
GRANTS AND INDUSTRIAL PROJECTS

- 2019 - **ANITI**, *AI chair*.
 - Co-chair of the project "Deep Learner Explanation and Verification" (DeepLEVER) with Joao Marques-Silva and Martin Cooper.
- 2019 - **Renault**, *CIFRE scholarship*.
 - Reinforcement learning and Monte Carlo tree search methods in hybrid constraint and clause-learning approaches
- 2017 - **GEO-SAFE**, *RISE (EU- Australia)*.
 - Wildfire response decision and optimization
- 2013 - 2016 **Airbus Defense and Space**, *CIFRE scholarship*.
 - Sequencing of test campaigns for communication satellite
- 2011 - 2014 **CNES**, *Collaboration*.
 - Planning the scientific activities of the lander Philae during the Rosetta probe mission on the comet 67P Churyumov-Gerasimenko
- 2010 **Google & CNRS**, *Grant*.
 - Conflict Directed Scheduling
- 2006 **Irish Research Council for Science, Engineering and Technology**, *Grant*.
 - A Taxonomy of Global Constraints

INVITED TALKS

- 2018 **Early Career Spotlight Talk**, *IJCAI*, Stockholm, Sweden.
 - Reasoning about NP-complete Constraints
- 2018 **Lecture**, *International Spring School On Integrated Operational Problems*, Troyes, France.
 - Modeling and Solving Constraint Problems
- 2017 **Lecture**, *ACP Summer school*, Porquerolle, France.
 - Resource Constraints in Scheduling
- 2015 **Invited Talk**, *University of Edinburgh Business School*, Edinburgh, Scotland.
 - Scheduling Philae's Science Campaign Using Constraint Programming
- 2015 **Invited Talk**, *IBM Toulouse*, Toulouse, France.
 - Des Plans sur la Comète
- 2014 **Tutorial**, *ROADEF*, Bordeaux, France.
 - The 1000 Faces of Constraint Propagation
- 2010 **Tutorial**, *AAAI*, Atlanta, Georgia, USA.
 - Constraint Programming and Combinatorial Optimisation in Numberjack

RESPONSABILITIES

- 2019 – 2023 **Elected Member of the Executive Committee**, *Association for Constraint Programming (ACP)*.
- 2016 – 2018 **Membre du Conseil d'Administration**, *Association Française de Programmation par Contraintes (AFPC)*.

PUBLICATIONS

- 2020 Alexey Ignatiev, Martin C. Cooper, Mohamed Siala, Emmanuel Hebrard, and Joao Marques-Silva. *Towards Formal Fairness in Machine Learning*. In proceedings of **Proceedings of the 26th International Conference on Principles and Practice of Constraint Programming (CP)**, pages 846–867.
- Emmanuel Hebrard and George Katsirelos. *Constraint and satisfiability reasoning for graph coloring*. **J. Artif. Intell. Res.**, 69:33–65.
- Arthur Godet, Xavier Lorca, Emmanuel Hebrard, and Gilles Simonin. *Using approximation within constraint programming to solve the parallel machine scheduling problem with additional unit resources*. In proceedings of **AAAI**, pages 1512–1519.
- Valentin Antuori, Emmanuel Hebrard, Marie-José Huguet, Siham Essodaigui, and Alain Nguyen. *Leveraging Reinforcement Learning, Constraint Programming and Local Search: A Case Study in Car Manufacturing*. In proceedings of **Proceedings of the 26th International Conference on Principles and Practice of Constraint Programming (CP)**, pages 657–672.
- 2019 Emmanuel Hebrard and George Katsirelos. *A hybrid approach for exact coloring of massive graphs*. In proceedings of **CPAIOR**, pages 374–390.
- 2018 Emmanuel Hebrard and George Katsirelos. *Conflict directed clause learning for maximum weighted clique problem*. In proceedings of **IJCAI**, pages 1316–1323.
- Emmanuel Hebrard and George Katsirelos. *Clause learning and new bounds for graph coloring*. In proceedings of **CP**, pages 179–194.
- Emmanuel Hebrard. *Reasoning about np-complete constraints*. In proceedings of **IJCAI**, pages 5672–5676.
- 2017 Emmanuel Hebrard and Mohamed Siala. *Explanation-based weighted degree*. In proceedings of **CPAIOR**, pages 167–175.
- Emmanuel Hebrard, Marie-José Huguet, Daniel Veysseire, Ludivine Boche Sauvan, and Bertrand Cabon. *Constraint programming for planning test campaigns of communications satellites*. **Constraints**, 22(1):73–89.
- Clément Carbonnel and Emmanuel Hebrard. *On the kernelization of global constraints*. In proceedings of **IJCAI**, pages 578–584.
- 2016 Emmanuel Hebrard, Marie-José Huguet, Nicolas Jozefowicz, Adrien Maillard, Cédric Pralet, and Gérard Verfaillie. *Approximation of the parallel machine scheduling problem with additional unit resources*. **Discrete Applied Mathematics**, 215:126–135.
- Clément Carbonnel and Emmanuel Hebrard. *Propagation via kernelization: The vertex cover constraint*. In proceedings of **CP**, pages 147–156.
- Christian Bessiere, Emmanuel Hebrard, George Katsirelos, Zeynep Kiziltan, and Toby Walsh. *Ranking constraints*. In proceedings of **IJCAI**, pages 705–711.
- Christian Bessiere, Abderrazak Daoudi, Emmanuel Hebrard, George Katsirelos, Nadjib Lazaar, Younes Mechqrane, Nina Narodytska, Claude-Guy Quimper, and Toby Walsh. *New approaches to constraint acquisition*. In proceedings of **Data Mining and Constraint Programming - Foundations of a Cross-Disciplinary Approach**, pages 51–76.
- 2015 Gilles Simonin, Christian Artigues, Emmanuel Hebrard, and Pierre Lopez. *Scheduling scientific experiments for comet exploration*. **Constraints**, 20(1):77–99.

- Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. *A study of constraint programming heuristics for the car-sequencing problem*. **Eng. Appl. of AI**, 38:34–44.
- Mohamed Siala, Christian Artigues, and Emmanuel Hebrard. *Two clause learning approaches for disjunctive scheduling*. In proceedings of **CP**, pages 393–402.
- Diarmuid Grimes and Emmanuel Hebrard. *Solving variants of the job shop scheduling problem through conflict-directed search*. **INFORMS Journal on Computing**, 27(2):268–284.
- Christian Bessière, Emmanuel Hebrard, George Katsirelos, and Toby Walsh. *Reasoning about connectivity constraints*. In proceedings of **IJCAI**, pages 2568–2574.
- 2014 Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. *An optimal arc consistency algorithm for a particular case of sequence constraint*. **Constraints**, 19(1):30–56.
- Cédric Pralet, Gérard Verfaillie, Adrien Maillard, Emmanuel Hebrard, Nicolas Jozefowicz, Marie-José Huguet, Thierry Desmousseaux, Pierre Blanc-Paques, and Jean Jaubert. *Satellite data download management with uncertainty about the generated volumes*. In proceedings of **ICAPS**.
- Clément Carbonnel, Martin C. Cooper, and Emmanuel Hebrard. *On backdoors to tractable constraint languages*. In proceedings of **CP**, pages 224–239.
- Christian Bessiere, Emmanuel Hebrard, Marc-André Ménard, Claude-Guy Quimper, and Toby Walsh. *Buffered resource constraint: Algorithms and complexity*. In proceedings of **CPAIOR**, pages 318–333.
- Christian Bessiere, Emmanuel Hebrard, George Katsirelos, Zeynep Kiziltan, Émilie Picard-Cantin, Claude-Guy Quimper, and Toby Walsh. *The balance constraint family*. In proceedings of **CP**, pages 174–189.
- Christian Bessiere, Emmanuel Hebrard, George Katsirelos, Zeynep Kiziltan, Nina Narodytska, and Toby Walsh. *Reasoning about constraint models*. In proceedings of **PRICAI**, pages 795–808.
- Christian Artigues, Emmanuel Hebrard, Valentin Mayer-Eichberger, Mohamed Siala, and Toby Walsh. *SAT and hybrid models of the car sequencing problem*. In proceedings of **CPAIOR**, pages 268–283.
- 2013 Christian Bessiere, Remi Coletta, Emmanuel Hebrard, George Katsirelos, Nadjib Lazaar, Nina Narodytska, Claude-Guy Quimper, and Toby Walsh. *Constraint acquisition via partial queries*. In proceedings of **IJCAI**, pages 475–481.
- Christian Bessiere, Clément Carbonnel, Emmanuel Hebrard, George Katsirelos, and Toby Walsh. *Detecting and exploiting subproblem tractability*. In proceedings of **IJCAI**, pages 468–474.
- 2012 Gilles Simonin, Christian Artigues, Emmanuel Hebrard, and Pierre Lopez. *Scheduling scientific experiments on the rosetta/philae mission*. In proceedings of **CP**, pages 23–37.
- Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. *An optimal arc consistency algorithm for a chain of atmost constraints with cardinality*. In proceedings of **CP**, pages 55–69.
- Hadrien Cambazard, Emmanuel Hebrard, Barry O’Sullivan, and Alexandre Papadopoulos. *Local search and constraint programming for the post enrolment-based course timetabling problem*. **Annals OR**, 194(1):111–135.

- Jean-Charles Billaut, Emmanuel Hebrard, and Pierre Lopez. *Complete characterization of near-optimal sequences for the two-machine flow shop scheduling problem*. In proceedings of **CPAIOR**, pages 66–80.
- 2011 Emmanuel Hebrard, Dániel Marx, Barry O’Sullivan, and Igor Razgon. *Soft constraints of difference and equality*. **J. Artif. Intell. Res.**, 41:97–130.
- Diarmuid Grimes and Emmanuel Hebrard. *Models and strategies for variants of the job shop scheduling problem*. In proceedings of **CP**, pages 356–372.
- 2010 Emmanuel Hebrard, Eoin O’Mahony, and Barry O’Sullivan. *Constraint programming and combinatorial optimisation in numberjack*. In proceedings of **CPAIOR**, pages 181–185.
- Diarmuid Grimes and Emmanuel Hebrard. *Job shop scheduling with setup times and maximal time-lags: A simple constraint programming approach*. In proceedings of **CPAIOR**, pages 147–161.
- 2009 Emmanuel Hebrard, Dániel Marx, Barry O’Sullivan, and Igor Razgon. *Constraints of difference and equality: A complete taxonomic characterisation*. In proceedings of **CP**, pages 424–438.
- Diarmuid Grimes, Emmanuel Hebrard, and Arnaud Malapert. *Closing the open shop: Contradicting conventional wisdom*. In proceedings of **CP**, pages 400–408.
- Christian Bessiere, Emmanuel Hebrard, and Barry O’Sullivan. *Minimising decision tree size as combinatorial optimisation*. In proceedings of **CP**, pages 173–187.
- Christian Bessiere, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *Range and roots: Two common patterns for specifying and propagating counting and occurrence constraints*. **Artif. Intell.**, 173(11):1054–1078.
- 2008 Emmanuel Hebrard, Barry O’Sullivan, and Igor Razgon. *A soft constraint of equality: Complexity and approximability*. In proceedings of **CP**, pages 358–371.
- Christian Bessiere, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *SLIDE: A useful special case of the CARDPATH constraint*. In proceedings of **ECAI**, pages 475–479.
- Christian Bessiere, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, Claude-Guy Quimper, and Toby Walsh. *The parameterized complexity of global constraints*. In proceedings of **AAAI**, pages 235–240.
- 2007 Emmanuel Hebrard, Barry O’Sullivan, and Toby Walsh. *Distance constraints in constraint satisfaction*. In proceedings of **IJCAI**, pages 106–111.
- Christian Bessiere, Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *The complexity of reasoning with global constraints*. **Constraints**, 12(2):239–259.
- Christian Bessiere, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, Claude-Guy Quimper, and Toby Walsh. *Reformulating global constraints: The slide and regular constraints*. In proceedings of **SARA**, pages 80–92.
- 2006 Christian Bessière, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *The ROOTS constraint*. In proceedings of **CP**, pages 75–90.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *The range constraint: Algorithms and implementation*. In proceedings of **CPAIOR**, pages 59–73.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *Filtering algorithms for the nvalue constraint*. **Constraints**, 11(4):271–293.

- 2005 Emmanuel Hebrard, Brahim Hnich, Barry O’Sullivan, and Toby Walsh. *Finding diverse and similar solutions in constraint programming*. In proceedings of **AAAI**, pages 372–377.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *The range and roots constraints: Specifying counting and occurrence problems*. In proceedings of **IJCAI**, pages 60–65.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, Zeynep Kiziltan, and Toby Walsh. *Filtering algorithms for the nvalue constraint*. In proceedings of **CPAIOR**, pages 79–93.
- 2004 Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *Super solutions in constraint programming*. In proceedings of **CPAIOR**, pages 157–172.
- Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *Robust solutions for constraint satisfaction and optimization*. In proceedings of **ECAI**, pages 186–190.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *The tractability of global constraints*. In proceedings of **CP**, pages 716–720.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *Disjoint, partition and intersection constraints for set and multiset variables*. In proceedings of **CP**, pages 138–152.
- Christian Bessière, Emmanuel Hebrard, Brahim Hnich, and Toby Walsh. *The complexity of global constraints*. In proceedings of **AAAI**, pages 112–117.
- 2003 Christian Bessière, Emmanuel Hebrard, and Toby Walsh. *Local consistencies in SAT*. In proceedings of **SAT**, pages 299–314.