

29th International Conference on Principles and Practice of Constraint Programming


CP 2023, August 27–31, 2023, Toronto, Canada

Edited by

Roland H. C. Yap



Editors

Roland H. C. Yap 

National University of Singapore, School of Computing, 13 Computing Drive, Singapore
ryap@comp.nus.edu.sg

ACM Classification 2012

Theory of computation → Constraint and logic programming

ISBN 978-3-95977-300-3

Published online and open access by

Schloss Dagstuhl – Leibniz-Zentrum für Informatik GmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany. Online available at <https://www.dagstuhl.de/dagpub/978-3-95977-300-3>.

Publication date

September, 2023

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <https://portal.dnb.de>.

License

This work is licensed under a Creative Commons Attribution 4.0 International license (CC-BY 4.0):

<https://creativecommons.org/licenses/by/4.0/legalcode>.



In brief, this license authorizes each and everybody to share (to copy, distribute and transmit) the work under the following conditions, without impairing or restricting the authors' moral rights:

- Attribution: The work must be attributed to its authors.

The copyright is retained by the corresponding authors.

Digital Object Identifier: 10.4230/LIPIcs.CP.2023.0

ISBN 978-3-95977-300-3

ISSN 1868-8969

<https://www.dagstuhl.de/lipics>

LIPICs – Leibniz International Proceedings in Informatics

LIPICs is a series of high-quality conference proceedings across all fields in informatics. LIPICs volumes are published according to the principle of Open Access, i.e., they are available online and free of charge.

Editorial Board

- Luca Aceto (*Chair*, Reykjavik University, IS and Gran Sasso Science Institute, IT)
- Christel Baier (TU Dresden, DE)
- Roberto Di Cosmo (Inria and Université de Paris, FR)
- Faith Ellen (University of Toronto, CA)
- Javier Esparza (TU München, DE)
- Daniel Král' (Masaryk University, Brno, CZ)
- Meena Mahajan (Institute of Mathematical Sciences, Chennai, IN)
- Anca Muscholl (University of Bordeaux, FR)
- Chih-Hao Luke Ong (University of Oxford, GB)
- Phillip Rogaway (University of California, Davis, US)
- Eva Rotenberg (Technical University of Denmark, Lyngby, DK)
- Raimund Seidel (Universität des Saarlandes, Saarbrücken, DE and Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Wadern, DE)
- Pierre Senellart (ENS, Université PSL, Paris, FR)

ISSN 1868-8969

<https://www.dagstuhl.de/lipics>

■ Contents

Preface	
<i>Roland H.C. Yap</i>	0:ix–0:x
Senior Program Committee	
.....	0:xi
Program Committee	
.....	0:xii
Additional Reviewers	
.....	0:xiii
Authors	
.....	0:xv–0:xx

Invited Talks

Beyond Optimal Solutions for Real-World Problems	
<i>Maria García de la Banda</i>	1:1–1:4
A Tale of Two Cities: Teaching CP with Story-Telling	
<i>Jimmy H.M. Lee</i>	2:1–2:1
The CP-SAT-LP Solver	
<i>Laurent Perron, Frédéric Didier, and Steven Gay</i>	3:1–3:2
Coupling CP with Deep Learning for Molecular Design and SARS-CoV2 Variants Exploration	
<i>Thomas Schiex</i>	4:1–4:3
CP Solver Design for Maximum CPU Utilization	
<i>Petr Vilím</i>	5:1–5:1

Regular Papers

Optimization of Short-Term Underground Mine Planning Using Constraint Programming	
<i>Younes Aalian, Gilles Pesant, and Michel Gamache</i>	6:1–6:16
Exploiting Configurations of MaxSAT Solvers	
<i>Josep Alòs, Carlos Ansótegui, Josep M. Salvía, and Eduard Torres</i>	7:1–7:16
Symmetries for Cube-And-Conquer in Finite Model Finding	
<i>João Araújo, Chaiwah Chow, and Mikoláš Janota</i>	8:1–8:19
Guiding Backtrack Search by Tracking Variables During Constraint Propagation	
<i>Gilles Audemard, Christophe Lecoutre, and Charles Prud'homme</i>	9:1–9:17
Incremental Constrained Clustering by Minimal Weighted Modification	
<i>Aymeric Beauchamp, Thi-Bich-Hanh Dao, Samir Loudni, and Christel Vrain</i>	10:1–10:22



Simplifying Step-Wise Explanation Sequences <i>Ignace Bleukx, Jo Devriendt, Emilio Gamba, Bart Bogaerts, and Tias Guns</i>	11:1–11:20
Towards More Efficient Local Search for Pseudo-Boolean Optimization <i>Yi Chu, Shaowei Cai, Chuan Luo, Zhendong Lei, and Cong Peng</i>	12:1–12:18
Boosting Decision Diagram-Based Branch-And-Bound by Pre-Solving with Aggregate Dynamic Programming <i>Vianney Coppé, Xavier Gillard, and Pierre Schaus</i>	13:1–13:17
Fast Matrix Multiplication Without Tears: A Constraint Programming Approach <i>Arnaud Deza, Chang Liu, Pashootan Vaezipoor, and Elias B. Khalil</i>	14:1–14:15
Probabilistic Inference by Projected Weighted Model Counting on Horn Clauses <i>Alexandre Dubray, Pierre Schaus, and Siegfried Nijssen</i>	15:1–15:17
A CP Approach for the Liner Shipping Network Design Problem <i>Yousra El Ghazi, Djamel Habet, and Cyril Terrioux</i>	16:1–16:21
Optimization Models for Pickup-And-Delivery Problems with Reconfigurable Capacities <i>Arnoosh Golestanian, Giovanni Lo Bianco, Chengyu Tao, and J. Christopher Beck</i>	17:1–17:17
Preprocessing in SAT-Based Multi-Objective Combinatorial Optimization <i>Christoph Jabs, Jeremias Berg, Hannes Ihalainen, and Matti Järvisalo</i>	18:1–18:20
An Efficient Constraint Programming Approach to Preemptive Job Shop Scheduling <i>Carla Juvin, Emmanuel Hebrard, Laurent Houssin, and Pierre Lopez</i>	19:1–19:16
Horizontally Elastic Edge Finder Rule for Cumulative Constraint Based on Slack and Density <i>Roger Kameugne, Séverine Fetgo Betmbe, Thierry Noulamo, and Clémentin Tayou Djamegni</i>	20:1–20:17
Exploring Hydrogen Supply/Demand Networks: Modeller and Domain Expert Views <i>Matthias Klapperstueck, Frits de Nijs, Ilankaikone Senthoooran, Jack Lee-Kopij, María García de la Banda, and Michael Wybrow</i>	21:1–21:18
Binary Constraint Trees and Structured Decomposability <i>Petr Kučera</i>	22:1–22:19
Large Neighborhood Beam Search for Domain-Independent Dynamic Programming <i>Ryo Kuroiwa and J. Christopher Beck</i>	23:1–23:22
MDD Archive for Boosting the Pareto Constraint <i>Steve Malalel, Arnaud Malapert, Marie Pelleau, and Jean-Charles Régim</i>	24:1–24:15
Learning a Generic Value-Selection Heuristic Inside a Constraint Programming Solver <i>Tom Marty, Tristan François, Pierre Tessier, Louis Gautier, Louis-Martin Rousseau, and Quentin Cappart</i>	25:1–25:19

Proof Logging for Smart Extensional Constraints <i>Matthew J. McIlree and Ciaran McCreesh</i>	26:1–26:17
Improving Conflict Analysis in MIP Solvers by Pseudo-Boolean Reasoning <i>Gioni Mezi, Timo Berthold, Ambros Gleixner, and Jakob Nordström</i>	27:1–27:19
Using Canonical Codes to Efficiently Solve the Benzenoid Generation Problem with Constraint Programming <i>Xiao Peng and Christine Solnon</i>	28:1–28:17
Distribution Optimization in Constraint Programming <i>Guillaume Perez, Gaël Glorian, Wijnand Suijlen, and Arnaud Lallouet</i>	29:1–29:19
The p-Dispersion Problem with Distance Constraints <i>Nikolaos Ploskas, Kostas Stergiou, and Dimosthenis C. Tsouros</i>	30:1–30:18
Partially Preemptive Multi Skill/Mode Resource-Constrained Project Scheduling with Generalized Precedence Relations and Calendars <i>Guillaume Pováda, Nahum Alvarez, and Christian Artigues</i>	31:1–31:21
Assembly Line Preliminary Design Optimization for an Aircraft <i>Stéphanie Roussel, Thomas Polacsek, and Anouck Chan</i>	32:1–32:19
SAT-Based Learning of Compact Binary Decision Diagrams for Classification <i>Pouya Shati, Eldan Cohen, and Sheila McIlraith</i>	33:1–33:19
Constraint Programming with External Worst-Case Traversal Time Analysis <i>Pierre Talbot, Tingting Hu, and Nicolas Navet</i>	34:1–34:20
Efficient Enumeration of Fixed Points in Complex Boolean Networks Using Answer Set Programming <i>Van-Giang Trinh, Belaid Benhamou, and Sylvain Soliman</i>	35:1–35:19
Guided Bottom-Up Interactive Constraint Acquisition <i>Dimosthenis C. Tsouros, Senne Berden, and Tias Guns</i>	36:1–36:20
Addressing Problem Drift in UNHCR Fund Allocation <i>Sameela Suharshani Wijesundara, Maria Garcia de la Banda, and Guido Tack</i> ...	37:1–37:18
From Formal Boosted Tree Explanations to Interpretable Rule Sets <i>Jinqiang Yu, Alexey Ignatiev, and Peter J. Stuckey</i>	38:1–38:21
Searching for Smallest Universal Graphs and Tournaments with SAT <i>Tianwei Zhang and Stefan Szeider</i>	39:1–39:20
FastMapSVM for Predicting CSP Satisfiability <i>Kezin Zheng, Ang Li, Han Zhang, and T. K. Satish Kumar</i>	40:1–40:17
Improving Local Search for Pseudo Boolean Optimization by Fragile Scoring Function and Deep Optimization <i>Wenbo Zhou, Yujiao Zhao, Yiyuan Wang, Shaowei Cai, Shimao Wang, Xinyu Wang, and Minghao Yin</i>	41:1–41:18

Short Papers

Predict-Then-Optimise Strategies for Water Flow Control <i>Vincent Barbosa Vaz, James Bailey, Christopher Leckie, and Peter J. Stuckey</i>	42:1–42:10
Constraint Programming Models for Depth-Optimal Qubit Assignment and SWAP-Based Routing <i>Kyle E. C. Booth</i>	43:1–43:10
Constraint Model for the Satellite Image Mosaic Selection Problem <i>Manuel Combarro Simón, Pierre Talbot, Grégoire Danoy, Jędrzej Musiał, Mohammed Alswaitti, and Pascal Bouvry</i>	44:1–44:15
Partitioning a Map into Homogeneous Contiguous Regions: A Branch-And-Bound Approach Using Decision Diagrams <i>Nicolas Golenvoux, Xavier Gillard, Siegfried Nijssen, and Pierre Schaus</i>	45:1–45:10
Constraint Programming to Improve Hub Utilization in Autonomous Transfer Hub Networks <i>Chungjae Lee, Wirattawut Boonbandansook, Vahid Eghbal Akhlaghi, Kevin Dalmeijer, and Pascal Van Hentenryck</i>	46:1–46:11
A New Approach to Finding $2 \times n$ Partially Spatially Balanced Latin Rectangles <i>Renee Mirka, Laura Greenstreet, Marc Grimson, and Carla P. Gomes</i>	47:1–47:11
Proven Optimally-Balanced Latin Rectangles with SAT <i>Vaidyanathan Peruvemba Ramaswamy and Stefan Szeider</i>	48:1–48:10
Enumerative Level-2 Solution Counting for Quantified Boolean Formulas <i>Andreas Plank, Sibylle Möhle, and Martina Seidl</i>	49:1–49:10

■ Preface

This volume contains the proceedings of the *29th International Conference on Principles and Practice of Constraint Programming (CP 2023)*, which was held in Toronto, Canada, August 27–31, 2023. More details of the conference can be found at <https://cp2023.a4cp.org/index.html>.

Held annually, CP is the premier international conference on constraint programming. CP is concerned with all aspects of computing with constraints, including, but not restricted to: theory, algorithms, environments, languages, models, systems, and applications.

As is customary for CP, papers could be submitted to multiple tracks. CP 2023 had the following tracks:

- | | |
|-------------------------------|-----------------------|
| ■ Technical Track | Chair: Roland Yap |
| ■ Applications Track | Chair: Helmut Simonis |
| ■ Machine Learning Track | Chair: Tias Guns |
| ■ Operations Research Track | Chair: Gilles Pesant |
| ■ Trustworthy Decision Making | Chair: Peter Stuckey |

In addition, there was a SAT Fast Track to synchronize with the SAT 2023 conference.

A total of 109 papers (excluding abstracts) were submitted to these tracks. Authors could submit either a full paper with a maximum length of 15 pages (references excluded) or a short paper with a maximum length of 8 pages (references excluded). Each paper was reviewed with a senior Program Committee together with Program Committees and additional reviewers recruited by the Program Committee. The track chairs managed the review process for their respective tracks. All papers had at least three reviews. Authors had the opportunity to answer questions from reviewers in an author response phase. Based on extensive discussion on the papers from reviewers, program and senior program committee, and track chairs taking into account reviews and author responses, a total of 44 papers were accepted. A meta-review was prepared for each paper by a senior program committee member summarizing the decision with suggestions to authors. The Senior Program Committee and Chairs nominated papers for the best paper prizes. A select committee from the Senior Program Committee together with the Program Chair awarded the Best Paper Prize to Mathew J. McIlree and Ciaran McCreesh for “Proof Logging for Smart Extensional Constraints” and the best application paper prize to Matthias Klapperstueck, Frits De Nijs, Ilankaikone Senthooran, Jack Lee-Kopij, Maria Garcia De La Banda and Michael Wybrow for “Exploring Hydrogen Supply/Demand Networks: Modeller and Domain Expert views”.

In addition to the paper tracks, the conference had a number of satellite events. Lars Kotthoff (University of Wyoming) organized the workshops on the first day of the conference with five workshops. The doctoral program, also on the first day, was organized by Xavier Gillard (Université catholique de Louvain) and forms an important part of the conference to give students an environment to present their research with discussions with senior researchers, and networking activities combined with a poster presentation during the conference reception. CP features two tutorials organized by Emir Demirović (TU Delft) on the timely topics of explainable constraint solving and machine learning for solvers. The conference program featured four invited talks given by Maria Garcia de la Banda, Jimmy Lee, Laurent Perron, Thomas Schiex and Petr Vilím. The talks were selected to showcase a range of research in CP and include constraint solver design, designing proteins with applications to the SARS-Cov2 virus, teaching of CP, and making optimisation technology more usable.



Many people have contributed to make the conference a success. The conference would not be possible for the hard work of the authors in submitting high-quality scientific work which forms the basis of the conference proceedings. The program and senior committee together with track chairs had the challenging tasks of selecting papers as well as providing authors with suggestions on paper improvements. A special thanks goes to Andre Cire and Eldan Cohen, the conference and local chairs respectively, both at the University of Toronto, who made CP possible in Toronto. In addition to the above mentioned conference organizers, I would like to thank the following co-organizers. The diversity, equity, and inclusion (DEI) chairs, Maria Andreina Francisco Rodriguez (Uppsala University) and Andrea Rendl (Satalia). Arvind Raghunathan (Mitsubishi Electric Research Laboratories), the sponsorship chair. Anna Latour (National University of Singapore) was instrumental in managing the website and also handled the publicity and social media.

I would also like to thank the Association for Constraint Programming (ACP) which makes the CP conference series possible. The conference is grateful to the ACP president, David Bergman (University of Connecticut) and the ACP conference coordinator, H el ene Verhaeghe (KU Leuven) for their support and feedback.

The conference acknowledges the generous support of all our sponsors:

- ACP
- The Artificial Intelligence Journal (Elsevier)
- Cosling
- Department of Management, University of Toronto Scarborough
- Google
- IBM
- MERL
- The Optimization Firm
- ScheduleOpt

July 2023, Singapore

Roland Yap

■ Organization

Senior Program Committee

Christian Bessiere	CNRS, University of Montpellier, France
Mats Carlsson	RISE Research Institutes of Sweden, Sweden
Berthe Choueiry	University of Nebraska-Lincoln, USA
David Cohen	Royal Holloway, University of London
Maria Garcia De La Banda	Monash University, Australia
Ian Gent	University of St Andrews, United Kingdom
Philip Kilby	Data61 & The Australian National University
Christophe Lecoutre	CRIL, University of Artois, France
Jimmy Lee	The Chinese University of Hong Kong, Hong Kong
Kuldeep Meel	National University of Singapore, Singapore
Ian Miguel	University of St Andrews, United Kingdom
Michela Milano	University of Bologna, Italy
Barry O'Sullivan	University College Cork, Ireland
Justin Pearson	Uppsala University, Sweden
Thomas Schiex	Universite Fédérale de Toulouse, ANITI, INRAE, France
Laurent Simon Labri	Bordeaux Institute of Technology, France
Christine Solnon	INSA Lyon, France
Peter J. Stuckey	Monash University, Australia
Michael Trick	Carnegie Mellon University, USA
Neil Yorke-Smith	Delft University of Technology, Netherlands



Program Committee

Carlos Ansotegui	Universitat de Lleida, Spain
Christopher Beck	University of Toronto, Canada
Nicolas Beldiceanu	IMT Atlantique (LS2N), France
David Bergman	University of Connecticut, USA
Armin Biere	University of Freiburg, Germany
Nikolaj Bjorner	Microsoft, USA
Ken Brown	University College Cork
Quentin Cappart	Ecole Polytechnique de Montréal, Canada
Martin Cooper	IRIT - Université Paul Sabatier, France
Simon de Givry	INRA - MIAT, France
Jean-Guillaume Fages	COSLING, France
Pierre Flener	Uppsala University, Sweden
Emmanuel Hebrard	LAAS, CNRS, France
Alexey Ignatiev	Monash University, Australia
George Katsirelos	MIA Paris, INRAE, AgroParisTech, France
Zeynep Kiziltan	University of Bologna, Italy
T. K. Satish Kumar	University of Southern California, USA
Mikael Lagerkvist	Optischedule, Sweden
Nadjib Lazaar	UM2-LIRMM, France
Chu-Min Li	Université de Picardie Jules Verne, France
Michele Lombardi	University of Bologna, Italy
Ciaran McCreesh	University of Glasgow, United Kingdom
Laurent Michel	University of Connecticut, USA
Nysret Musliu	TU Wien, Austria
Peter Nightingale	University of York, United Kingdom
Jakob Nordstrom	University of Copenhagen & Lund University
Marie Pelleau	Université Côte d'Azur, France
Guillaume Perez	University of Nice-Sophia Antipolis/I3S, France
Laurent Perron	Google France, France
Steve Prestwich	Insight Centre for Data Analytics, Ireland
Patrick Prosser	Glasgow University, United Kingdom
Charles Prud'Homme	IMT Atlantique, LS2N, France
Claude-Guy Quimper	Laval University, Canada
Jean-Charles Regin	University Nice-Sophia Antipolis/I3S/CNRS, France
Pierre Schaus	UCLouvain, Belgium
Paul Shaw	IBM, France
Mohamed Siala	INSA Toulouse & LAAS-CNRS, France
Mate Soos	National University of Singapore, Singapore
Kostas Stergiou	University of Western Macedonia, Greece
Guido Tack	Monash University, Australia
Cyril Terrioux	LIS - UMR CNRS 7020 - Aix-Marseille Université, France
Gilles Trombettoni	LIRMM, University of Montpellier, France
Charlotte Truchet	Université de Nantes, France
Willem-Jan Van Hoeve	Carnegie Mellon University, USA
Hélène Verhaeghe	KU Leuven, Belgium
Petr Vilím	ScheduleOpt
Mark Wallace	Monash University, Australia
Ruiwei Wang	National University of Singapore, Singapore
Armin Wolf	Fraunhofer Institute, Germany
Lebbah Yahia	University of Oran 1, Algeria
Neng-Fa Zhou	CUNY Brooklyn College & Graduate Center, USA

Additional Reviewers

Josep Alòs
Valentin Antuori
Noureddine Aribi
Federico Baldo
Nassim Belmecheri
Hendrik Bierlee
Andrea Borghesi
Touati Chahira
Vianney Coppé
Timothy Curry
Toby O. Davies
Guillaume Derval
Julien Ferry
Romain Fontaine
Andrea Formisano
Matteo Francobaldi
Xavier Gillard
Ramiz Gindullin
Luca Giuliani
Arthur Gontier
Cristian Grozea
Matthias Horn
Victor Jung
Anthony Karahalios
Amina Kemmar
Lucas Kletzander
Stepan Kochemazov
Tanguy Lapègue
Shuolin Li
Matthew J. McIlree
Claude Michel
Florian Mischek
Eleonora Misino
Pierre Montalbano
Antonio Morgado
Bertrand Neveu
Andy Oertel
Jolan Philippe
Philippe Refalo
András Z. Salamon
Noah Schutte
Jean-Baptiste Sciau
Dimosthenis C. Tsouros
Marc Vinyals
Damien T. Wojtowicz
Oleg Zaikin
Yuanlin Zhang

■ List of Authors

Younes Aalian (6)

Département de mathématiques et de génie industriel, Polytechnique Montréal, Québec, Canada

Vahid Eghbal Akhlaghi (46)

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA

Mohammed Alswaitti (44)

University of Luxembourg, Luxembourg; Interdisciplinary Centre for Security, Reliability and Trust (SnT), Luxembourg

Nahum Alvarez (31)

Airbus (AI Research), Toulouse, France

Josep Alòs (7)

Logic & Optimization Group (LOG), University of Lleida, Spain

Carlos Ansótegui (7)

Logic & Optimization Group (LOG), University of Lleida, Spain

João Araújo (8)

Universidade Nova de Lisboa, Lisbon, Portugal

Christian Artigues (31)

LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France

Gilles Audemard (9)

CRIL, Univ. Artois & CNRS, France

James Bailey (42)

The University of Melbourne, Australia

Vincent Barbosa Vaz (42)

The University of Melbourne, Australia; the Australian Research Council OPTIMA ITTC, Melbourne, Australia

Aymeric Beauchamp (10)

University of Orléans, INSA Centre Val de Loire, LIFO EA 4022, France

J. Christopher Beck (17, 23)

Department of Mechanical and Industrial Engineering, University of Toronto, Canada

Belaïd Benhamou (35)

LIS, Aix-Marseille University, Marseille, France

Senne Berden (36)

KU Leuven, Belgium

Jeremias Berg (18)

HIIT, Department of Computer Science, University of Helsinki, Finland

Timo Berthold (27)

Fair Isaac Deutschland GmbH, Berlin, Germany; TU Berlin, Germany

Sévérine Fetgo Betmbe (20)

Faculty of Sciences, Department of Mathematics and Computer Science, University of Dschang, Cameroon

Giovanni Lo Bianco (17)

Department of Mechanical and Industrial Engineering, University of Toronto, Canada

Ignace Bleukx (11)

DTAI, KU Leuven, Belgium

Bart Bogaerts (11)

Artificial Intelligence Lab, VUB, Brussels, Belgium

Wirattawut Boonbandansook (46)

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA

Kyle E. C. Booth (43)

Amazon Quantum Solutions Lab, Seattle, WA, USA

Pascal Bouvry (44)

University of Luxembourg, Luxembourg; Interdisciplinary Centre for Security, Reliability and Trust (SnT), Luxembourg

Shaowei Cai (12, 41)

State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences, Beijing, China

Quentin Cappart (25)

Polytechnique Montréal, Montreal, Canada

Anouck Chan (32)

ONERA, ONERA DTIS, Toulouse, Université de Toulouse, France

Choiwah Chow (8)

Universidade Aberta, Lisbon, Portugal

Yi Chu (12)


Institute of Software, Chinese Academy of Sciences, Beijing, China


- Eldan Cohen (33)
Department of Mechanical and Industrial Engineering, University of Toronto, Canada
- Manuel Combarro Simón  (44)
University of Luxembourg, Luxembourg;
Interdisciplinary Centre for Security, Reliability and Trust (SnT), Luxembourg
- Vianney Coppé  (13)
UCLouvain, Louvain-la-Neuve, Belgium
- Kevin Dalmeijer  (46)
H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA
- Grégoire Danoy  (44)
University of Luxembourg, Luxembourg;
Interdisciplinary Centre for Security, Reliability and Trust (SnT), Luxembourg
- Thi-Bich-Hanh Dao  (10)
University of Orléans, INSA Centre Val de Loire, LIFO EA 4022, France
- Frits de Nijs  (21)
Department of Data Science and AI, Faculty of IT, Monash University, Clayton, VIC, Australia; ARC Industrial Training and Transformation Centre OPTIMA, Carlton, VIC, Australia
- Jo Devriendt  (11)
DTAI, KU Leuven, Belgium
- Arnaud Deza (14)
Department of Mechanical and Industrial Engineering, University of Toronto, Canada
- Frédéric Didier (3)
Google, Paris, France
- Clémentin Tayou Djamegni  (20)
Faculty of Sciences, Department of Mathematics and Computer Science, University of Dschang, Cameroon; UIT Fotso Victor of Bandjoun, Department of Computer Engineering, University of Dschang, Cameroon
- Alexandre Dubray  (15)
Institute of Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM), UCLouvain, Belgium
- Yousra El Ghazi  (16)
Aix Marseille Univ, Université de Toulon, CNRS, LIS, Marseille, France
- Tristan François (25)
Ecole Polytechnique, Palaiseau, France
- Michel Gamache (6)
Département de mathématiques et de génie industriel, Polytechnique Montréal, Québec, Canada
- Emilio Gamba  (11)
Data Analytics Lab, VUB, Brussels, Belgium; DTAI, KU Leuven, Belgium
- Maria Garcia de la Banda  (1, 21, 37)
Department of Data Science and AI, Faculty of IT, Monash University, Clayton, Victoria, Australia; ARC Industrial Training and Transformation Centre OPTIMA, Carlton, Victoria, Australia
- Louis Gautier (25)
Ecole Polytechnique, Palaiseau, France
- Steven Gay (3)
Google, Paris, France
- Xavier Gillard  (13, 45)
UCLouvain, Louvain-la-Neuve, Belgium
- Ambros Gleixner  (27)
HTW Berlin, Germany; Zuse Institute Berlin, Germany
- Gaël Glorian  (29)
Huawei Technologies Ltd, CSI Paris, Boulogne-Billancourt, France
- Nicolas Golenvaux  (45)
Institute for Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM), Université catholique de Louvain, Louvain-la-Neuve, Belgium
- Arnoosh Golestanian  (17)
Department of Mechanical and Industrial Engineering, University of Toronto, Canada
- Carla P. Gomes (47)
Cornell University, Ithaca, NY, USA
- Laura Greenstreet (47)
Cornell University, Ithaca, NY, USA
- Marc Grimson (47)
Cornell University, Ithaca, NY, USA
- Tias Guns  (11, 36)
DTAI, KU Leuven, Belgium; Data Analytics Lab, VUB, Brussels, Belgium
- Djamal Habet  (16)
Aix Marseille Univ, Université de Toulon, CNRS, LIS, Marseille, France
- Emmanuel Hebrard  (19)
LAAS-CNRS, Université de Toulouse, France

- Laurent Houssin  (19)
ISAE-SUPAERO, Université de Toulouse,
France
- Tingting Hu (34)
University of Luxembourg, Luxembourg
- Alexey Ignatiev  (38)
Department of Data Science and AI, Monash
University, Clayton, Australia
- Hannes Ihalainen  (18)
HIIT, Department of Computer Science,
University of Helsinki, Finland
- Peter J. Stuckey  (42)
Monash University, Australia; the Australian
Research Council OPTIMA ITTC, Melbourne,
Australia
- Christoph Jabs  (18)
HIIT, Department of Computer Science,
University of Helsinki, Finland
- Mikoláš Janota  (8)
Czech Technical University in Prague, Czech
Republic
- Carla Juvin (19)
LAAS-CNRS, Université de Toulouse, France
- Matti Järvisalo  (18)
HIIT, Department of Computer Science,
University of Helsinki, Finland
- Roger Kameugne  (20)
Faculty of Sciences, Department of Mathematics
and Computer Science, University of Maroua,
Cameroon
- Elias B. Khalil (14)
Department of Mechanical and Industrial
Engineering, University of Toronto, Canada
- Matthias Klapperstueck  (21)
Department of Human-Centred Computing,
Faculty of IT, Monash University, Clayton, VIC,
Australia
- T. K. Satish Kumar (40)
University of Southern California, Los Angeles,
CA, USA
- Ryo Kuroiwa  (23)
Department of Mechanical and Industrial
Engineering, University of Toronto, Canada
- Petr Kučera  (22)
Department of Theoretical Computer Science
and Mathematical Logic, Faculty of
Mathematics and Physics, Charles University,
Prague, Czech Republic
- Arnaud Lallouet  (29)
Huawei Technologies Ltd, CSI Paris,
Boulogne-Billancourt, France
- Christopher Leckie  (42)
The University of Melbourne, Australia
- Christophe Lecoutre (9)
CRIL, Univ. Artois & CNRS, France
- Chungjae Lee  (46)
H. Milton Stewart School of Industrial and
Systems Engineering, Georgia Institute of
Technology, Atlanta, GA, USA
- Jimmy H.M. Lee (2)
Department of Computer Science and
Engineering, The Chinese University of Hong
Kong, China
- Jack Lee-Kopij (21)
Woodside Energy Ltd., Perth, Australia
- Zhendong Lei  (12)
State Key Laboratory of Computer Science,
Institute of Software, Chinese Academy of
Sciences, Beijing, China
- Ang Li (40)
University of Southern California, Los Angeles,
CA, USA
- Chang Liu (14)
Department of Mechanical and Industrial
Engineering, University of Toronto, Canada
- Pierre Lopez  (19)
LAAS-CNRS, Université de Toulouse, France
- Samir Loudni  (10)
TASC (LS2N-CNRS), IMT Atlantique, France,
GREYC, University of Caen Normandy, France
- Chuan Luo  (12)
School of Software, Beihang University, Beijing,
China
- Steve Malalel (24)
Université Côte d'Azur, CNRS, I3S, Nice,
France
- Arnaud Malapert (24)
Université Côte d'Azur, CNRS, I3S, Nice,
France


- Tom Marty  (25)
Polytechnique Montréal, Montreal, Canada;
Ecole Polytechnique, Palaiseau, France
- Ciaran McCreesh  (26)
University of Glasgow, UK
- Sheila McIlraith (33)
Department of Computer Science, University of
Toronto, Canada; Vector Institute, Toronto,
Canada
- Matthew J. McIlree  (26)
University of Glasgow, UK
- Gioni Mexi  (27)
Zuse Institute Berlin, Germany
- Renee Mirka (47)
Cornell University, Ithaca, NY, USA
- Jedrzej Musial  (44)
Poznan University of Technology, Poland
- Sibylle Möhle  (49)
Max Planck Institute for Informatics,
Saarbrücken, Germany
- Nicolas Navet  (34)
University of Luxembourg, Luxembourg
- Siegfried Nijssen  (15, 45)
Institute of Information and Communication
Technologies, Electronics and Applied
Mathematics (ICTEAM), UCLouvain, Belgium
- Jakob Nordström  (27)
University of Copenhagen, Denmark; Lund
University, Sweden
- Thierry Noulamo  (20)
UIT Fotso Victor of Bandjoun, Department of
Computer Engineering, University of Dschang,
Cameroon
- Marie Pelleau (24)
Université Côte d'Azur, CNRS, I3S, Nice,
France
- Cong Peng  (12)
Finovation in CCBFT, Beijing, China
- Xiao Peng (28)
Univ Lyon, INSA Lyon, Inria, CITI, EA3720,
69621 Villeurbanne, France
- Guillaume Perez  (29)
Huawei Technologies Ltd, CSI Paris,
Boulogne-Billancourt, France
- Laurent Perron (3)
Google, Paris, France
- Vaidyanathan Peruvemba Ramaswamy  (48)
Algorithms and Complexity Group, TU Wien,
Austria
- Gilles Pesant (6)
Département de génie informatique et génie
logiciel, Polytechnique Montréal, Québec,
Canada
- Andreas Plank  (49)
Institute for Symbolic Artificial Intelligence,
JKU Linz, Austria
- Nikolaos Ploskas  (30)
University of Western Macedonia, Kozani,
Greece
- Thomas Polacsek  (32)
ONERA, ONERA DTIS, Toulouse, Université
de Toulouse, France
- Guillaume Povéda  (31)
Airbus (AI Research), Toulouse, France
- Charles Prud'homme  (9)
TASC, IMT-Atlantique, LS2N-CNRS, France
- Louis-Martin Rousseau  (25)
Polytechnique Montréal, Montreal, Canada
- Stéphanie Roussel  (32)
ONERA, ONERA DTIS, Toulouse, Université
de Toulouse, France
- Jean-Charles Régin (24)
Université Côte d'Azur, CNRS, I3S, Nice,
France
- Josep M. Salvà  (7)
Logic & Optimization Group (LOG), University
of Lleida, Spain
- Pierre Schaus  (13, 15, 45)
UCLouvain, Louvain-la-Neuve, Belgium
- Thomas Schiex  (4)
Universite Fédérale de Toulouse, ANITI,
INRAE, UR 875, 31326 Toulouse, France
- Martina Seidl  (49)
Institute for Symbolic Artificial Intelligence,
JKU Linz, Austria
- Hankaikone Senthoooran  (21)
Department of Data Science and AI, Faculty of
IT, Monash University, Clayton, VIC, Australia;
ARC Industrial Training and Transformation
Centre OPTIMA, Carlton, VIC, Australia

- Pouya Shati (33)
Department of Computer Science, University of Toronto, Canada; Vector Institute, Toronto, Canada
- Sylvain Soliman  (35)
Lifeware team, Inria Saclay, Palaiseau, France
- Christine Solnon (28)
Univ Lyon, INSA Lyon, Inria, CITI, EA3720, 69621 Villeurbanne, France
- Kostas Stergiou  (30)
University of Western Macedonia, Kozani, Greece
- Peter J. Stuckey  (38)
Department of Data Science and AI, Monash University, Clayton, Australia; Australian Research Council OPTIMA ITTC, Clayton, Australia
- Wijnand Suijlen  (29)
Huawei Technologies Ltd, CSI Paris, Boulogne-Billancourt, France
- Stefan Szeider  (39, 48)
Algorithms and Complexity Group, TU Wien, Austria
- Guido Tack  (37)
Department of Data Science and AI, Faculty of IT, Monash University, Clayton, Australia; ARC Industrial Training and Transformation Centre OPTIMA, Clayton, Australia
- Pierre Talbot  (34, 44)
University of Luxembourg, Luxembourg; Interdisciplinary Centre for Security, Reliability and Trust (SnT), Luxembourg
- Chengyu Tao  (17)
Department of Mechanical and Industrial Engineering, University of Toronto, Canada
- Cyril Terrioux  (16)
Aix Marseille Univ, Université de Toulon, CNRS, LIS, Marseille, France
- Pierre Tessier (25)
Ecole Polytechnique, Palaiseau, France
- Eduard Torres  (7)
Logic & Optimization Group (LOG), University of Lleida, Spain
- Van-Giang Trinh  (35)
LIS, Aix-Marseille University, Marseille, France
- Dimosthenis C. Tsouros  (30, 36)
KU Leuven, Belgium
- Pashootan Vaezipoor (14)
Department of Computer Science, University of Toronto, Canada
- Pascal Van Hentenryck  (46)
H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA
- Petr Vilím  (5)
ScheduleOpt, Nový Knín, Czech Republic
- Christel Vrain  (10)
University of Orléans, INSA Centre Val de Loire, LIFO EA 4022, France
- Shimao Wang (41)
School of Information Science and Technology, Northeast Normal University, Changchun, China
- Xinyu Wang (41)
School of Information Science and Technology, Northeast Normal University, Changchun, China
- Yiyuan Wang  (41)
School of Information Science and Technology, Northeast Normal University, Changchun, China; Key Laboratory of Applied Statistics of MOE, Northeast Normal University, Changchun, China
- Sameela Suharshani Wijesundara  (37)
Department of Data Science and AI, Faculty of IT, Monash University, Clayton, Australia; ARC Industrial Training and Transformation Centre OPTIMA, Clayton, Australia
- Michael Wybrow  (21)
Department of Human-Centred Computing, Faculty of IT, Monash University, Clayton, VIC, Australia
- Minghao Yin  (41)
School of Information Science and Technology, Northeast Normal University, Changchun, China; Key Laboratory of Applied Statistics of MOE, Northeast Normal University, Changchun, China
- Jinqiang Yu  (38)
Department of Data Science and AI, Monash University, Clayton, Australia; Australian Research Council OPTIMA ITTC, Clayton, Australia
- Han Zhang (40)
University of Southern California, Los Angeles, CA, USA

Tianwei Zhang  (39)
Algorithms and Complexity Group, TU Wien,
Austria

Yujiao Zhao  (41)
School of Information Science and Technology,
Northeast Normal University, Changchun, China

Kexin Zheng (40)
University of Southern California, Los Angeles,
CA, USA

Wenbo Zhou  (41)
School of Information Science and Technology,
Northeast Normal University, Changchun,
China; Key Laboratory of Applied Statistics of
MOE, Northeast Normal University, Changchun,
China; Key Laboratory of Symbolic
Computation and Knowledge Engineering of
MOE, Jilin University, Changchun, China