

# Curriculum Vitae

Aline Goeminne – Postdoctoral Researcher of the Fonds de la Recherche Scientifique – FNRS

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## Positions

**Oct. 2022 – Present, Postdoctoral Researcher.**

F.R.S.-FNRS postdoctoral researcher (Chargée de Recherches) at UMONS - Université de Mons (Mons, Belgium), in the team of Thomas Brihaye.

**Oct. 2021 – Sept. 2022, Postdoctoral Researcher.**

CNRS postdoctoral researcher at IRISA (Rennes, France), in the SUMO team, team of Nicolas Markey and Ocan Sankur.

## Education

**2017–2021, PhD in Sciences** (Mathematics and Computer Science).

Under the supervision of Thomas Brihaye (Université de Mons (UMONS), Belgium) and Jean-François Raskin (Université libre de Bruxelles (ULB), Belgium).

**Title** Equilibria in Multiplayer Games Played on Graphs.

Université de Mons (UMONS) et Université libre de Bruxelles (ULB), 346 pages, 2021.

**Supervisors** Thomas Brihaye (UMONS) et Jean-François Raskin (ULB)

**Jury** Thomas Brihaye (UMONS), Véronique Bruyère (UMONS), János Flesch (Maastricht University, Pays-Bas), Gilles Geeraerts (ULB), Jean-François Raskin (ULB) et Ocan Sankur (Université de Rennes, CNRS, France).

**Started on** 1 octobre 2017

**Graduation** 27 avril 2021

**Manuscript** The manuscript is available at the following address :

<https://alineaeminne.github.io/publications.html>

**2015–2017, Master’s degree in Mathematics (Specialization in Computer Science).**

UMONS, Mons, Belgium. *Summa cum laude*.

**Award** Award from the Department of Mathematics.

**2012–2015, Bachelor’s degree in Mathematics.**

UMONS, Mons, Belgium. *Cum laude*.

## Publications

Notice that authors are ordered **alphabetically**.

## Invited papers in international conferences

- [BGMR23] **Reachability Games and Friends : A Journey through the Lens of Memory and Complexity.** Thomas Brihaye, Aline Goeminne, James C.A. Main, Mickael Randour. Keynote lecture given by Thomas Brihaye at the 43rd IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS'23). Volue 284 of Leibniz International Proceedings in Informatics (LIPIcs), pages 1 :1-1 :26, Schloss Dagstuhl, Leibniz-Zentrum für Informatik, 2023.  
<https://doi.org/10.4230/LIPIcs.FSTTCS.2023.1>

## Peer-reviewed journals

- [BBGT21] **On relevant equilibria in reachability games.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Nathan Thomasset. *Journal of Computer and System Sciences*, volume 119, pages 211-230, 2021.  
<https://doi.org/10.1016/j.jcss.2021.02.009>  
(Special issue of [BBGT19].)
- [BBGR21] **Constrained existence problem for weak subgame perfect equilibria with  $\omega$ -regular Boolean objectives.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Jean-François Raskin. *Information and Computation*, volume 278, 104594, 20 pages, 2021.  
<https://doi.org/10.1016/j.ic.2020.104594>  
(Special issue of [BBGR18].)
- [BBG<sup>+</sup>20] **The Complexity of Subgame Perfect Equilibria in Quantitative Reachability Games.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Jean-François Raskin, Marie van den Bogaard. *Logical Methods in Computer Science*, volume 16, issue 4, pages 8 :1-8 :43, 2020.  
[https://doi.org/10.23638/LMCS-16\(4:8\)2020](https://doi.org/10.23638/LMCS-16(4:8)2020)  
(Special issue of [BBG<sup>+</sup>19].)
- [Goe20] **Constrained existence of weak subgame perfect equilibria in multiplayer Büchi games.** Aline Goeminne. *Information Processing Letters*, volume 163, 105996, 6 pages, 2020.  
<https://doi.org/10.1016/j.ipl.2020.105996>

## International peer-reviewed conference proceedings

- [BG23] **Multi-weighted Reachability Games.** Thomas Brihaye, Aline Goeminne. In Olivier Bournez, Enrico Formenti, and Igor Potapov, editors, *Reachability Problems - 17th International Conference, RP 2023, Nice, France, October 11-13, 2023, Proceedings*, volume 14235 of *Lecture Notes in Computer Science*, pages 85–97. Springer, 2023.  
[https://doi.org/10.1007/978-3-031-45286-4\\_7](https://doi.org/10.1007/978-3-031-45286-4_7)
- [GMS22] **Non-Blind Strategies in Timed Network Congestion Games.** Aline Goeminne, Nicolas Markey, Ocan Sankur. In Sergiy Bogomolov and David Parker, editors, *Formal Modeling and Analysis of Timed Systems - 20th International Conference, FORMATS 2022, Warsaw, Poland, September 13-15, 2022, Proceedings*, volume 13465 of *Lecture Notes in Computer Science*, pages 183–199. Springer, 2022.  
[https://doi.org/10.1007/978-3-031-15839-1\\_11](https://doi.org/10.1007/978-3-031-15839-1_11)
- [BG20] **On Subgame Perfect Equilibria in Turn-Based Reachability Timed Games.** Thomas Brihaye, Aline Goeminne. In Nathalie Bertrand and Nils Jansen, editors, *Formal Modeling and Analysis of Timed Systems - 18th International Conference, FORMATS 2020, Vienna, Austria, September 1-3, 2020, Proceedings*, volume 12288 of *Lecture Notes in Computer Science*, pages 94–110. Springer, 2020.  
[https://doi.org/10.1007/978-3-030-57628-8\\_6](https://doi.org/10.1007/978-3-030-57628-8_6)
- [BBG<sup>+</sup>19] **The Complexity of Subgame Perfect Equilibria in Quantitative Reachability Games.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Jean-François Raskin, Marie van

den Bogaard. In Wan J. Fokkink and Rob van Glabbeek, editors, 30th International Conference on Concurrency Theory, CONCUR 2019, August 27-30, 2019, Amsterdam, the Netherlands, volume 140 of Leibniz International Proceedings in Informatics (LIPIcs), pages 13 :1–13 :16. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019.

<https://doi.org/10.4230/LIPIcs.CONCUR.2019.13>

[BBGT19] **On Relevant Equilibria in Reachability Games.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Nathan Thomasset. In Emmanuel Filiot, Raphaël M. Jungers, and Igor Potapov, editors, Reachability Problems - 13th International Conference, RP 2019, Brussels, Belgium, September 11- 13, 2019, Proceedings, volume 11674 of Lecture Notes in Computer Science, pages 48–62. Springer, 2019.

[https://doi.org/10.1007/978-3-030-30806-3\\_5](https://doi.org/10.1007/978-3-030-30806-3_5)

[BBGR18] **Constrained Existence Problem for Weak Subgame Perfect Equilibria with  $\omega$ -Regular Boolean Objectives.** Thomas Brihaye, Véronique Bruyère, Aline Goeminne, Jean-François Raskin. In Andrea Orlandini and Martin Zimmermann, editors, Proceedings Ninth International Symposium on Games, Automata, Logics, and Formal Verification, GandALF 2018, Saarbrücken, Germany, 26-28th September 2018, volume 277 of EPTCS, pages 16–29, 2018.

<https://doi.org/10.4204/EPTCS.277.2>

## Preprints

- **Permissive Equilibria in Multiplayer Reachability Games.** Aline Goeminne and Benjamin Monmege, *to appear in CSL'25*.  
On arXiv : <https://arxiv.org/abs/2411.13296>
- (Position paper) **Enabling Decentralized Collaboration Among Transporters through an Optimizing Trading Network for Transport Orders.** Renaud De Landtsheer, Aline Goeminne and Quentin Meurisse, *to appear in IN4PL'24*.
- **Multi-Weighted Reachability Games and Their Application to Permissiveness.** Thomas Brihaye and Aline Goeminne.  
On arXiv : <https://arxiv.org/abs/2308.09625>

## Talks

### 2024

- Permissive Equilibria in Multiplayer Reachability Games, *Highlights of Logic, Games and Automata* (Highlights'24), Bordeaux, France.

### 2023

- Multi-weighted Reachability Games, *17th International Conference on Reachability Problems* (RP'23), Nice, France.
- A stroll with reachability games, *séminaire de l'équipe MoVe*, Marseille, France.
- Multi-weighted Reachability Games, *Highlights of Logic, Games and Automata* (Highlights'23), Kassel, Germany.

### 2022

- Non-Blind Strategies in Timed Network Congestion Games, *20th International Conference on Formal Modeling and Analysis of Timed Systems* (FORMATS'22), Online.
- Timed network congestion games, *Réunion des membres de l'ANR Ticktac*, Online.

## 2021

- **(Invited speaker)** On Subgame Perfect Equilibria in Turn-Based Reachability Timed Games, *19th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'21)*, Online.

## 2020

- On Subgame Perfect Equilibria in Turn-Based Reachability Timed Games, *18th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'20)*, Online.
- On Relevant Equilibria in Reachability Games, séminaire "68NQRT", Rennes, France.

## 2019

- Multiplayer reachability games played on graphs, *Grascomp Doctoral Day (GDD'19)*, Namur, Belgium.
- On Relevant Equilibria in Reachability Games, *Highlights of Logic, Games and Automata (Highlights'19)*, Warsaw, Poland.
- On Relevant Equilibria in Reachability Games, *13th International Conference on Reachability Problems (RP'19)*, Bruxelles, Belgium.
- The Complexity of Subgame Perfect Equilibria in Quantitative Reachability Games, *30th International Conference on Concurrency Theory (CONCUR'19)*, Amsterdam, Netherlands.
- The Complexity of Subgame Perfect Equilibria in Quantitative Reachability Games, *Seminar of the Formal Methods and Verification group of ULB*, Bruxelles, Belgium.
- PSPACE algorithm for SPEs in quantitative reachability games, *séminaires du Centre Fédéré en Vérification*, Bruxelles, Belgium.

## 2018

- Jeux sur graphe et objectifs d'atteignabilité, *Séminaires jeunes*, Mons, Belgium.
- Constrained existence problem for Weak Subgame Perfect Equilibria with  $\omega$ -regular Boolean Objectives, *9th International Symposium on Games, Automata, Logics and Formal Verification (GandALF'18)*, Saarbrücken, Germany.
- Constrained existence problem for weak subgame perfect equilibria with omega-regular Boolean objectives, *Highlights of Logic, Games and Automata (Highlights'18)*, Berlin, Germany.
- Constraint Problem for Weak Subgame Perfect Equilibria with  $\omega$ -regular Boolean Objectives, *Summer School on Modelling and Verification of Parallel Processes (MOVEP'18)*, Cachan, France.
- Constraint Problem for Weak Subgame Perfect Equilibria with  $\omega$ -regular Boolean Objectives, *1st International Workshop on Multi-objective Reasoning in Verification and Synthesis (MoRe'18)*, Oxford, UK.
- Constraint Problem for Weak Subgame Perfect Equilibria with omega-regular Boolean Objectives, *GT Verification'18*, Grenoble, France.

## 2017

- Quand l'ordonnancement de tâches rencontre la vérification. . . , *séminaires Infortech/Numédiart*, UMONS, Mons, Belgium.

## Popular scientific workshops

- **A vous de jouer !**, Chloé Capon, Aline Goeminne, Nicolas Lecomte, James Main, Mickael Randour, Gaëtan Staquet, Alexandre Terefenko and Pierre Vandenhove - Journées Math-Sciences 2023, Mons, Belgium.

- **A vous de jouer !**, Florent Delgrange, Aline Goeminne, Marion Hallet, Quentin Meurisse, Clément Tamines, Nathan Thomasset, Mickael Randour and Kévin Van Mieghem - Journées Math-Sciences 2019, Mons, Belgium.
- **A vous de jouer !**, Aline Goeminne, Marion Hallet, Quentin Hautem and Mickael Randour - Journées Math-Sciences 2018, Mons, Belgium.

## Attended research events

- **2024** : Highlights'24 (Bordeaux, France).
- **2023** : Autobóz'23 (Kassel, Germany), Highlights'23 (Kassel, Germany), RP'23 (Nice, France).
- **2022** : FORMATS'22 (Online), CONCUR'22 (Online), LAMAS&SR 2022 (Rennes, France).
- **2021** : GT Verif 2021 (Online), FORMATS'21 (Online), CONCUR'21 (Online).
- **2020** : HIGHLIGHTS'20 (Online), FORMATS'20 (Online), MOVEP (Online).
- **2019** : Grascomp Doctoral Day (GDD'19) (Namur, Belgium), HIGHLIGHTS'19 (Warsaw, Poland), RP'19 (Bruxelles, Belgium), CONCUR'19 (Amsterdam, Netherlands), Theory and Algorithms in Graph and Stochastic Games (Mons, Belgium), Mardi des Chercheurs 2019 (Mons, Belgium).
- **2018** : GandALF 2018 (Saarbrücken, Germany), HIGHLIGHTS 2018 (Berlin, Germany), MOVEP (ENS Cachan, France), MoRe at FLoC 2018 (University of Oxford, UK), Logic and learning at FoPPS 2018 (University of Oxford, UK), GT Verif 2018 (VERIMAG, Grenoble, France) .
- **2017** : HIGHLIGHTS 2017 (London, UK).

## Teaching

### Teacher

#### Mathématiques effectives, UMONS

Substitute teacher for the course “Projet de mathématiques effectives”, about game theory, of Thomas Brihaye (4th year students in Mathematics).

**Academic year** : 2023–2024

### Teaching assistant

#### Mathématiques effectives, UMONS

Exercice sessions of the course on game theory given by Thomas Brihaye (mainly 4th year students in Mathematics).

**Academic years** : 2020-2021, 2019-2020 and 2018-2019.

#### Calculability and Complexity, ULB

Exercice sessions of the course on calculability and complexity given by Jean-François Raskin (mainly 4th year students in computer science).

**Academic years** : 2020-2021 and 2019-2020.

### Miscellaneous

**Preparatory courses** 1h30 lecture on vector calculus, as part of the preparatory courses organized by UMONS in August 2024.

**Tutor** Participation in support courses for first-year mathematics students at UMONS (29/07/2013 – 09/08/2013).

## Student supervision

### Mentoring

#### Interns

- Nicolas Lecomte (co-supervised with Thomas Brihaye), on *Prospect theory and game theory*, August 2020, introductory research internship, UMONS.
- Gaëtan Staquet (co-supervised with Thomas Brihaye, Véronique Bruyère and Hadrien Mélot), on *Efficient algorithms for Nash equilibria computation*, August 2018, introductory research internship, UMONS.

#### Master's thesis

- Louise Sadoine (co-supervised with Thomas Brihaye), *Les théories des perspectives appliquées aux jeux sous forme normale*, academic year 2019-2020, UMONS.

### Jury member

#### Master's thesis

- Christophe Grandmont, *Rational Synthesis and Verification in Multiplayer Reachability Games Played on Graphs*, 2023, UMONS.
- Kevin Cardinal, *Etude d'un algorithme résolvant un jeu de parité en temps quasi-polynomial*, 2018, UMONS.
- Marceline Thomas, *Interpréter et manipuler les lettres dans un cours de mathématiques : favoriser les apprentissages des élèves avec des activités de programmation*, 2018, UMONS.
- Thomas Carlier, *Comportement limite des Chaines de Markov finies et des Processus de Décision de Markov finis*, 2018, UMONS.

## Academic responsibilities

- Lecturer at the preparatory courses of UMONS in August 2024. (see Teaching)
- Informer at the student fair "SIEP", Mons, April 13th, 2024.
- Participation in "Journées Math-Sciences" at UMONS in 2018, 2019 et 2023. (see Popular scientific workshops)
- Co-organizer of the ELSE seminar, seminar for non-permanents in D4 department "langage et génie logiciel" at IRISA, Rennes, France (~ November 2021 – September 2022).
- PhD student representative on the Faculty of Science Council, at UMONS, during 2 years.
- PhD student representative on the Mathematics Department Council, at UMONS, during 3 years.