MOHAMED SIALA

PERSONAL INFORMATION

email	sia.mohamed@gmail.com
website	https://siala.github.io/
Phone	+33 7 66 16 07 62
Address	7, avenue du Colonel Roche, BP 54200
	31031 Toulouse cedex 4, 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 Ph.D Thesis Award in AI,**
European Association for Artificial Intelligence

2012 — **Best paper award, honorable mention** for the paper "An Optimal Arc Consistency Algorithm for a Chain of Atmost Constraints with Cardinality", CP 2012 Conference

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

Ph.D — 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: Brenda Tonleunguissi
2023: Bryan Chen
2023: Mohamed yassine Loulou
2020: Sabine Muzellec
2020: Maxence Bieres
2020: Hao Hu
2020: Hosseim Nahal
2020: Julien Ferry

FUNDING AND INTERNATIONAL COLLABORATIONS

Project Funding

2024 · Three months funding to visit Prof. Joao Marques Silva at University of Lleida, 6*K*, INSA Toulouse

2022 - 2024 · Interactive Combinatorial Optimisation, PI, 20*k*, Funding: CIMI Toulouse, PI

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

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

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

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

Research Projects Participation

2020 - 2022 · Collaborator researcher in the *DEEP LEARNER EXPLANATION & VERIFICATION CHAIR* with Prof. Joao Marques Silva

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

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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 · Ph.D 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

[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

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)

2024-2027 · Awarded a three-year RIPEC, INSA Toulouse

2024 · Three months scientific mobility funding to visit Prof. Joao Marques Silva at University of Lleida from INSA Toulouse (6*k*)

2019 · **Distinguished Program Committee, IJCAI 2019**

2014 · Finalist for the ROADEF Young Researcher Award

2012 · International Conference on Principles and Practice of Constraint Programming doctoral program grants, 2012, Quebec, Canada

Science Outreach

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

Additional Skills and Experiences

2005-2025 · 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

REFERENCES

Pr. Barry O'sullivan, University College Cork
http://osullivan.ucc.ie/

Dr. Emmanuel Hebrard, LAAS-CNRS
https://homepages.laas.fr/ehebrard/

Pr. Marie-José Huguet, INSA Toulouse, LAAS-CNRS
https://homepages.laas.fr/huguet/

Dr. Serdar Kadioglu, Fidelity Investments, Brown University
https://skadio.github.io/

Dr. Nina Narodytska, VMware Research
https://research.vmware.com/researchers/nina-narodytska

PUBLICATIONS

Preprint

2024 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. *CoRR*, abs/2312.16191, 2023

2024

SATML 2024 Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Probabilistic dataset reconstruction from interpretable models. *CoRR*, abs/2308.15099, 2023

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 completability: 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 — 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

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