

# MOHAMED SIALA

## PERSONAL INFORMATION

*Gmail*                      [sia.mohamed](mailto:sia.mohamed)  
*Homepage*                <https://siala.github.io/>  
*Address*                  LAAS-CNRS, 7 avenue du Colonel Roche, 31031  
Toulouse, France

## WORK EXPERIENCE

*2018 - present*            Associate professor in computer science  
LAAS-CNRS, INSA Toulouse, France  
*2015 - 2018*              Post-doctoral researcher  
Insight, Centre for Data Analytics, UCC, Ireland  
Supervisor: Barry O'Sullivan  
*2012 - 2014*              Teaching assistant, INSA, Toulouse, France

## EDUCATION

*2012 - 2015*              PhD in computer science, INSA Toulouse, LAAS-CNRS, France  
Title: *Search, propagation, and learning in sequencing and scheduling problems*  
Funding: CNRS, Google, and Midi-Pyrénées region  
Supervisors: Emmanuel Hebrard and Christian Artigues  
*2010 - 2012*              Master's degree in *AI and Decision Making*, ENSI, Tunisia  
*2007 - 2010*              Computer engineering diploma, ENSI Tunisia  
*2005 - 2007*              Bachelor's degree in Mathematics and Physics, "Classes préparatoires", IPEIS, Tunisia

## AWARDS

*2016*                      **Honorable mention for the best PhD thesis award in AI**, The European Association for Artificial Intelligence (EurAI)  
*2012*                      **Honorable mention for the best paper award:** "*An Optimal Arc Consistency Algorithm for a Chain of Atmost Constraints with Cardinality*", International Conference on Principles and Practice of Constraint Programming (CP) 2012  
*International Constraint Programming Competitions*            **Mistral-2.0, an open-source constraint programming library that won multiple awards in the XCSP competition and the Minizinc Challenge (2017 to 2023)**

## SUPERVISION

*PhD*                      2020-2023 · **[Graduated]** Co-supervising the PhD of Julien Ferry with Marie José Huguet and Sébastien Gambs:  
*Addressing Interpretability, Fairness & Privacy in Machine Learning Through Combinatorial Optimization Methods*

2019-2022 · **[Graduated]** Co-supervising the PhD of Hao Hu with Marie José Huguet:

*Interpretable Machine Learning Models via Maximum Boolean Satisfiability*

2016-2019 · **[Graduated]** Co-supervising the PhD of Begum Genc with Barry O'Sullivan:

*An Approach to Robustness in Stable Marriage and Stable Roommates Problems*

B.S. & M.S.

2024: Akshita Kumar  
2023: Alice Devilder  
2023: Bryan Chen  
2023: Mohamed Yassine Loulou  
2023: Brenda Tonleunguissi  
2020: Sabine Muzellec  
2020: Maxence Bieres  
2020: Hao Hu  
2020: Hosseim Nahal  
2020: Julien Ferry

#### FUNDING AND INTERNATIONAL COLLABORATIONS

*Fundings*

2024 · Three months research visit to University of Lleida, Spain, 6K, Funding: INSA Toulouse

2022 - 2024 · Interactive Combinatorial Optimisation, PI, 20k, Funding: [CIMI Toulouse](#), PI

2019 - 2023 · Operational Research for Fairness, Privacy and Interpretability in Machine Learning, co-PI, 20k, Funding: [CIMI Toulouse](#), Co-PI

2019 - 2021 · LAAS-CNRS Starting Package, PI, 20k

2019 - 2020 · INSA Toulouse Starting Package, PI, 3k

2012 - 2014 · PhD Scholarship, Funding: **CNRS, Google, and Midi-Pyrénées Region**, 75k

*Research Projects Participation*

2020 - 2022 · ANITI (Artificial and Natural Intelligence Toulouse Institute) Collaborator in the *DEEP LEARNER EXPLANATION & VERIFICATION CHAIR*

2017 - 2018 · UTRC-UCC Cooperation Project, Cork, Ireland

2015 - 2018 · **Science Foundation Ireland**, Grants 12/RC/2289 and 16/RC/3918, co-funded under the European Regional Development Fund

*Scientific Research Visits*

10/2024 · Three months visit to University Of Lleida, Spain. Collaboration with João Marques Silva and Jordi Planes.

05/2022 · Six weeks visit to UQAM, Montréal, Canada. Collaboration with Sébastien Gambs and Ulrich Aïvodji.

02/2020 · Two weeks visit to the Department of Philosophy,  
University College Cork, Ireland.

01/2013 · One month visit to NICTA, UNSW, Sydney, Australia.  
Cooperation with : Nina Narodytska and Toby Walsh

## SERVICE

### *Administrative Roles*

2025 - 2027 · Diversity, Equity and Inclusion (DEI) co-chair of  
the Association for Constraint Programming

2020 - 2023 · Academic advisor and coordinator for the  
Distributed Systems and Big Data major at INSA Toulouse

2019 - 2023 · A member of the hiring committee for computer  
engineering students (third and fourth year) at INSA Toulouse

2019 - 2021 · In charge of organising the ROC Seminar Series

2016 - 2018 · In charge of organising the Insight Seminar Series

2012 - 2014 · PhD students coordinator, LAAS-CNRS

### *Program Committee*

[IJCAI] International Joint Conferences on Artificial Intelligence:  
2019, 2020, 2021, 2022, 2023, 2024, 2025

[AAAI] AAAI Conference on Artificial Intelligence : 2020, 2021,  
2022, 2024, 2026

[CP] International Conference on Principles and Practice of  
Constraint Programming: 2017, 2018, 2019, 2020, 2021, 2022, 2023,  
2024, 2025

[ECAI] European Conference on Artificial Intelligence: 2025

[CPAIOR] International Conference on the Integration of  
Constraint Programming, Artificial Intelligence, and Operations  
Research, 2014, 2016, 2021, 2022, 2023, 2024, 2025

### *Journals*

[JAIR] Journal of Artificial Intelligence Research: 2019, 2020,  
2024, 2025

**Computing Surveys** 2022

**Constraints** 2020, 2022, 2023

### *Doctoral Consortium*

IJCAI 2022, 2023, 2024, 2025, CP 2016

### *Organisation Committee*

2026 · **Chair of the Doctoral Program of the CP 2026  
Conference.**, Lisbon, Portugal

2020 · **Co-organising & co-chairing the Master Class of the  
CPAIOR'20 Conference**, Vienna, Austria

2019 · Member of the organisation committee of JFPC'19 (the  
French constraint programming conference), Albi, France

## MISCELLANEOUS

2024 · Awarded a six months sabbatical research period from  
INSA Toulouse (CRCT)

2019 · Distinguished Program Committee, IJCAI 2019

2014 · Finalist for the ROADEF Young Researcher Award

2012 · Doctoral Program Scholarship of the International Conference on Principles and Practice of Constraint Programming, 2012, Quebec, Canada

*Science Outreach*

10/2013 · The art of “decision making”, Science Festival in Toulouse

*Personal Interests  
and Activities*

Since 2005 · Violin player in various French, Irish, and Tunisian bands

2016 · Hike leader, UCC Mountaineering Club, Ireland

2007 - 2010 · Manager of the ENSI music association, Tunisia

**PUBLICATIONS**

**2025**

ECML PKDD  
2025 Mohamed Siala, Jordi Planes, and João Marques-Silva. On trustworthy rule-based models and explanations. In *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases - ECML PKDD, 2025*

COMPUTATIONAL  
INTELLIGENCE

Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Sok: Taming the triangle - on the interplays between fairness, interpretability and privacy in machine learning. *Computational Intelligence, 2025*

**2024**

SATML 2024 Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Probabilistic dataset reconstruction from interpretable models. In *IEEE Conference on Secure and Trustworthy Machine Learning, SaTML 2024, Toronto, ON, Canada, April 9-11, 2024*, pages 1–17. IEEE, 2024

**2023**

MACHINE  
LEARNING Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Improving fairness generalization through a sample-robust optimization method. *Mach. Learn.*, 112(6):2131–2192, 2023

SATML 2023 Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Exploiting fairness to enhance sensitive attributes reconstruction. In *First IEEE Conference on Secure and Trustworthy Machine Learning, SATML’23, Raleigh, North Carolina, USA, 2023*

**2022**

AAAI 2022 Hao Hu, Marie-José Huguet, and Mohamed Siala. Optimizing binary decision diagrams with maxsat for classification. In *Thirty-Sixth AAAI Conference on Artificial Intelligence, AAAI’22 2022, 22 February 2022, Vancouver BC, Canada, 2022*

CPAIOR 2022 Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Leveraging integer linear programming to learn optimal fair rule lists. In *9th International*

*Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research, CPAIOR'22, Los Angeles, California USA, 2022*

**2021**

- CIKM 2021 Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Faircorels, an open-source library for learning fair rule lists. In *30th ACM International Conference on Information and Knowledge Management, CIKM 2021, 1-5 November 2021, Gold Coast, Queensland, Australia, 2021*

**2020**

- IJCAI 2020 Hao Hu, Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. Learning optimal decision trees with maxsat and its integration in adaboost. In *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, IJCAI 2020*, pages 1170–1176, 2020
- CP 2020 Alexey Ignatiev, Martin C. Cooper, Mohamed Siala, Emmanuel Hebrard, and João Marques-Silva. Towards formal fairness in machine learning. In *Principles and Practice of Constraint Programming - 26th International Conference, CP 2020, Louvain-la-Neuve, Belgium, September 7-11, 2020, Proceedings*, pages 846–867, 2020
- INTERNATIONAL JOURNAL ON ARTIFICIAL INTELLIGENCE TOOLS Mark Antunes, Vincent Armant, Kenneth N. Brown, Daniel A. Desmond, Guillaume Escamocher, Anne-Marie George, Diarmuid Grimes, Mike O’Keeffe, Yiqing Lin, Barry O’Sullivan, Cemalettin Ozturk, Luis Quesada, Mohamed Siala, Helmut Simonis, and Nic Wilson. Assigning and scheduling service visits in a mixed urban/rural setting. *International Journal on Artificial Intelligence Tools*, 29, 2020

**2019**

- CPAIOR 2019 Begum Genc, Mohamed Siala, Gilles Simonin, and Barry O’Sullivan. An approach to robustness in the stable roommates problem and its comparison with the stable marriage problem. In *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 16th International Conference, CPAIOR 2019, Thessaloniki, Greece, June 4-7, 2019, Proceedings*, pages 320–336, 2019
- INFORMATION PROCESSING LETTERS Mohamed Siala and Barry O’Sullivan. Combinatorial search from an energy perspective. *Information Processing Letters*, 148:23–27, 2019
- THEORETICAL COMPUTER SCIENCE Begum Genc, Mohamed Siala, Gilles Simonin, and Barry O’Sullivan. Complexity study for the robust stable marriage problem. *Theoretical Computer Science*, 775:76–92, 2019

**2018**

- CPAIOR 2018 Guillaume Escamocher, Mohamed Siala, and Barry O’Sullivan. From backdoor key to backdoor completeness: Improving a known measure of hardness for the satisfiable CSP. In *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 15th International Conference, CPAIOR 2018, Delft, The Netherlands, June 26-29, 2018, Proceedings*, pages 198–214, 2018

ICTAI 2018	Mark Antunes, Vincent Armant, Kenneth N. Brown, Daniel A. Desmond, Guillaume Escamocher, Anne-Marie George, Diarmuid Grimes, Mike O’Keeffe, Yiqing Lin, Barry O’Sullivan, Cemalettin Ozturk, Luis Quesada, Mohamed Siala, Helmut Simonis, and Nic Wilson. Assigning and scheduling service visits in a mixed urban/rural setting. In <i>IEEE 30th International Conference on Tools with Artificial Intelligence, ICTAI 2018</i> , 5-7 November 2018, Volos, Greece, pages 114–121, 2018
<b>2017</b>	
IJCAI 2017	Begum Genc, Mohamed Siala, Barry O’Sullivan, and Gilles Simonin. Finding robust solutions to stable marriage. In <i>Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence, IJCAI 2017</i> , Melbourne, Australia, August 19-25, 2017, pages 631–637, 2017
CP 2017	Mohamed Siala and Barry O’Sullivan. Rotation-based formulation for stable matching. In <i>Principles and Practice of Constraint Programming - 23rd International Conference, CP 2017</i> , Melbourne, VIC, Australia, August 28 - September 1, 2017, <i>Proceedings</i> , pages 262–277, 2017
CPAIOR 2017	Emmanuel Hebrard and Mohamed Siala. Explanation-based weighted degree. In <i>Integration of AI and OR Techniques in Constraint Programming - 14th International Conference, CPAIOR 2017</i> , Padua, Italy, June 5-8, 2017, <i>Proceedings</i> , pages 167–175, 2017
COCOA 2017	Begum Genc, Mohamed Siala, Gilles Simonin, and Barry O’Sullivan. On the complexity of robust stable marriage. In <i>Combinatorial Optimization and Applications - 11th International Conference, COCOA 2017</i> , Shanghai, China, December 16-18, 2017, <i>Proceedings, Part II</i> , pages 441–448, 2017
ICTAI 2017	Danuta Sorina Chisca, Mohamed Siala, Gilles Simonin, and Barry O’Sullivan. New models for two variants of popular matching. In <i>29th IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2017</i> , Boston, MA, USA, November 6-8, 2017, pages 752–759, 2017
<b>2016</b>	
CONSTRAINTS	Nina Narodytska, Thierry Petit, Mohamed Siala, and Toby Walsh. Three generalizations of the FOCUS constraint. <i>Constraints An International Journal</i> , 21(4):495–532, 2016
CPAIOR 2016	Mohamed Siala and Barry O’Sullivan. Revisiting two-sided stability constraints. In <i>Integration of AI and OR Techniques in Constraint Programming - 13th International Conference, CPAIOR 2016</i> , Banff, AB, Canada, May 29 - June 1, 2016, <i>Proceedings</i> , pages 342–357, 2016
<b>2015</b>	
ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE	Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. A study of constraint programming heuristics for the car-sequencing problem. <i>Engineering Applications of Artificial Intelligence</i> , 38:34–44, 2015
CP 2015	Mohamed Siala, Christian Artigues, and Emmanuel Hebrard.

Two clause learning approaches for disjunctive scheduling. In *Principles and Practice of Constraint Programming - 21st International Conference, CP 2015, Cork, Ireland, August 31 - September 4, 2015, Proceedings*, pages 393–402, 2015

#### 2014

CONSTRAINTS

Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. An optimal arc consistency algorithm for a particular case of sequence constraint. *Constraints An International Journal*, 19(1):30–56, 2014

CPAIOR 2014

Christian Artigues, Emmanuel Hebrard, Valentin Mayer-Eichberger, Mohamed Siala, and Toby Walsh. SAT and hybrid models of the car sequencing problem. In *Integration of AI and OR Techniques in Constraint Programming - 11th International Conference, CPAIOR 2014, Cork, Ireland, May 19-23, 2014. Proceedings*, pages 268–283, 2014

#### 2013

IJCAI 2013

Nina Narodytska, Thierry Petit, Mohamed Siala, and Toby Walsh. Three generalizations of the FOCUS constraint. In *IJCAI 2013, Proceedings of the 23rd International Joint Conference on Artificial Intelligence, Beijing, China, August 3-9, 2013*, pages 630–636, 2013

#### 2012

CP 2012  
[HONOURABLE  
MENTION]

Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. An optimal arc consistency algorithm for a chain of atmost constraints with cardinality. In *Principles and Practice of Constraint Programming - 18th International Conference, CP 2012, Québec City, QC, Canada, October 8-12, 2012. Proceedings*, pages 55–69, 2012