

# MOHAMED SIALA

## PERSONAL INFORMATION

Gmail	sia.mohamed
Homepage	<a href="https://siala.github.io/">https://siala.github.io/</a>
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: <i>Search, propagation, and learning in sequencing and scheduling problems</i> Funding: CNRS, Google, and Midi-Pyrénées region Supervisors: Emmanuel Hebrard and Christian Artigues
2010 – 2012	Master's degree in <i>AI and Decision Making</i> , ENSI, Tunisia
2007 – 2010	Computer engineering diploma, ENSI Tunisia
2005 – 2007	Bachelor's degree in Mathematics and Physics, "Classes préparatoires", IPEIS, Tunisia

## AWARDS

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

## SUPERVISION

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

*Funding* 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

<i>Scientific Research Visits</i>	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

<i>Chair Roles</i>	2026 · Chair of the Doctoral Program of the CP 2026 Conference, Lisbon, Portugal
	2025 - 2027 · Co-Chair of the Diversity, Equity and Inclusion (DEI) initiative of the Association for Constraint Programming
	2020 · Co-Chair of the Master Class of the CPAIOR 2020 Conference, Vienna, Austria
<i>Administrative Roles</i>	2020 - 2023 · Academic advisor and coordinator for the Distributed Systems and Big Data major at INSA Toulouse
	2019 - 2023 · 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
<i>Program Committee</i>	[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, 2026
<i>Journals</i>	[JAIR] Journal of Artificial Intelligence Research: 2019, 2020, 2024, 2025
	<b>Computing Surveys</b> 2022
	<b>Constraints</b> 2020, 2022, 2023
	IJCAI 2022, 2023, 2024, 2025, CP 2016
<i>Doctoral Consortium</i>	

## MISCELLANEOUS

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

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

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 completable: 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 *IEEE 30th International Conference on Tools with Artificial Intelligence, ICTAI 2018, 5-7 November 2018, Volos, Greece*, pages 114–121, 2018

## 2017

IJCAI 2017

Begum Genc, Mohamed Siala, Barry O'Sullivan, and Gilles Simonin. Finding robust solutions to stable marriage. In *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence, IJCAI 2017, 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 *Principles and Practice of Constraint Programming - 23rd International Conference, CP 2017, Melbourne, VIC, Australia, August 28 - September 1, 2017, Proceedings*, pages 262–277, 2017

CPAIOR 2017

Emmanuel Hebrard and Mohamed Siala. Explanation-based weighted degree. In *Integration of AI and OR Techniques in Constraint Programming - 14th International Conference, CPAIOR 2017, Padua, Italy, June 5-8, 2017, Proceedings*, pages 167–175, 2017

COCOA 2017

Begum Genc, Mohamed Siala, Gilles Simonin, and Barry O'Sullivan. On the complexity of robust stable marriage. In *Combinatorial Optimization and Applications - 11th International Conference, COCOA 2017, Shanghai, China, December 16-18, 2017, Proceedings, Part II*, 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 *29th IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2017, Boston, MA, USA, November 6-8, 2017*, pages 752–759, 2017

## 2016

CONSTRAINTS

Nina Narodytska, Thierry Petit, Mohamed Siala, and Toby Walsh. Three generalizations of the FOCUS constraint. *Constraints An International Journal*, 21(4):495–532, 2016

CPAIOR 2016

Mohamed Siala and Barry O'Sullivan. Revisiting two-sided stability constraints. In *Integration of AI and OR Techniques in Constraint Programming - 13th International Conference, CPAIOR 2016, Banff, AB, Canada, May 29 - June 1, 2016, Proceedings*, pages 342–357, 2016

**2015**

ENGINEERING  
APPLICATIONS OF  
ARTIFICIAL  
INTELLIGENCE

CP 2015

Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. A study of constraint programming heuristics for the car-sequencing problem. *Engineering Applications of Artificial Intelligence*, 38:34–44, 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

CPAIOR 2014

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

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

CP 2012  
[HONOURABLE  
MENTION]

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**

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