

Louis Ledoux

Curriculum Vitae

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“Post Hoc Ergo Propter Hoc”

Research Interests

- Computer Architecture Floating-Point Unit, Systolic Arrays, GPUs, FPGAs
- Computer Arithmetic Number Representations, Application-Specific circuits, FloPoCo, Posit & IEEE754, Kulisch Accumulator, accuracy and energy budgeting
- High Performance Computing BLAS, Dense Matrix-Matrix Multiplications, Heterogeneous Workloads, Numerical Analysis, Supercomputing

Education

2018

PhD Student, *Universitat Politècnica de Catalunya (UPC)*, Barcelona
Completing the PhD in Computer Arithmetic

- ddd
- DDD

2015
2018

Engineering School, *ESIR*, Université de Rennes

Three years to obtain the engineer diploma certified by the CTI (Comité des Titres d'Ingénieurs) and a Master (Magister) in computer sciences

- ddd
- DDD

2013
2015

Classe Préparatoire, *CUPGE ESIR*, Université de Rennes

- 6/23 first year
- 7/22 second year

Experience

2018

Researcher, *Barcelona Supercomputing Center (BSC)*, Barcelona
researching..

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- **Keywords:** FPGA, Arith, ASIC

2017
2018

FPGA as a Service Engineer, *b⟨⟩com*, Rennes

- Coop student known as professionalization contract in French for my last study's year. One year of R&D about Acceleration on FPGA on the cloud.
- **Keywords:** SDAccel, OpenCL, Xilinx FPGA (ultrascale vu9p), VHDL, SystemVerilog, AWS F1 instances, linux driver, linux kernel, PCIe, C++1x, C, DMA, AaaS (Acceleration as a Service).

July 2017

Back End Developer, WaryMe, Rennes

Summer Internship...

- Development of all the back end of a people security application.
- **Keywords:** NodeJS, sqlite3, git, c++, C, Angular, TypeScript, https, let's encrypt, pm2, nginx, AWS, jenkins.

July 2016

Back End Developer, ASKIA, Paris 10ème

Summer Internship...

- Development of a CLI tool which allows automated publication of surveys on well known platforms like Github or Zendesk.
- **Keywords:** NodeJS, http, api rest, git, test driven development, asynchronous programming, jasmine framework, mocks.

July 2014

Electronics Technician, Radio Electronique Rennaise (R.E.R), Rennes

Summer Internship...

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- **Keywords:**

Peer-reviewed Conference Papers

- [LC23a] **L. Ledoux** and M. Casas, "An Open-Source Framework for Efficient Numerically-Tailored Computations," in 2023 33rd International Conference on Field-Programmable Logic and Applications (FPL), Sep. 2023, pp. 19–26. *doi: 10.1109/FPL60245.2023.00011*
- [LC22] **L. Ledoux** and M. Casas, "A Generator of Numerically-Tailored and High-Throughput Accelerators for Batched GEMMs," in 2022 IEEE 30th Annual International Symposium on Field-Programmable Custom Computing Machines (FCCM), May 2022, pp. 1–10. *doi: 10.1109/FCCM53951.2022.9786164*

Poster Presentations

- [LC24b] **L. Ledoux** and M. Casas, "LLMMMM: Large Language Models Matrix-Matrix Multiplications Characterization on Open Silicon" in 2024 11th BSCSymposium, May 2024, *Available online soon.*
- [LC24a] **L. Ledoux** and M. Casas, "The Grafted Superset Approach: Bridging Python to Silicon with Asynchronous Compilation and Beyond" in 2024 4th Workshop on Open-Source Design Automation (OSDA), hosted at the International Conference on Design, Automation and Test in Europe Conference (DATE), March 25, 2024, at Palacio De Congresos Valencia (Valencia Conference Centre - VCC), Valencia, Spain. *Available online soon.*
- [LC23b] **L. Ledoux** and M. Casas, "Open-Source GEMM Hardware Kernels Generator: Toward Numerically-Tailored Computations" in 2023 10th BSCSymposium, May 2023, *Available: <https://arxiv.org/abs/2305.18328>*

Invited Talks

- [LC19] **L. Ledoux** and M. Casas, "Accelerating DL inference with (Open)CAPI and posit numbers," in OpenPOWER summit 2019, Lyon, France: linux foundation, Oct. 2019. *Available: <https://hal.science/hal-04094850>*

Languages

- French Native
- Spanish Native *(with an honest french accent)*
- English Full Proficiency

Skills

category 1 XX

category 2 YY

category 1 XX

category 1 XX

Programming Java, Python, C++

Languages English, Spanish

category 2 YY

category 2 YY