Pedro Bruel | Researcher & Software Engineer

Performance Tuning & Modeling • Optimal Experimental Design

2b Rue Charles Gounod, 38000 Grenoble, France +33 07 68 33 24 38
pedro.bruel@gmail.com ime.usp.br/~phrb pedro-bruel phrb

Experience

2017 – May 2020 **PhD Researcher**
Grenoble Informatics Laboratory
University of Grenoble Alpes, France
Developing Design of Experiments Techniques for autotuning High-Performance Computing kernels and compilers on CPUs, GPUs and FPGAs

2015 – May 2020 **PhD Researcher**
Software Systems Laboratory
University of São Paulo, Brazil
Developed autotuners for High-Level Synthesis compilers for FPGAs and for the CUDA Compiler using Search Heuristics

2015 – 2016 **PhD Research Collaborator**
Hewllett-Packard Enterprise
University of São Paulo, Brazil
Developed an autotuner for the LegUp High-Level Synthesis compiler for Altera FPGAs

2012 – 2014 **Research Intern**
Computer Music Research Group
University of São Paulo, Brazil
Maintained and developed a multiagent system for music composition via agent interaction

Education

2015 – 2020 **PhD in Computer Science**
University of Grenoble Alpes, France
University of São Paulo, Brazil
High-Performance Computing, Autotuning, Design of Experiments, Search Heuristics, Data Analysis

2010 – 2014 **BsC in Molecular Sciences**
University of São Paulo, Brazil
Multiagent Systems, Digital Signal Processing

Selected Publications

Bruel, P., Goldman, A., Chalamalasetti, S.R. and Milojicic, D., **2017**. *Autotuning high-level synthesis for FPGAs using OpenTuner and LegUp*. In ReConFigurable Computing and FPGAs (ReConFig), 2017 International Conference on (pp. 1-6). IEEE.

Bruel, P., Chalamalasetti, S.R., Dalton, C., El Hajj, I., Goldman, A., Graves, C., Hwu, W.M., Laplante, P., Milojicic, D., Ndu, G. and Strachan, J.P., **2017**. *Generalize or Die: Operating Systems Support for Memristor-based Accelerators*. In 2017 IEEE International Conference on Rebooting Computing (ICRC) (pp. 1-8). IEEE.

Bruel, P., Amarís, M. and Goldman, A., **2017**. *Autotuning CUDA compiler parameters for heterogeneous applications using the OpenTuner framework*. Concurrency and Computation: Practice and Experience, 29(22), p.e3973.

Bruel, P., Meirelles, P., Cobe, R., Goldman, A., **2017**. *OpenMP or Pthreads: Which is Better for Beginners?*. In 8th Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU).

Gonçalves, R., Amaris, M., Okada, T., **Bruel, P.** and Goldman, A., **2016**. *Openmp is not as Easy as it Appears*. In System Sciences (HICSS), 2016 49th Hawaii International Conference on (pp. 5742-5751). IEEE.

Bruel, P. and Queiroz, M., **2014**. *A Protocol for creating Multiagent Systems in Ensemble with Pure Data*. In International Computer Music Conference (ICMC).

Languages

Portuguese	Native
English	*CEFR C2*
French	*CEFR B2*
Spanish	*CEFR A2*

Skills

Performance Tuning
Stochastic Search Heuristics
Design of Experiments
Optimal Experimental Design
Performance Modeling
Data Science

Software Engineering
Python Julia R Bash
C/C++ OpenMP MPI
CUDA C Java

Tools and Infrastructure
GNU/Linux Git Grid5000
GCE/AWS Automated Testing
Continous Integration LaTeX