD student at Institute of Computing - UNICAMP*

Member of the Computer Systems Laboratory (LSC). Interested in many aspects of Parallel, Distributed and Accelerated computing. Like HPC, FPGA acceleration, Fault Tolerance, etc.



[linkedin.com/company/lsc-unicamp](https://www.linkedin.com/company/lsc-unicamp)



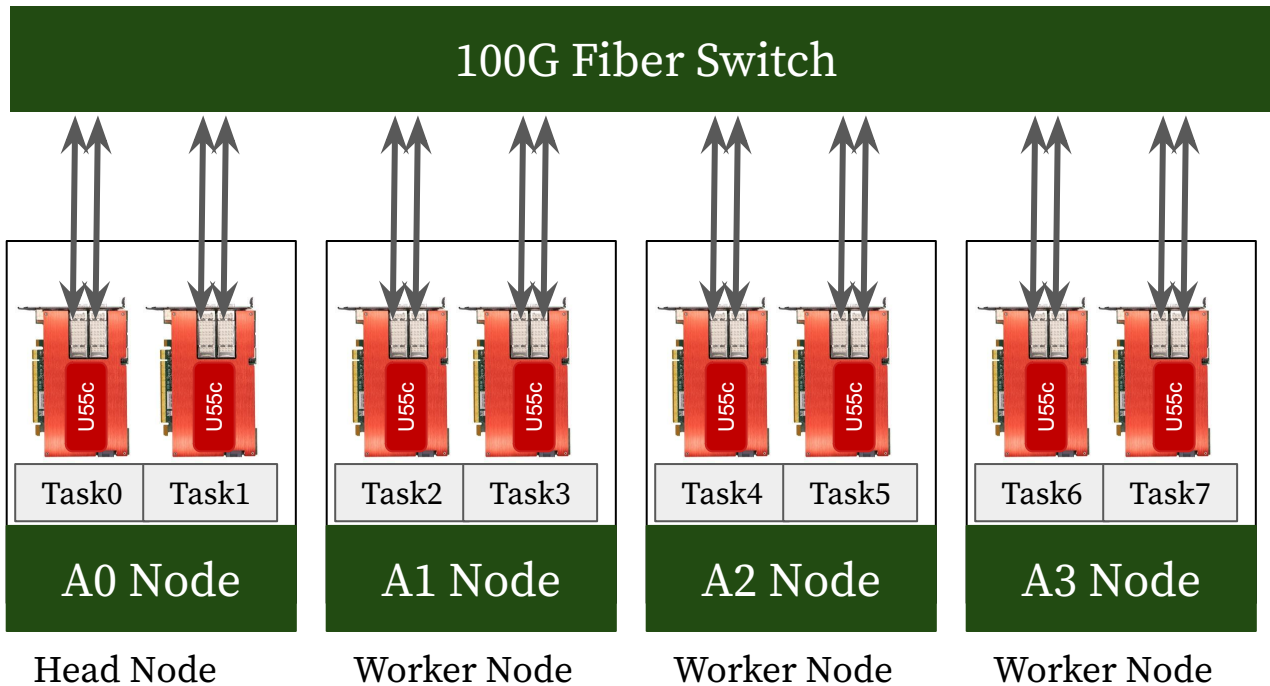
- You don't need to be a HW specialist to be able to use FPGAs as accelerators in scientific applications
- Programming models are very useful to support the use of heterogeneous systems like clusters including accelerators such as FPGAs, GPUs, TPUs, etc.

# What you are going to learn ...

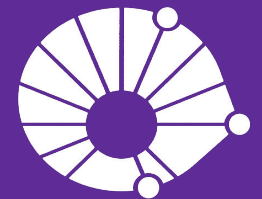
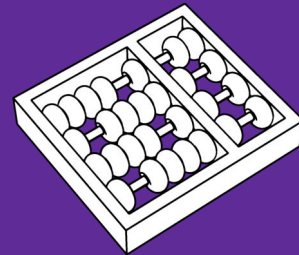
- Introduction to OpenMP
  - OMPC Programming model
  - Execution flow
  - FPGA Integration
  - Hands-on labs
-

# The A-Cluster (FPGA accelerated cluster)

Where you are going to run your labs ...



# Thank you!



UNICAMP