

# Julie Parreaux

## Education

- 2023 **PhD in computer science**, Laboratoire Informatique et Systèmes (LIS) & Aix-Marseille Université (AMU), supervised by Pierre-Alain Reynier and Benjamin Monmege, *Weighted Timed Games: Decidability, Randomisation and Robustness* defended on October 24, 2023 at Marseille, jury members:
- Reviewers: Orna Kupferman (Hebrew University - Israël), Didier Lime (École Centrale de Nantes - LS2N)
  - Examiners: Patricia Bouyer-Decitre (CNRS - LMF), Hugo Gimbert (CNRS - LaBRI), Jeremy Sproston (Università degli di Torino - Italie)
  - President: Eugène Asarin (Université Paris Cité - IRIF)
  - Advisor: Pierre-Alain Reynier (AMU - LIS)
  - Co-advisor: Benjamin Monmege (AMU - LIS)
- 2020 **Master's degree in computer science**, Université Rennes 1 & École Normale Supérieure de Rennes (ENS Rennes)
- 2019 **Agrégation in mathematics - computer science**, rank: 196 (over 391), Université Rennes 1 & ENS de Rennes
- 2017 **Bachelor's degree in computer science**, Université Rennes 1 & ENS Rennes

## Professional experiences

- 2023 - 2024 **Assistant professor**, University of Rennes, France  
in DEVINE team and in ISTIC (teaching)
- 2023 - 2024 **Post-doctoral researcher**, University of Warsaw, Poland  
in the group *Automata Theory* in collaboration with Sławomir Lasota
- Summer 2022 **Visit in group of Christel Baier**, (3 weeks), TU Dresden, Germany
- 2020 - 2023 **PhD studies in computer science**, LIS & AMU, France  
in the team MoVe of LIS, with a mission of teaching (CME)
- 2020 **Master's degree research internship**, (5 month), LIS & AMU, Marseille  
*Stratégies stochastiques dans les jeux à coûts et les jeux temporisés* supervised by Pierre-Alain Reynier and Benjamin Monmege in the team MoVe.
- 2018 **Internship dicoverly research**, (3 month), Oxford University, UK  
*Efficient monitoring of stochastic systems* supervised by Stefan Kiefer.
- 2017 - 2018 **Master's research projet**, (4h by week), INRIA Rennes & IRISA, France  
*Evaluating regulation policies for subways with model checking* supervised by Ocan Sankur, Loïc Hélouët and Nathalie Bertand from INRIA's team SUMO.
- 2017 **Bachelor's degree intership**, (6 weeks), INRIA Rhône-Alpes, France  
*Panorama des modèles et outils de vérification pour les outils probabilistes* supervised by Hubert Garavel in the INRIA's team Convecs.

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## Teaching activities

- 2024– **Assistant professor**, University of Rennes (ISTIC)
- Algorithmic and complexity (L2), lectures, tutorials and practical sessions
  - Mathematics for computer scientists (L2), lectures and tutorials
  - Programming 2 (L1), tutorials and practical sessions
- 2024– **Assistant professor**, ENS Rennes
- Advanced algorithmic (L3), tutorials
- 2020–2023 **CME (teaching assignment)**, AMU
- Introduction to computer science (L1), tutorials, 2020-2021
  - Finite automata (L2), tutorials and practical sessions, 2020
  - Projet: introduction to software engineering (L2), practical sessions, 2020-2021
  - Architecture (L2), tutorials and practical sessions, 2021-2022
  - Operator system (L2), tutorials and practical sessions, 2021-2022
  - Probabilistic aspect for computer science (M1), tutorials and practical sessions, 2022
- 2016 **Vacataire**, Université de Rennes 1
- 10 hours of mentoring for first year students form bachelor's degree of computer science, mathematics, electronics and MIAGE in the UE *Algorithm and Functional Programming*.

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## Recherche activities

Keywords Weighted timed games, algorithms for the game theory, value computation, stochastic strategies, robustness, timed automata, Church's synthesis, causality

### Selection of talks

1. *Counterfactual Causality for Reachability and Safety based on Distance Functions:*  
GandALF 2023
2. *Weighted Timed Games: decidability, stochastic strategies, and robustness:*  
Highlight 2023
3. *Decidability of Value Problem for 1-clock Weighted Timed Games:*  
CONCUR 2022
4. *Playing Stochastically in Weighted Timed Games to Emulate Memory:*  
MOVEP 2022, GT Verif 2021, Highlight 2021, ICALP 2021

### Supervision

- Summer 2024 **Jaladhi Joshi (IIT Bombay)**, *Fast termination in time Petri nets*, with Piotr Hofmann, 2 months
- Summer 2022 **Antonio Mattar and Tamazouzt Ait Eldjoudi (AMU)**, *Alligators et Lambda calcul en Python*, with Benjamin Monmege, 6 weeks

### Scientific mediation

- 2023 **Invited talk in Cigales school: a week around mathematics**, *Game theory: from the formal verification to the synthesis of computer systems*, CIRM Marseille
- 2020 **Creation of an unplugged activity on formal verification**, with Santiago Bautista and Quentin Le Dilavrec, ENS Rennes
- 2017 **Animation of unplugged activities around computer science in primary classes**, with Hippolyte Bourel, ENS Rennes

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## List of publications

### Soumission in international journals

- [1] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. *Playing Stochastically in Weighted Timed Games to Emulate Memory*. Soumission dans le journal Logical Methods in Computer Science (LMCS). 2023. eprint: 2105.00984.
- [2] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. *Decidability of One-Clock Weighted Timed Games with Arbitrary Weights*. special issue de CONCUR'23 soumise dans LMCS. 2023. eprint: 2207.01608.

### International conferences

- [3] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. “Synthesis of Robust Optimal Real-Time Systems”. In: *49th International Symposium on Mathematical Foundations of Computer Science, MFCS 2024, August 26-30, 2024, Bratislava, Slovakia*. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2024. DOI: 10.4230/LIPICs.MFCS.2024.74.
- [4] Julie Parreaux, Jakob Piribauer, and Christel Baier. “Counterfactual Causality for Reachability and Safety based on Distance Functions”. In: *Proceedings of the 4th International Symposium on Games, Automata, Logics, and Formal Verification, GandALF 2023*. (15 papiers acceptés sur 26 soumis). 2023, pp. 132–149. DOI: 10.4204/EPTCS.390.9.
- [5] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. “Decidability of One-Clock Weighted Timed Games with Arbitrary Weights”. In: *Proceedings of the 33rd International Conference on Concurrency Theory (CONCUR 2022)*. rang CORE: A, (32 papiers acceptés sur 90 soumis). 2022, p. 15:1–15:22. DOI: 10.4230/LIPICs.CONCUR.2022.15.
- [6] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. “Playing Stochastically in Weighted Timed Games to Emulate Memory”. In: *Proceedings of the 48th International Colloquium on Automata, Languages, and Programming (ICALP 2021)*. rang CORE: A, (29 papiers acceptés sur 101 soumis). 2021, p. 137:1–137:17. DOI: 10.4230/LIPICs.ICALP.2021.137.
- [7] Benjamin Monmege, Julie Parreaux, and Pierre-Alain Reynier. “Reaching Your Goal Optimally by Playing at Random with No Memory”. In: *Proceedings of the 31st International Conference on Concurrency Theory (CONCUR 2020)*. rang CORE: A, (45 papiers acceptés sur 112 soumis). 2020, p. 26:1–26:21. DOI: 10.4230/LIPICs.CONCUR.2020.26.
- [8] Nathalie Bertrand, Benjamin Bordais, Loïc Hélouët, Thomas Mari, Julie Parreaux, and Ocan Sankur. “Performance Evaluation of Metro Regulations Using Probabilistic Model-Checking”. In: *Proceedings of the 3rd International Conference on Reliability, Safety, and Security of Railway Systems. Modelling, Analysis, Verification, and Certification (RSSRail 2019)*. (18 papiers acceptés sur 38 soumis). 2019, pp. 59–76. DOI: 10.1007/978-3-030-18744-6\_4.

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## Collective tasks

- 2022 – 2023 **Elected to the council of the Department of Computer Science and Interactions of AMU**, representative of the doctoral students with teaching assignments and the ATERs (a temporary teaching and research associate)
- 2022 **Member of organisation committee of STACS 2022**, online
- 2023 **Member of Artefacts Evaluation committee of FORMATS 2023**

## Conferences and journals refereeing

**International conferences:** STACS 2021, CONCUR 2021, DTL 2021, GandAlf 2021, STACS 2022, CSR 2022, CONCUR 2023

**International journals:** Fundamenta Informaticae, LMCS - special issue STACS 2022