Alexis Bandet

Computer Scientist – Research engineer

Professional experience

Oct. 2021 – Sept. 2024 **PhD Student**, *Inria Bordeaux*, Talence, France

- I/O monitoring and characterization for next-generation High Performance Computing applications.
- Specialization in I/O flows within supercomputers.
  - Techniques for temporal characterization of I/O within a periodic application.
  - I/O resource sharing model over shared resources.
  - Characterization of applications in terms of I/O interference to understand congestion phenomena.
  - Use and understanding of I/O monitoring tools, such as Darshan and Recorder.
- Development of a shared resource simulator in Python, to test various resource scheduling algorithms.
- Setting up automated scripts to launch experimentation protocols with bash and slurm.

Feb. 2021 – Aug. 2021 **Data Scientist Intern**, *CDiscount*, Bordeaux, France

- Customer segmentation for the CDiscount online retailer's advertising platform.
  - Development in python 3 and SQL.
  - Implementation of machine learning algorithms, clustering and feature analysis.
  - SQL data management in a Big Data context.
- Setting up new KPIs and reports with Microsoft PowerBi.
- Automated workflow management and optimization of Snowflake SQL database.

Jun. 2020 Jul. 2020 **Research intern**, *Inria Bordeaux*, Talence, France

- Energy performance model on GPU for StarPU heterogeneous Runtime.
- Measuring power consumption on graphics boards and CPUs with system counter and wattmeter.

Education

2021 – Now **PhD Thesis**, *University of Bordeaux*, Talence

2016 – 2021 **Master's degree in supercomputing and data science**, *ENSEIRB-MATMECA - University of Bordeaux*, graduated top of the class with honors

2014 – 2016 **Law degree**, *University of Bordeaux*

Teaching

2021 – 2024 **Computeur architecture**, *University of Bordeaux*

2022 – 2023 **Programming project**, *University of Bordeaux*, Talence

Skills

Programming **C/C++, Python, Bash, TeX, SQL**

Tools **Slurm, CMake, Git, Autotools, PowerBI, BigData, AI, Machine Learning**

Libraries **CUDA, Keras, OpenMP, MPI, Matplotlib, Searborn, Plotly**

Languages **French (Native), English (C1)**

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Miscellaneous

2020 **Creation of a y86+HCL runtime environment**
Development of a Front End execution environment for Y86 and HCL. Currently used for the L2 Computer Architecture course at University of Bordeaux.

2022 – 2024 **JLESC's Ambassador for Inria**
Joint **L**aboratory for **E**xtreme **S**cale **C**omputing (JLESC) is an international organization whose goal is to enhance the ability of member organizations and investigators to make the bridge between Petascale and Extreme computing. The founding partners of the JLESC are INRIA and UIUC. Further members are ANL, BSC, JSC and R-CCS. UTK is a research member. Members include American, Japanese and European research laboratories.

2022 – 2024 **Elected member of the Board of the Doctoral School of Mathematics and Computer Science**, Bordeaux, France
Doctoral students' representative to the doctoral school.

Driver Licence

Talks

2023 **On Temporal I/O Behavior Characterization: Predicting I/O Phases Using Frequency Techniques**, *JLESC, 15th edition*, Bordeaux, France

2022 **Sharing I/O nodes between applications**, *JLESC, 14th edition*, Urbana, United States

Sharing I/O nodes between applications, *Argonne National Laboratory - Team seminar*, Chicago, United States

Partage noeuds E/S entre applications, *Confrence francophone d'informatique en Paralllisme, Architecture et Systme, 7th edition*, Amiens, France

Partage des noeuds E/S entre applications , *Performance and Scalability of Storage Systems, 6th edition*, Paris, France

Formations

2023 **Group dynamics outside teaching**, 6 hours

Introduction to statistical tests, *by Emmanuel Jeannot*, 12 hours

2022 **Software and personal data law**, *by François Pellegrini*, 12 hours

2021 **Scikit - learn , the machine learning toolbox**, *Inria Academie*, 19 hours

Publications

Alexis Bandet, Francieli Boito, and Guillaume Pallez. I/o scheduling on a distributed i/o layer. *preprint*, 2023.

Ahmad Tarraf, Alexis Bandet, Francieli Boito, Guillaume Pallez, and Felix Wolf. Ftio: Detecting i/o periodicity using frequency techniques. *arXiv preprint arXiv:2306.08601*, 2023.

Hobbies

Making **3D print and modeling with FreeCad. Also some electronic.**

Sports **Cycling, running, swimming (but not triathlon, yet)**

Photography

Video Games

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