

Curriculum Vitæ

Frédéric Vivien

Current position: INRIA Senior Researcher, Lyon, France

Research topics: scheduling, algorithm design, optimization, fault tolerance and resilience, parallelism.

Education

- 2008: Habilitation, École normale supérieure de Lyon.
- 1997: PhD, École normale supérieure de Lyon.

Professional appointments

- INRIA Senior Researcher, Lyon, France, 2010 –
- *Visiting scholar*, Université of Hawai'i at Mānoa, Honolulu, HI, USA, July 2008 – July 2009.
- INRIA Junior Researcher, Lyon, France, 2002 – 2010.
- *Visiting scientist*, *Massachusetts Institute of Technology* (MIT), Cambridge, MA, USA, January-December 2000.
- Associate Professor, University Louis Pasteur – Strasbourg 1, France, 1998 – 2002.

Main administrative responsibilities

- Vice-head of the Federation of the Computer Science Laboratories of Lyon, 2021–
- Vice-head of the LIP laboratory, 2017–2020
- Head of the ROMA project-team, 2013–2020
- Elected member of the Scientific council of École normale supérieure de Lyon
- Head of the GRAAL project-team, July 2006 – 2012.

Service to the profession

- *Subject area editor* for the *ACM Transactions on Parallel Computing* journal since 2020.
- *Subject area editor* for *Journal of Parallel and Distributed Computing* since 2016.
- *Subject area editor* for *Parallel Computing, Systems & Applications* 2006-2019.
- Vice-chair for the *Algorithm* track of the IPDPS 2013 conference, vice-chair for the *Algorithm* track of the HiPC 2014 conference, vice chair for *Research Posters* of the SC22 conference.
- Member of over 50 conference program committees including, on a regular basis, for the conferences IPDPS, SC, PDP et HiPC.

PhD student supervision

- Advisor or co-advisor of 11 completed PhD theses.

Publications

Author or editor of 10 books and book chapters, author of 47 journal articles and of 69 conference articles. All publications are available on the page: <https://cv.archives-ouvertes.fr/fredericvivien>.

Books

- [B1] Anne Benoit, Yves Robert, and Frédéric Vivien. *A Guide to Algorithm Design: Paradigms, Methods, and Complexity Analysis*. Applied Algorithms and Data Structures series. Chapman & Hall/CRC, August 2013.
- [B2] Alain Darte, Yves Robert, and Frédéric Vivien. *Scheduling and Automatic Parallelization*. Birkhäuser, 2000.

Selected journal publications

- [J1] Yiqin Gao, Guillaume Pallez, Yves Robert, and Frédéric Vivien. Dynamic Scheduling Strategies for Firm Semi-Periodic Real-Time Tasks. *IEEE Transactions on Computers*, 72(1):55–68, January 2023.
- [J2] Loris Marchal, Thibault Marette, Grégoire Pichon, and Frédéric Vivien. Trading Performance for Memory in Sparse Direct Solvers using Low-rank Compression. *Future Generation Computer Systems*, 130:307–320, May 2022.
- [J3] Louis-Claude Canon, Loris Marchal, Bertrand Simon, and Frédéric Vivien. Online Scheduling of Task Graphs on Heterogeneous Platforms. *IEEE Transactions on Parallel and Distributed Systems*, 31(3):721–732, March 2020.
- [J4] Loris Marchal, Bertrand Simon, and Frédéric Vivien. Limiting the memory footprint when dynamically scheduling DAGs on shared-memory platforms. *Journal of Parallel and Distributed Computing*, 128:30–42, February 2019.
- [J5] Loris Marchal, Bertrand Simon, Oliver Sinnen, and Frédéric Vivien. Malleable task-graph scheduling with a practical speed-up model. *IEEE Transactions on Parallel and Distributed Systems*, 29(6):1357–1370, June 2018.
- [J6] Li Han, Louis-Claude Canon, Henri Casanova, Yves Robert, and Frédéric Vivien. Checkpointing Workflows for Fail-Stop Errors. *IEEE Transactions on Computers*, 67(8):16, February 2018.
- [J7] Lionel Eyraud-Dubois, Loris Marchal, Oliver Sinnen, and Frédéric Vivien. Parallel scheduling of task trees with limited memory. *ACM Transactions on Parallel Computing*, 2(2):36, July 2015.
- [J8] Guillaume Aupy, Yves Robert, Frédéric Vivien, and Dounia Zaidouni. Checkpointing algorithms and fault prediction. *Journal of Parallel and Distributed Computing*, 74(2):2048–2064, November 2013.
- [J9] Jean-François Pineau, Yves Robert, and Frédéric Vivien. Energy-aware scheduling of bag-of-tasks applications on master-worker platforms. *Concurrency and Computation: Practice and Experience*, 23(2):145–157, 2011.

Selected conference publications

- [C1] Li Han, Yiqin Gao, Jing Liu, Yves Robert, and Frédéric Vivien. Energy-aware strategies for reliability-oriented real-time task allocation on heterogeneous platforms. In *ICPP 2020 - 49th International Conference on Parallel Processing*, pages 1–11, Edmonton Alberta, Canada, August 2020. ACM.
- [C2] Li Han, Louis-Claude Canon, Jing Liu, Yves Robert, and Frédéric Vivien. Improved energy-aware strategies for periodic real-time tasks under reliability constraints. In *RTSS 2019 - 40th IEEE Real-Time Systems Symposium*, pages 1–13, Hong Kong, China, December 2019. IEEE.
- [C3] Yiqin Gao, Louis-Claude Canon, Yves Robert, and Frédéric Vivien. Scheduling independent stochastic tasks on heterogeneous cloud platforms. In *IEEE Cluster 2019 - International Conference on Cluster Computing*, pages 1–11, Albuquerque, United States, September 2019. IEEE.
- [C4] Li Han, Valentin Le Fèvre, Louis-Claude Canon, Yves Robert, and Frédéric Vivien. A Generic Approach to Scheduling and Checkpointing Workflows. In *ICPP 2018 - 47th International Conference on Parallel Processing*, pages 1–10, Eugene, OR, United States, August 2018. ACM.
- [C5] Loris Marchal, Hanna Nagy, Bertrand Simon, and Frédéric Vivien. Parallel scheduling of DAGs under memory constraints. In *IPDPS 2018 - 32nd IEEE International Parallel and Distributed Processing Symposium*, pages 1–10, Vancouver, Canada, May 2018. IEEE.
- [C6] Louis-Claude Canon, Loris Marchal, and Frédéric Vivien. Low-Cost Approximation Algorithms for Scheduling Independent Tasks on Hybrid Platforms. In *Euro-Par 2017: 23rd International European Conference on Parallel and Distributed Computing*, Santiago de Compostela, Spain, August 2017. Springer.