Curriculum Vitae – September 2022

Loris Marchal

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Positions

• Head of the ROMA team (2021–present) of the LIP laboratory, co-head of the team during 2018–2020.
• CNRS researcher (2007–present), at the LIP laboratory, located in the ENS Lyon (École Normale Supérieure de Lyon) school, in the “ROMA” common CNRS - INRIA - ENS-Lyon research project (Resource Optimization: Models, Algorithms, and scheduling). This is a full time permanent researcher position.
• Visitor Assistant (September 2006 – January 2007) in the ACIS laboratory of the University of Florida in Gainesville, USA.

Education

• Ph.D. (Doctorat) from the École Normale Supérieure de Lyon defended in October 2006, entitled “Communications collectives et ordonnancement en régime permanent sur plates-formes hétérogènes” (Collective communications and steady-state scheduling on heterogeneous platforms) and prepared under the supervision of Olivier Beaumont and Yves Robert. Referees: Pierre Fraigniaud and Alix Munier-Kordon.
• Master (DEA) of computer science from École Normale Supérieure de Lyon, June 2003. Research work under the supervision of Yves Robert and entitled “Pipelined collective communications on heterogeneous platforms”.
• Student, École Normale Supérieure de Lyon, 2000-2004.

Recent funded projects

ANR Project Rescue (2010-2014), 4 years. The main objective of this project is to develop new algorithmic techniques and software tools to solve the exascale resilience problem. Solving this problem implies a departure from current approaches, and calls for yet-to-be-discovered algorithms, protocols and software tools. I am a member of this project.

ANR Project Solhar (2013-2017), 4 years. This project aims at studying and designing algorithms and parallel programming models for implementing direct methods for the solution of sparse linear systems on emerging computers equipped with accelerators. I am a member of this project and responsible for the “scheduling” workpackage.
ANR Project Solharis (2019-2023), 4 years. This project is a follow-up of the previous Solhar project, dedicated more specifically to large-scale and heterogeneous platforms: our objectives is to design algorithms and implementation of direct methods, based on task-based runtimes, that can fully take advantage of distributed memory platforms. Again, I am a member of this project and responsible for the “scheduling” workpackage.

Scientific animation and research management

Major responsibilities

- **Head of the ROMA research team** at the LIP laboratory, starting in January 2021.
- **Co-head of the ROMA research team** at the LIP laboratory, together with Frédéric Vivien (Mar. 2018 – Dec. 2020).

Other responsibilities and duties

- **Member of the Scientific Council** of the ENSMM school (École Nationale Supérieure de Mécanique et des Microtechniques, Besançon, France), 2014–2017.
- **Selection committees for assistant professors** (Comités de Sélection de Maîtres de Conférences) at University of Besançon (France) in 2012, at Polytech Tours (France) in 2013, at University of Bordeaux 1 (France) in 2016 and at ENS Rennes (France) in 2021.
- **Member of the scientific council** of the “Complexity and Algorithms” workgroup of the CNRS research group “Informatique Mathématique” (since 03/2018).
- **Examiner for the competitive selection of ENS students**, in 2010, 2011 and 2012. Co-responsible of the practical examination in algorithms and programming, which is part of the competitive selection of the students of the three *Écoles Normales Supérieures* (Paris-Saclay, Lyon, and Paris).

Reviewing and editorial activity

- **Program committee chair** of the HeteroPar 2016 workshop, co-organized with EuroPar 2016 in Grenoble, France
- **Editor** of a special issue of the Parallel Computing journal (Elsevier), following the 2008 "Scheduling for large-scale systems" workshop, with Frédéric Vivien.
- **Editor** of a special issue of the Parallel Computing journal (Elsevier) focused on heterogeneous computing, following both HeteroPar’2016 and HCW 2016, with Erik Saule (HCW’2016 chair) and Oliver Sinn.


**SUPERVISION**

**PhD candidates**

- **Mathias Jacquelin (2008–2011).** Thesis defended in July 2011 on memory-aware algorithms. Co-advised with Yves Robert. Mathias Jacquelin was a research scientist at Lawrence Berkeley National Laboratory (USA) until Nov. 2019 and then moved to work with the Cerebras company (Los Altos, USA).


- **Bertrand Simon (2015–2018).** Thesis defended in July 2018 on task graph scheduling under limited memory. Co-advised with Frédéric Vivien. Bertrand is now a postdoctoral fellow at the university of Bremen (Germany).


- **Maxime Gonhtier (2020–).** Thesis on memory-aware scheduling in runtime schedulers. Co-advised with Samuel Thibault (Univ. Bordeaux) and funded by the ANR SOLHARIS project.


**Post-doc researchers**

- Adrien Rémi: “Sparse factorisation of non-symmetric matrices using elimination trees”, co-advised with Bora Uçar, from in April 2017 to July 2018. Adrien is now assistant professor at Epitech Lyon.

**Master students**


• Bertrand Simon (ENS Lyon, France): “Scheduling trees of malleable tasks under memory constraints” (Feb. – Jul. 2014), co-advised with Frédéric Vivien.
• Anthony Dugois (Univ. Bourgogne France-Comté, France): “Scheduling requests for distributed databases” (May – July 2019, M1 internship, and then Mar–July 2020, M2 internship), co-advised with Louis-Claude Canon.
• Thibault Marette (ENS Lyon): “Memory-Aware scheduling for sparse linear solvers with low-rank compression” (Apr–July 2020) co-advised with Grégoire Pichon and Frédéric Vivien.

Bachelor students
• Gabriel Bathie (ENS Lyon, France): “Memory-aware scheduling for the StarPU runtime” (June – July 2019), co-advised with Samuel Thibault and Yves Robert.

TEACHING

• Data-Aware Algorithms, master 2 course, École Normale Supérieure de Lyon, in 2019 and 2020 (30h of lectures each year). http://perso.ens-lyon.fr/loris.marchal/data-aware-algorithms.html
• Practicals for Introduction to programming, bachelor course, University Lyon 1, in 2016 (24h).
• Tutorials for Complexity and decidability, master course, University Lyon 1, in 2017 and 2018 (16h each year).
• Practicals for Compilation, bachelor course, University Lyon 1, in 2019 (14h).
• Practicals for Operating Systems, bachelor course, University Lyon 1, in 2019 (12h).

PUBLICATIONS (SORTED BY TYPE AND PUBLICATION DATE)

Articles in international journals


**Book chapters**


**Articles in international conference proceedings**


**Articles in international workshop proceedings**


Theses
