

# Curriculum Vitae

## Personal Information

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## Positions

2020 —	<b>Maître de Conférence at IRIF - university of Paris</b> (Paris, France).
2019 — 2020	<b>Postdoc at LIP6 - university Paris Sorbonne</b> (Paris, France).
2019	<b>Postdoc at IRIF - university Paris Diderot</b> (Paris, France).
2017 — 2018	<b>Postdoc at Aalto University</b> (Helsinki, Finland).
2016 — 2017	<b>Teaching contract at ENS de Lyon</b> (Lyon, France).
2015 — 2016	<b>Teaching contract at University Paris Dauphine</b> (Paris, France).
2011 — 2015	<b>PhD in the LIX</b> (Polytechnique - Palaiseau, France) under the supervision of Olivier Bournez. Defended on the 08-31-2015.
2010 — 2011	<b>M2 at the MPRI</b> (Paris, France), Master of Computer Science Research.
2008 — 2010	<b>L3 and M1 at ENS Lyon</b> (Lyon, France), Fundamental Computer Science.

## Research Activities

Key words: Distributed Systems, Complexity, Computability, Graph Theory

2020 —	<b>Maître de Conférence at IRIF</b> (Paris, France), in the <b>Distributed Computing</b> team.
2019 — 2020	<b>Postdoc at LIP6</b> (Paris, France). Distributed algorithms on graphs, broadcast and convergecast [14,16].
2019	<b>Postdoc at IRIF</b> (Paris, France). Distributed algorithms on graphs. LOCAL and DECOUPLED models [13].
2017 — 2018	<b>Postdoc in the Distributed Algorithm team</b> (Helsinki, Finlande). Distributed algorithms on graphs, including works on distributed reconfiguration of colorings and MIS [9, 10], Decidability of complexities for LCL problems [11], and lower bounds of distributed problems [12].
2016 — 2017	<b>MC2 - LIP</b> (Lyon, France).
2015 — 2016	<b>LAMSADE</b> (Paris, France), with Jérôme Monnot et Florian Sikora, on Graph Theory. Work on vertex coloration to optimize the number of monochromatic edges.

<b>2011 — 2015</b>	<p><b>PhD - The Power of Weaknesses, what can be Computed with Population, Protocols and Machines</b> (Polytechnique - Palaiseau, France), on complexity, computability and Distributed Systems. Thesis jury:</p> <p style="margin-left: 40px;">Olivier Bournez      PhD Supervisor  Yves Métivier      Referee  Rachid Guerraoui      Referee  Michel Raynal      Jury President  Julien Cervelle  Pierre Fraigniaud  Shantanu Das</p>
<b>2011 (5 mo)</b>	<p><b>M2 Internship - Fast Computing with Community Protocols</b> (LIX - Palaiseau, France), under the supervision of Olivier Bournez. Adaptation of complexity works over Population Protocols on the Community Protocols model. Those works lead to a publication: [6].</p>
<b>2010 (2 mo)</b>	<p><b>M1 Internship - Game Theory and Trust</b> (Ben Gourion University - Be'er Sheva, Israël), under the supervision of Shlomi Dolev. Use of <i>Coq</i> to prove solutions in Game Theory. Those works lead to a publication: [3].</p>
<b>2010 (3 mo)</b>	<p><b>M1 Internship - Checkpointing Strategies when failures occur</b> (LIP - Lyon, France), under the supervision of Yves Robert et Frédéric Vivien. Multi-Core system optimization to minimize delays when failures occur. Those works lead to a publication: [2].</p>
<b>2009 (1.5 mo)</b>	<p><b>L3 Internship - Protocoles de Population et Théorie des jeux</b> (LIX - Palaiseau, France), under the supervision of Olivier Bournez. Restriction of Population Protocols using Game Theory and pavlovian behavior. Those works lead to two publications, one for the symmetric case and one for the asymmetric case: [1,7].</p>
<b>2014 (1.5 mo)</b>	<p><b>Supervision of a L3 internship - Rusted Turing Machines</b> (LIX - Palaiseau, France). Study of a model I created: Rusted Turing Machines, machines having a constant pivotal complexity. An article is being written.</p>

## Teachings and activities

If not precised, the teaching is for computer science students.

<b>2019 — 2020</b>	<p><b>Université Paris Sorbonne (Paris 6)</b></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p><b>Programmation en C</b>                      48h, L1, Isabelle Mounier  <b>Algorithmique de Réseaux</b><sup>34</sup>            16h, M2, Franck Petit</p>
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<sup>1</sup>Redaction and evaluation of homework

<sup>2</sup>Exercise creation

<sup>3</sup>Tutorial given in English

<sup>4</sup>Teaching session included, exam correction

	<u>Aalto University</u>	
2018	ALGO 2018 local organizing committee member	
	<u>ENS de Lyon</u>	
	Computer Science funds <sup>12</sup>	32h, L3, Guillaume Hanrot
	Advanced Algorithmic <sup>1</sup>	32h, L3, Anne Benoît
2016 — 2017	Logic <sup>1</sup>	32h, L3, Natacha Portier
	Performance Evaluation in Networks	28h, M1, Eric Thierry
	Introduction to Computer Science <sup>23</sup>	8h, M2 Physics, Christophe Crespelle
	<u>University of Paris-Dauphine</u>	
	Maple and Excel programming <sup>14</sup>	36h, L1 Economy, Denis Cornaz
2015 — 2016	VBA programming <sup>14</sup>	48h, L2 Economy, Lucie Galand
	Python programming	20h, L2, Vangelis Paschos
	<u>Polytech</u>	
2014 — 2015	C programming and project <sup>2</sup>	30h, L3, Joël Falcou
	<u>University Paris Sud</u>	
2014 — 2015	Graph Theory	24h, M1, Laurent Rosaz
2013 — 2014	Math for computer science <sup>1</sup>	24h, L2, Christine Paulin
2012 — 2014	Caml programming and project	2*36h, L3, Sylvain Conchon
	<u>Polytechnique</u>	
2011 — 2012	Java programming	40h, L3, François Morain

## Scientific Contributions

### Journal

1. Olivier Bournez, Jérémie Chalopin, Johanne Cohen, Xavier Koeger, and Mikaël Rabie. **Population protocols that correspond to symmetric games**. In *International Journal of Unconventional Computing (IJUC)*, 9(1-2):5–36, 2013.
6. Shlomi Dolev, Panagiota N. Panagopoulou, Mikaël Rabie, Elad Michael Schiller, and Paul G. Spirakis. **Rationality authority for provable rational behavior**. In *Algorithms, Probability, Networks, and Games*, pages 33–48, Springer, 2015.
2. Olivier Bournez, Johanne Cohen, and Mikaël Rabie. **Homonym population protocols**. *Theory of Computing Systems* 62, no. 5 (2018), pages 1318–1346, 2018.
15. Keren Censor-Hillel, Mikaël Rabie. **Distributed Reconfiguration of Maximal Independent Sets**. in *Journal of Computing and System Sciences*, 2020.

### Conferences

\* Means that I did the presentation at the conference.

- 3\* Olivier Bournez, Jérémie Chalopin, Johanne Cohen, Xavier Koepler, and Mikaël Rabie. **Computing with pavlovian populations**. In *15th International Conference On Principles Of Distributed Systems, OPODIS 2011*, pages 409–420. Springer, 2011.

4. Marin Bougeret, Henri Casanova, [Mikaël Rabie](#), Yves Robert, and Frédéric Vivien. **Checkpointing strategies for parallel jobs**. In *2011 International Conference for High Performance Computing, Networking, Storage and Analysis, SC 2011*, page 33. ACM.
- 5\* Olivier Bournez, Jonas Lefèvre, and [Mikaël Rabie](#). **Trustful population protocols**. In *27th International Symposium on Distributed Computing, DISC 2013*, pages 447–461, Springer, 2013.
- 7\* Olivier Bournez, Johanne Cohen, and [Mikaël Rabie](#). **Homonym population protocols**. In *Third International Conference on Networked Systems, NETYS 2015*, pages 125–139, Springer, 2015.
- 8\* [Mikaël Rabie](#). **Global versus local computations: Fast computing with identifiers**. In *International Colloquium on Structural Information and Communication Complexity, SIROCCO 2017*, pages 90–105, Springer, 2017.
- 9\* Marthe Bonamy, Paul Ouvrard, [Mikaël Rabie](#), Jukka Suomela, Jara Uitto. **Distributed Recoloring**. In *32nd International Symposium on Distributed Computing, DISC 2018*, pages 12:1–12:17, Springer, 2018.
- 10\* Keren Censor-Hillel, [Mikaël Rabie](#). **Distributed Reconfiguration of Maximal Independent Sets**. In ICALP 2019 (Best Paper), arXiv:1810.02106.
11. Alkida Balliu, Sebastian Brandt, Yi-Jun Chang, Dennis Olivetti, [Mikaël Rabie](#), Jukka Suomela. **The distributed complexity of locally checkable problems on paths is decidable**. In PODC 2019, arXiv:1811.01672.
12. Alkida Balliu, Sebastian Brandt, Juho Hirvonen, Dennis Olivetti, [Mikaël Rabie](#), Jukka Suomela. **Lower bounds for maximal matchings and maximal independent sets**. To appear in FOCS 2019 (Best Paper). arXiv:1901.02441.
13. Carole Delporte-Gallet, Hugues Fauconnier, Pierre Fraigniaud, [Mikaël Rabie](#). **Distributed Computing in the Asynchronous LOCAL model**. SSS 2019 (Brief Announcement).
14. Gewu Bu, Maria Potop-Butucaru, [Mikaël Rabie](#). **Wireless Broadcast with short labels**. In NETYS 2020.

## Unpublished

16. Gewu Bu, Zvi Lotker, Maria Potop-Butucaru, [Mikaël Rabie](#). **Lower and upper bounds for deterministic convergecast with labeling schemes**. Submitted.

## Hobbies

14 years of theater acting, 5 years of improvisation acting. 3 years as Treasurer in the improvisation troupe Les N'improtequoi (ENS ULM).

Player and judge of the card game Magic the Gathering (I judged competitive events of thousands of players in Europe, US and Japan).