Nicolas Derumigny

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Education

2019-2023 **Ph.D**, *Université Grenoble-Alpes, Colorado State University*, Computer science
Development of single-core CPU models from automated micro-architecture benchmarking.
Development of a compiler framework targeting resource sharing oportunities for FPGA HLS.

2017-2018 **Master**, *Université de Versailles Saint-Quentin-en-Yvelines*, High Performance Computing
Software Design for Scientists, Manycore Systems Programming, Advanced Compilation, Performance Evaluation of systems, Machine Learning and data Science, Code optimization for HPC Systems, Introduction to Numerical Programming, Introduction to accelerator programming, Introduction to Biological Models, Introduction to the Continuous Material Models, Introduction to Molecular Simulation

2016-2017 **Master**, *ENS de Lyon*, Computer Science
Parallel and Distributed Algorithms, Information Theory, Compilation and Analysis of Programs, Performance Evaluation of Networks, Proofs of Programs, Distributed Systems, Databases, Machine Learning

2015-2016 **License**, *ENS de Lyon*, Computer Science
Language theory, Turing Machines and Automatons, Mathematical Logic, Probability, Computer and Network Architecture, Projects, Algorithm Design/Complexity/Implementation

2013-2015 **Preparatory School**, *Lycée Louis-le-Grand*, Mathematics, Physics, Chemistry
Preparatory class for entrance to graduate schools
○ 146th to ENS Lyon Competitive Examination
○ 26th to Centrale Paris Competitive Examination

2013 **Baccalauréat S (A-Levels in Science)**, *Lycée Marie Curie (Sceaux)*
Summa cum laude distinction

Publications

2023 **Kernel Merging for Throughput-Oriented Accelerator Generation**, *Nicolas Derumigny, Louis-Noël Pouchet and Fabrice Rastello*, IMPACT'23

2022 **PALMED: Throughput Characterization for Superscalar Architectures**, *Nicolas Derumigny, Théophile Bastian, Fabian Gruber, Guillaume Iooss, Christophe Guillon, Louis-Noël Pouchet, Fabrice Rastello*, CGO'22

2020 **The gem5 Simulator: Version 20.0+**, *ArXiv*

Experience

Summer 2023 **Software Engineer**, *AMD*, Development of program analysis tools in the High Level Synthesis framework.

2022 **Artifact Evaluator**, *ACM SIGPLAN 2022 International Conference on Compiler Construction*

Sept. 2020 - January 2021	**Teaching Assistant**, *Université Grenoble-Alpes* INF301 course: Basic algorithm and programming.
Sept. 2019 - January 2020	**Teaching Assistant**, *Université Grenoble-Alpes* INF301 course: Basic algorithm and programming.
May 2019 - August 2019	**Intern**, *INRIA Grenoble* Continue the development of an abstract CPU simulator built as a plug-in of QEMU.
Oct. 2018 - April 2019	**Intern**, *Colorado State University* Design a source-to-source compiler pass to express and exploit resource-sharing opportunity on FPGAs when using High-Level Synthesis.
Spring 2018 - Summer 2018	**Intern**, *Télécom SudParis* Helping the implementation of a performance-based hypervisor to handle NUMA topology instead scattered optimizations in the Linux kernel, under the directory of Gaël Thomas.
Sept. 2017 - Jan. 2023	**Redactor**, *comptoir-hardware.com* Write daily articles on the hardware news. Covered the Intel Architecture Days (2018, 2020, 2021), and the (2019, 2022) visits of Intel Fab in Israel
Summer 2017	**Summer Intern**, *University of Murcia* Adaptation of a software prefetching heuristic to Transactional Memory subsystem using Intel's TSX extensions with an LLVM module, under the directory of Alexandra Jimborean
Summer 2016	**Summer Intern**, *Université de Versailles Saint-Quentin-en-Yvelines* Heterogeneous Micro-architectural adaptation of Codelets using gem5 and CERE, under the directory of Pablo de Oliveira ○ Contribution to the gem5 simulator (*http://www.gem5.org*)

Languages

French	Mother Language	
English	Fluent	*CAE C1 Level*
German	Basics	

Computer skills

Programming Languages	C, C++, Vivado HLS, Python, Bash, PHP/HTML/SQL, Erlang
Mathematical Languages	Latex, R, Caml
Other Skills	Linux, git, LLVM

Interests

Music	Played the trombone and the violin for more than fifteen years; orchestra practice.
Tabletop RPG	Organize and lead monthly meetings with a team.