

Bérenger Bramas

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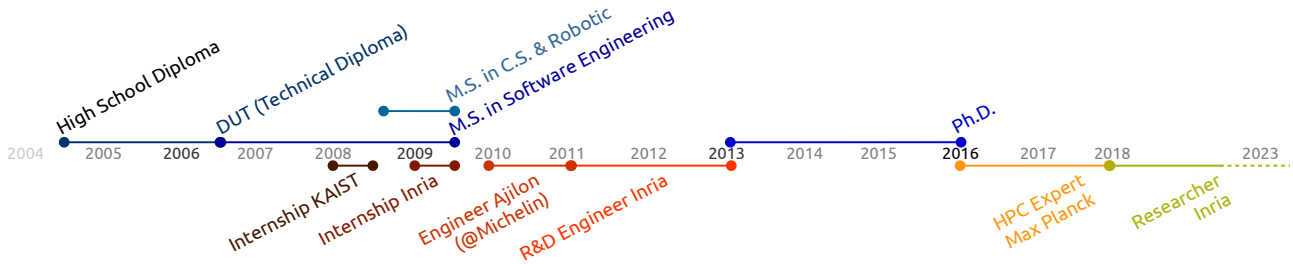
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Aged 38 - French citizenship

Married, three children

Research Scientist

Overview



[Education] [Experiences] [Languages] [Projects] [Skills] [Publications] [Software] [Teaching]

Education

- 2016 Ph.D. in Computer Science, Bordeaux University & Inria, Bordeaux, France.
In partnership with Airbus Group. Title: Optimization and Parallelization of the Boundary Element Method for the Wave Equation in the Time Domain. Committee: George Biros, Olivier Coulaud, Pascal Havé, Stephane Lanteri, Raymond Namyst, Guillaume Sylvand, Isabelle Terrasse, and Richard Vuduc.
- 2009 Master's Degree in Software Engineering (*Diplôme d'Ingénieur option Génie Logiciel*) - ISIMA (Computer Science Engineering College), Clermont-Ferrand, France, Class Rank: 4/28.
- 2009 Master's Degree in Computer Science and Robotics (Research Specialization) (*Master Recherche en Informatique option Modèles, Systèmes, Imagerie, Robotique*) - Blaise Pascal University, Clermont-Ferrand, France.
- 2006 D.U.T. (Two-Year Technical University Degree) in Computer Science and Embedded Systems, University of Auvergne, Clermont-Ferrand, France, Class Rank: 2/31.

Professional Experience

2018 – Present **Permanent Research Scientist.** Inria, Strasbourg, France

Conducting research with significant implementation work in areas such as compilation (automatic parallelization and vectorization), HPC, C++, CUDA, scheduling, and parallel runtime systems.

2016 – 2018 **Postdoctoral HPC Expert.** Max Planck Computing and Data Facility (MPCDF), Garching, Germany

Research and development on a protein simulation application in collaboration with the Theoretical Biophysics team at MPI Frankfurt, involving HPC (MPI, OpenMP), C++, molecular dynamics, and Monte Carlo methods. Developed a turbulence simulation application in partnership with the Theory of Turbulent Flows team at MPI Göttingen, Using HPC (MPI, OpenMP), C++, FFTW/HDF5, and particle tracing.

2011 – 2012 (2 years) **R&D Software Engineer.** Inria, HiePACS Team, Bordeaux, France

Worked on ScalFMM, a state-of-the-art parallel FMM library allowing customization of parallel algorithms and underlying mathematical kernels. Designed advanced parallelization strategies for shared and distributed memory systems, and a runtime-based FMM with accelerators (extended during the Ph.D.). Using HPC, parallel programming (MPI, OpenMP), GPU, C/C++, and StarPU.

2010 (9 months) **Software Engineer.** Ajilon, Consulting at Michelin R&D Department, Ladoux, France

Designed and implemented a GUI application interfacing with a tire simulation library. Using C++, Qt, and Windows.

2009 (6 months) **Startup Founder**

Initiated a startup to develop an efficient and highly optimized AI library. The project was not fully realized.

2009 (6 months) **Intern – Machine Learning and Sound/Image Processing.** Inria, FLOWERS Team, Bordeaux, France

Conducted research and development to teach object recognition to a humanoid robot (sound/image associations). Sound processing involved spectral transformation (RASTA-PLP), while image processing used extraction algorithms and local descriptors/features. Using C++, Qt, Matlab, OpenCV, OpenSURF, and Windows.

2008 (5 months) **Intern – Software Tools for Robotics.** TCL (Telerobotics and Control Laboratory), KAIST (Korea Advanced Institute of Science and Technology), Daejeon, South Korea.

Designed a sound system to enhance emotional expression in human-robot interaction. Developed a network-controlled GUI application for remotely playing sound. Using C++, Qt, Linux, and Avr.

Languages

French Native speaker
English Fluent

Projects

AUTOSPEC ANR JCJC – 2021/2025. Coordinator.
TEXTAROSSA EuroHPC – 2021/2024. Responsible for WP4. <https://textarossa.eu>
MICROCARD EuroHPC – 2021/2024. <http://microcard.eu>
TEexas Inria exploratory project – 2021/2023, [Project Overview]

Skills

Programming Languages C++, C, Matlab, Assembly, CUDA/Hip, SYCL, (Python)
Methodologies Parallel & High-Performance Computing, Object-Oriented Programming, GPUs, Image Processing, Deep Learning (implementation)
IDE/Tools MPI, OpenMP, VTune, DDT/GDB, CMake, Git/Gitlab, Qt, OpenCV, vectorization, BLAS/LAPACK/SCALAPACK, FFTW, cuBLAS/cuDNN, HDF5, Docker

Publications

View the list online berenger.eu or Google Scholar.

Software

View the list online berenger.eu.

Teaching

- 2019 – Ongoing Compilation and Performance, Master 2 in Scientific Computing (CSMI), Université de Strasbourg.
- 2018 – Ongoing Compilation, Master 1 in Computer Science, Université de Strasbourg.

Responsibilities

- Inria Nancy CDT Member of the Technological Development Committee at Inria Nancy since 2024.
- Inria Nancy IES Member of the Information and Scientific Publishing Commission at Inria Nancy since 2020.
- SC Transverse Axis Head of the ICube Scientific Computing Transverse Axis.
- Reviewer Review more than 10 articles each year for several journals (ACM TACO, PeerJ, SPE, ...).