Lucas Perotin, Postdoctoral Researcher

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Professional Experience

2024 – present **Postdoctoral Researcher, Vanderbilt University**, Computer Science.
Online scheduling algorithms on various task graph models.

2020 – 2023 **Ph.D. Student, ENS de Lyon**, Computer Science.
Scheduling algorithms to optimize performance, energy consumption, and robustness of HPC applications. Advisors: Anne Benoit and Yves Robert.

Jan – Jul 2020 **Research Internship**, Computer Science.
Scheduling task graphs with multiple resource types. Supervisor: Hongyang Sun.

May – Jul 2018 **Research Internship**, Computer Science.
Generating musical scores using deep learning. Supervisor: François Pachet.

Education

2016 – 2020 **ENS de Lyon**, Computer Science Program.
Includes: **Bachelor's degree** in Computer Science (*with highest honors*, 2017), **Master's degree** in Computer Science (*with honors*, 2020), **Bachelor's degree** in Musicology (*with satisfactory honors*, 2019).

2014 – 2016 **Preparatory Classes**, Lycée Saint Louis, in Mathematics and Physics.

2014 **Scientific Baccalaureate** (*with highest honors*).

Publications

Journals

1. A. Benoit, T. Herault, L. Perotin, Y. Robert, and F. Vivien, "Revisiting i/o bandwidth-sharing strategies for hpc applications," *Journal of Parallel and Distributed Computing*, vol. 188, p. 104 863, 2024, ISSN: 0743-7315. DOI: https://doi.org/10.1016/j.jpdc.2024.104863.
2. A. Benoit, L. Perotin, Y. Robert, and F. Vivien, "Checkpointing strategies to tolerate non-memoryless failures on hpc platforms," *ACM Trans. Parallel Comput.*, vol. 11, no. 1, Mar. 2024, ISSN: 2329-4949. DOI: 10.1145/3624560.
3. L. Perotin, S. Kandaswamy, H. Sun, and P. Raghavan, "Multi-resource scheduling of moldable workflows," *Journal of Parallel and Distributed Computing*, vol. 184, p. 104 792, 2024, ISSN: 0743-7315. DOI: https://doi.org/10.1016/j.jpdc.2023.104792.
4. L. Perotin and H. Sun, "Improved online scheduling of moldable task graphs under common speedup models," vol. 11, no. 1, Mar. 2024, ISSN: 2329-4949. DOI: 10.1145/3630052.
5. A. Benoit, V. Le Fèvre, L. Perotin, P. Raghavan, Y. Robert, and H. Sun, "Resilient scheduling of moldable parallel jobs to cope with silent errors," *IEEE Transactions on Computers*, vol. 71, no. 7, pp. 1696–1710, 2022. DOI: 10.1109/TC.2021.3104747.
6. A. Benoit, L. Perotin, Y. Robert, and H. Sun, "Checkpointing workflows à la young/daly is not good enough," *ACM Trans. Parallel Comput.*, vol. 9, no. 4, Dec. 2022, ISSN: 2329-4949. DOI: 10.1145/3548607.

Conferences

1. L. Perotin, H. Sun, and P. Raghavan, "A new algorithm for online scheduling of rigid task graphs with near-optimal competitive ratio," in *SPAA'25: ACM Symposium on Parallelism in Algorithms and Architectures*, 2025.
2. A. Benoit, L. Perotin, Y. Robert, and H. Sun, "Online scheduling of moldable task graphs under common speedup models," in *Proceedings of the 51st International Conference on Parallel Processing*, ser. ICPP '22, Bordeaux, France: Association for Computing Machinery, 2023, ISBN: 9781450397339. DOI: 10.1145/3545008.3545049.
3. A. Benoit, Y. Du, T. Herault, *et al.*, "Checkpointing à la young/daly: An overview," in *Proceedings of the 2022 Fourteenth International Conference on Contemporary Computing*, ser. IC3-2022, Noida, India: Association for Computing Machinery, 2022, pp. 701–710, ISBN: 9781450396752. DOI: 10.1145/3549206.3549328.
4. L. Perotin, H. Sun, and P. Raghavan, "Multi-resource list scheduling of moldable parallel jobs under precedence constraints," in *Proceedings of the 50th International Conference on Parallel Processing*, ser. ICPP '21, Lemont, IL, USA: Association for Computing Machinery, 2021, ISBN: 9781450390682. DOI: 10.1145/3472456.3472487.
5. A. Benoit, V. L. Fèvre, L. Perotin, P. Raghavan, Y. Robert, and H. Sun, "Resilient scheduling of moldable jobs on failure-prone platforms," in *2020 IEEE International Conference on Cluster Computing (CLUSTER)*, 2020, pp. 81–91. DOI: 10.1109/CLUSTER49012.2020.00018.

Workshops

1. A. Benoit, L. Perotin, Y. Robert, and F. Vivien, "Checkpointing strategies for a fixed-length execution," in *SC24-W: Workshops of the International Conference for High Performance Computing, Networking, Storage and Analysis*, 2024, pp. 508–518. DOI: 10.1109/SCW63240.2024.00072.
2. L. Perotin, C. Zhang, R. Wijayawardana, A. Benoit, Y. Robert, and A. Chien, "Risk-aware scheduling algorithms for variable capacity resources," in *Proceedings of the SC '23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis*, ser. SC-W '23, Denver, CO, USA: Association for Computing Machinery, 2023, pp. 1306–1315. DOI: 10.1145/3624062.3624194.

Skills

Languages	**French**, native; **English**, fluent, CAE certificate (189/210); **Spanish**, basic knowledge.
Programming	`Python`, `C++`, `OCaml`, LaTeX, …
Music	Piano (advanced level), Drums, Guitar, Composition, Production
Sports	Freeride skiing, Judo, Tennis, Rock climbing, …

Awards and Achievements

2022 **Best Paper Award**, at the 51st International Conference on Parallel Processing (ICPP '22)