Loïc Pottier

PhD in Computer Science

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French Nationality

Employments

2020 – **Computer Scientist**, *University of Southern California*, Los Angeles, USA. I am working within the Science Automation Technologies group led by Dr Ewa Deelman at the Information Science Institute, University of Southern California. I am working on scientific workflows management (scheduling and data management) for large-scale infrastructures, with a strong focus on HPC systems and machine learning workloads.

2019 – 2020 **Postdoctoral scholar – Research Associate**, *University of Southern California*, Los Angeles, USA. I have been working under the supervision of Dr Ewa Deelman in the Science Automation Technologies group at the Information Science Institute, University of Southern California. I have been working on scientific workflows management (scheduling and data management) for large-scale infrastructures, with a strong focus on HPC system.

2015 – 2018 **Teaching Assistant in Computer Science**, *École Normale Supérieure de Lyon and University of Lyon*. I have been a teaching assistant for 3 years during my PhD. See below for the list of classes.

2015 – 2018 **PhD in Computer Science**, *LIP laboratory – École Normale Supérieure de Lyon*. "Co-scheduling for large-scale applications: memory and resilience", under the supervision of Anne Benoit and Yves Robert in the ROMA team, defended on September 18, 2018

2016 (3 months) **Research intern**, *Argonne National Laboratory*, Chicago, USA. I have been working with Swann Perarnau on scheduling and data management problems for the new many-core architectures that exhibit new memory hierarchies, such as Xeon Phi Knights Landing.

Education

2015 – 2018 **PhD in Computer Science**, *LIP laboratory – École Normale Supérieure de Lyon*. Advisors: Anne Benoit and Yves Robert, defended on September 18, 2018

2013 – 2015 **Master of Science**, *University of Versailles, with High Honors («Bien»)* . Major in Computer Science, specialized in High Performance Computing

2010 – 2013 **Bachelor of Science**, *University of Lower Normandy, with Honors («Assez Bien»)* . Major in Computer Science

2010 **High school diploma**, Caen, Lower Normandy, *with Honors («Assez Bien »)*. Major in Science, minor in Mathematics

Publications – authors are listed in alphabetical order when publications are prefixed by *

Thesis

[T1] Loïc Pottier. "Co-scheduling for large-scale applications : memory and resilience". PhD thesis. Université de Lyon, Sept. 2018.

Book Chapters

[*B1] G. Aupy, A. Benoit, L. Pottier, P. Raghavan, Y. Robert, and M. Shantharam. "Co-scheduling high-performance computing applications". In: *Big Data Management and Processing*. Ed. by K.-C. Li, H. Jiang, and A. Zomaya. Chapman and Hall/CRC Press, 2017. Chap. 5. ISBN: 9781351650045.

Articles in International Refereed Journals

[J1] T. M. A. Do, L. Pottier, S. Caíno-Lores, R. Ferreira da Silva, M. A. Cuendet, H. Weinstein, T. Estrada, M. Taufer, and E. Deelman. "A Lightweight Method for Evaluating In Situ Workflow Efficiency". In: *Journal of Computational Science* (2020). Funding Acknowledgments: NSF 1741040, DOE DE-SC0012636. DOI: 10.1016/j.jocs.2020.101259.

[*J2] G. Aupy, A. Benoit, B. Goglin, L. Pottier, and Y. Robert. "Co-scheduling HPC workloads on cache-partitioned CMP platforms". In: *International Journal of High Performance Computing Applications* (Apr. 2019). DOI: 10.1177/1094342019846956.

[*J3] G. Aupy, A. Benoit, S. Dai, L. Pottier, P. Raghavan, Y. Robert, and M. Shantharam. "Co-scheduling Amdahl applications on cache-partitioned systems". In: *International Journal of High Performance Computing and Applications* (2017). DOI: 10.1177/1094342017710806.

[*J4] A. Benoit, L. Pottier, and Y. Robert. "Resilient co-scheduling of malleable applications". In: *International Journal of High Performance Computing and Applications* (2017). DOI: 10.1177/1094342017704979.

Articles in International Refereed Conferences

[C1] T. M. A. Do, L. Pottier, S. Thomas, R. Ferreira da Silva, M. A. Cuendet, H. Weinstein, T. Estrada, M. Taufer, and E. Deelman. "A Novel Metric to Evaluate In Situ Workflows". In: *International Conference on Computational Science (ICCS)*. Funding Acknowledgments: NSF 1741040. 2020, pp. 538–553. DOI: 10.1007/978-3-030-50371-0_40.

[C2] L. Pottier, R. Ferreira da Silva, H. Casanova, and E. Deelman. "Modeling the Performance of Scientific Workflow Executions on HPC Platforms with Burst Buffers". In: *2020 IEEE International Conference on Cluster Computing (CLUSTER)*. Funding Acknowledgments: DOE DE-SC0012636, NSF 1664162, NSF 1741040, NSF 1923539, NSF 1923621. 2020, pp. 92–103. DOI: 10.1109/CLUSTER49012.2020.00019.

[C3] E. Deelman et al. "Cyberinfrastructure Center of Excellence Pilot: Connecting Large Facilities Cyberinfrastructure". In: *15th International Conference on eScience (eScience)*. Funding Acknowledgments: NSF 1842042. San Diego, CA, USA, 2019.

[C4] S. Thomas, M. Wyatt, T. M. A. Do, L. Pottier, R. Ferreira da Silva, H. Weinstein, M. A. Cuendet, T. Estrada, E. Deelman, and M. Taufer. "Characterization of In Situ and In Transit Analytics of Molecular Dynamics Simulations for Next-generation Supercomputers". In: *15th International Conference on eScience (eScience)*. Funding Acknowledgments: NSF 1741040. 2019, pp. 188–198. DOI: 10.1109/eScience.2019.00027.

[*C5] G. Aupy, A. Benoit, B. Goglin, L. Pottier, and Y. Robert. "Co-scheduling HPC workloads on cache-partitioned CMP platforms". In: *IEEE International Conference on Cluster Computing, CLUSTER 2018, Belfast, UK, September 10-13*. IEEE. Sept. 2018. DOI: 10.1109/CLUSTER.2018.00052.

[*C6] A. Benoit, S. Perarnau, L. Pottier, and Y. Robert. "A performance model to execute workflows on high-bandwidth-memory architectures". In: *47th International Conference on Parallel Processing, ICPP 2018, Eugene, USA, August 13-16*. Aug. 2018. DOI: 10.1145/3225058.3225110.

[*C7] A. Benoit, L. Pottier, and Y. Robert. "Resilient application co-scheduling with processor redistribution". In: *45th International Conference on Parallel Processing, ICPP 2016, Philadelphia, USA, August 16-19*. Aug. 2016. DOI: 10.1109/ICPP.2016.21.

Articles in International Refereed Workshops

[W1] R. Ferreira da Silva, L. Pottier, T. Coleman, E. Deelman, and H. Casanova. "WorkflowHub: Community Framework for Enabling Scientific Workflow Research and Development". In: *2020 IEEE/ACM Workflows in Support of Large-Scale Science (WORKS)*. Funding Acknowledgments: NSF 2016619, DOE DE-SC0012636, NSF 1664162, NSF 1923539. 2020, pp. 49–56. DOI: 10.1109/WORKS51914.2020.00012.

[W2] R. Mitchell, L. Pottier, S. Jacobs, R. Ferreira da Silva, M. Rynge, K. Vahi, and E. Deelman. "Exploration of Workflow Management Systems Emerging Features from Users Perspectives". In: *First International Workshop on Big Data Tools, Methods, and Use Cases for Innovative Scientific Discovery (BTSD)*. Funding Acknowledgments: NSF 1842042. 2019.

[*W3] G. Aupy, A. Benoit, L. Pottier, P. Raghavan, Y. Robert, and M. Shantharam. "Co-scheduling algorithms for cache-partitioned systems". In: *19th Workshop on Advances in Parallel and Distributed Computational Models APDCM 2017*. IEEE Computer Society Press, 2017. DOI: 10.1109/IPDPSW.2017.60.

Teaching

2017 – 2018 Master – Parallel algorithms (22h, University of Lyon)
Master – Distributed algorithms (10h, University of Lyon)
Bachelor – Programming 1 (32h, ENS de Lyon)

2016 – 2017 Bachelor – ASR2: Advanced Computer Architecture and Network (32h, ENS de Lyon)
Bachelor – Programming 1 (32h, ENS de Lyon)

2015 – 2016 Master – Image Processing and Computational Geometry (20h, ENS de Lyon)
Bachelor – ASR1 : Computer Architecture and Network (6h, ENS de Lyon)
Bachelor – ALGO2 : Advanced Algorithms (32h, ENS de Lyon)

Languages skills

French **Native.** English **Fluent.**

Computer Science skills

Programming	C, C++, Python, R, Bash, LaTeX.	Parallelism	OpenMP, MPI, Parallel architectures.
Operating Systems	Unix, System Programming.	Theory	Scheduling, Complexity Theory, Algorithm Design.

Collectives responsibilities

Administrative

2017-2018 Elected representative for non-tenured members at the LIP (ENS Lyon computer science laboratory) council, co-organized a two-days seminar for PhD students.

Program Committee

2020 SuperComputing Workshops, EuroPar Workshops

2019 PPAM, ICPP, eScience Workshops, EuroPar Workshops

Paper Refereeing

2020 CCGrid, SuperComputing Workshops, EuroPar Workshops, CCPE, IJHPCA, JPDC, TPDS

2019 PPAM, ICPP, IJHPCA, Computing Journal, eScience Workshops, EuroPar Workshops

Grant Refereeing

2020 US Department of Energy

References

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Swann Perarnau
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