MOHAMED SIALA

PERSONAL INFORMATION

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RESEARCH INTERESTS

Combinatorial Optimisation, Constraint Programming, Artificial Intelligence

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

2011 – 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	Undergraduate degree in Mathematics and Physics, " Classes préparatoires ", *IPEIS, Tunisia*

AWARDS

2016	**Best PhD Thesis Award, honorable mention**, 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:** **2022:** Winner in many tracks of the XCSP competition: – First of the "mini" optimisation track – Third in the main optimisation track – Third in the fast optimisation track

2020: Two bronze medals in the Minizinc Challenge (free and parallel categories)

2017: Winner in many tracks of the XCSP competition:
– First of the main optimisation track
– Second in the fast optimisation track
– Third in the parallel optimisation track

SERVICE

Recent Conferences Program Committee (PC)

IJCAI, International Joint Conferences on Artificial Intelligence: since 2019
Awarded Distinguished Program Committee in 2019

AAAI, AAAI Conference on Artificial Intelligence : PC since 2020

CP, International Conference on Principles and Practice of Constraint Programming: since 2017

ECAI, European Conference on Artificial Intelligence: 2016, 2018

CPAIOR, International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research, 2014, 2016, 2021

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

Local Service

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

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

2012 - 2014 · Representing the PhD. students in the ROC research group

MISCELLANEOUS

Academic visits

02/2020 · Department of Philosophy, UCC, Cork, Ireland,

01/2013 · NICTA, UNSW, Sydney, Australia Cooperation with : Nina Narodytska and Toby Walsh

Research Projects participation

09/2019 - present · Collaborator of the ANITI research chair DeepLEVER

2017 - 2018 · UTRC-UCC Cooperation Project

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

2012 - 2014 · **CNRS, Google**, and Midi-Pyrénées region Grant: Conflict Directed Scheduling

Popularization

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

PhD. 2020-2023 · Co-supervising the PhD of Julien Ferry with Marie José Huguet and Sébastien Gambs:

Privacy, Interpretability, and Fairness in Machine Learning

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

Declarative Machine Learning

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. 02/2022 – 08/2022: Julien Rouzot

05/2020 – 08/2020: Sabine Muzellec
03/2020 – 09/2020: Maxence Bieres
02/2019 – 07/2019: Hao Hu
04/2019 – 10/2019: Hosseim NAHAL
06/2019 – 09/2019: Julien Ferry

PUBLICATIONS

2022

MACHINE LEARNING
Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Improving fairness generalization through a sample-robust optimization method. ***Machine Learning***, 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   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

OTHER INFORMATION

Music	Since 2005	Violin player with French, Irish, and Tunisian bands
	2007 - 2010	Manager of the ENSI-Music association, Tunisia
Mountaineering	2018	Hike leader, UCC mountaineering club, Ireland

August 29, 2022