CP Papers on Scheduling

Helmut Simonis

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1 Introduction

2 Paper List

Table 1 lists relevant papers on CP and Scheduling from the CP and CPAIOR conferences. It gives the author names and title of the paper, the reference to the published paper, the year and conference or journal where the paper was published. It also lists the CP systems that were used in the paper, and states if data and/or code of the paper is available online. A link to the stored location is given where it is known.

Table 1: List of Papers

Authors	Title	Cite	Year	Conf Journal	Pages	CP System	Data Avail	Code Avail	Based On	Classification	Constraints
C. Juvin, E. Hebrard, L. Houssin, P. Lopez	An Efficient Constraint Programming Approach to Preemptive Job Shop Scheduling	[18]	2023	CP	16	CP Opt Mistral	(y)			preemptive Job Shop	endBeforeStart span noOverlap
G. Povéda, N. Álvarez, C. Artigues	Partially Preemptive Multi Skill/Mode Resource-Constrained Project Scheduling with Generalized Precedence Relations and Calendars	[30]	2023	CP	21		y	y		PP-MS-MMRCPSP/max-cal	
Y. Aalian, G. Pesant, M. Gamache	Optimization of Short-Term Underground Mine Planning Using Constraint Programming	[1]	2023	CP	16	CP Opt	n	n			
R. Kameugne, S. Fetgo, T. Noulamo, C. Djamégni	Horizontally Elastic Edge Finder Rule for Cumulative Constraint Based on Slack and Density	[20]	2023	CP	17					RCPSPs	
N. Efthymiou, N. Yorke-Smith	Predicting the Optimal Period for Cyclic Hoist Scheduling Problems	[8]	2023	CPAIOR							
S. Squillaci, C. Pralet, S. Roussel	Scheduling Complex Observation Requests for a Constellation of Satellites: Large Neighborhood Search Approaches	[31]	2023	CPAIOR							
D. Kim, Y. Choi, K. Moon, M. Lee, K. Lee, M. Pinedo	Iterated Greedy Constraint Programming for Scheduling Steelmaking Continuous Casting	[21]	2023	CPAIOR							
C. Juvin, L. Houssin, P. Lopez	Constraint Programming for the Robust Two-Machine Flow-Shop Scheduling Problem with Budgeted Uncertainty	[19]	2023	CPAIOR							
F.Tardivo, A. Dovier, A. Formisano, L. Michel, E.Pontelli	Constraint Propagation on GPU: A Case Study for the Cumulative Constraint	[33]	2023	CPAIOR							

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R. Boudreault, V. Simard, D. Lafond, C. Quimper	A Constraint Programming Approach to Ship Refit Project Scheduling	[6]	2022	CP	16	MiniZinc Chuffed		y	-	RCPSP	cumulative
L. Popovic, A. Côté, M. Gaha, F. Nguewouo, Q. Cappart	Scheduling the Equipment Maintenance of an Electric Power Transmission Network Using Constraint Programming	[29]	2022	CP	15	CP Opt	n	n	-	TMS	alwaysIn noOverlap
F. Winter, S. Meiswinkel, N. Musliu, D. Walkiewicz	Modeling and Solving Parallel Machine Scheduling with Contamination Constraints in the Agricultural Industry	[35]	2022	CP	18	Cplex Gurobi CP Opt Sim Anneal	y	y	-	PMSP	alternative noOverlap
E. Armstrong, M. Garraffa, B. O'Sullivan, H. Simonis	A Two-Phase Hybrid Approach for the Hybrid Flexible Flowshop with Transportation Times	[4]	2022	CPAIOR	13	CP Opt	(y)	-	[3]	$HFFm\|tt\|C_{\max}$	endBeforeStart alternative cumulative noOverlap
M. Geitz, C. Grozea, W. Steigerwald, R. Stöhr, A. Wolf	Solving the Extended Job Shop Scheduling Problem with AGVs - Classical and Quantum Approaches	[12]	2022	CPAIOR							
Y. Ouellet, C. Quimper	A MinCumulative Resource Constraint	[28]	2022	CPAIOR							
E. Armstrong, M. Garraffa, B. O'Sullivan, H. Simonis	The Hybrid Flexible Flowshop with Transportation Times	[3]	2021	CP	18	MiniZinc Chuffed CP Opt SICStus	y	y	-	$HFFm\|tt\|C_{\max}$	cumulative diffn table
V. Antuori, E. Hebrard, M. Huguet, S. Essodaigui, A. Nguyen	Combining Monte Carlo Tree Search and Depth First Search Methods for a Car Manufacturing Workshop Scheduling Problem	[2]	2021	CP	16	MCTS	y	y	[]		
B. Kovács, P. Tassel, W. Kohlenbrein, P. Schrott-Kostwein, M. Gebser	Utilizing Constraint Optimization for Industrial Machine Workload Balancing	[23]	2021	CP	17	Gurobi Cplex CP Opt OR-Tools	y	y	-		cumulative
M. Lackner, C. Mrkvicka, N. Musliu, D. Walkiewicz, F. Winter	Minimizing Cumulative Batch Processing Time for an Industrial Oven Scheduling Problem	[24]	2021	CP	18	CP Opt Chuffed OR-Tools Gurobi OPL	y	y		OSP	
A. Hill, J. Ticktin. T. Vossen	A Computational Study of Constraint Programming Approaches for Resource-Constrained Project Scheduling with Autonomous Learning Effects	[17]	2021	CPAIOR							
C. Klanke, D. Bleidorn, V. Yfantis, S.Engell	Combining Constraint Programming and Temporal Decomposition Approaches - Scheduling of an Industrial Formulation Plant	[22]	2021	CPAIOR							
C. Hanen, A. Kordon, T. Pedersen	Two Deadline Reduction Algorithms for Scheduling Dependent Tasks on Parallel Processors	[16]	2021	CPAIOR							
M. Åstrand, M. Johansson, H.Feyzmahdavian	Short-Term Scheduling of Production Fleets in Underground Mines Using CP-Based LNS	[5]	2021	CPAIOR							
T. Geibinger, L. Kletzander, M. Krainz, F. Mischek, N. Musliu, F. Winter	Physician Scheduling During a Pandemic	[11]	2021	CPAIOR							
M. Nattaf, A. Malapert	Filtering Rules for Flow Time Minimization in a Parallel Machine Scheduling Problem	[27]	2020	CP	16	Cplex CP Opt	-	-	[]	PTC	alternative noOverlap
L. Groleaz, S. Ndiaye, C. Solnon	Solving the Group Cumulative Scheduling Problem with CPO and ACO	[15]	2020	CP	17	CP Opt ACO	-	-	[14]	GCSP	group cumulative
A. Mercier-Aubin, J. Gaudreault, C. Quimper	Leveraging Constraint Scheduling: A Case Study to the Textile Industry	[25]	2020	CPAIOR	13	MiniZinc Chuffed	a	a	-		circuit cumulative

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Authors	Title	Cite	Year	Conf Journal	Pages	CP System	Data Avail	Code Avail	Based On	Classification	Constraints
T. Tang, C. Beck	CP and Hybrid Models for Two-Stage Batching and Scheduling	[32]	2020	CPAIOR	16	Cplex CP Opt	n	n	-	2BPHFSP	span alwaysIn
J. Wessén, M. Carlsson, C. Schulte	Scheduling of Dual-Arm Multi-tool Assembly Robots and Workspace Layout Optimization	[34]	2020	CPAIOR	10	Gecode	n	n	-		circuit alldifferent
G. Col, E. Teppan	Industrial Size Job Shop Scheduling Tackled by Present Day CP Solvers	[7]	2019	CP	17	CP Opt OR-Tools	y	y	-	JSSP	noOverlap
S. Frimodig, C. Schulte	Models for Radiation Therapy Patient Scheduling	[9]	2019	CP	17	Mini-Zinc Gecode Cplex	n	n	-		cumulative regular bin-packing
C. Galleguillos, Z. Kiziltan, A. Sîrbu, Ö. Babaoglu	Constraint Programming-Based Job Dispatching for Modern HPC Applications	[10]	2019	CP		OR-Tools		y		on-line dispatch	
S. Murín, H. Rudová	Scheduling of Mobile Robots Using Constraint Programming	[26]	2019	CP	16	CP Opt Cplex OPL	y	y		JSPT	endBeforeStart alternative noOverlap
D. Grimes, G. Ifrim, B. O'Sullivan, H. Simonis	Analyzing the impact of electricity price forecasting on energy cost-aware scheduling	[13]	2014	J.SUSCOM			-	-	-		

Table 2: Problem Classification Types

Code	Name
JSSP	Job-Shop Scheduling Problem
JSPT	Job-Shop Scheduling Problem with Transportation
PP-MS-MMRCPSP/max-cal	partially preemptive- multi-skill/mode resource-constrained project scheduling problem with generalized precedence relations and resource calendars
RCPSP	Resource Constrained Project Scheduling Problem
TMS	Transmission Network Maintenance Planning
PMSP	Parallel Machine Scheduling Problem
HFF	Hybrid Flexible Flow-shop
$HFFm\|tt\|C_{\max}$	Hybrid Flexible Flowshop with Transportation Times
OSP	Oven Scheduling Problem
PTC	Scheduling Problem with Time Constraints
GCSP	Group Cumulative Scheduling Problem
2BPHFSP	Two-Stage Bin Packing and Hybrid Flow Shop Scheduling Problem

3   Concept Matching

In order to find out properties of the articles, we try to find concepts in the pdf versions of the articles. We use the *pdfgrep* command to search for the number of occurrences of certain regular expressions in the files. This often clearly identifies the constraints used in the model, and the solvers that are discussed.

Ref.	alternative constraint	cumulative	disjunctive	diffn	table constraint	regular expression	circuit	nooverlap	endbeforestart	alwaysin	span constraint	bin.?packing	cplex	gurobi	gecode	choco	mistral	or.?tools	OPL	cpo	chuffed	sicstus	eclipse	mini.?zinc
AalianPG23 [1]	0	15	0	0	0	0	0	2	2	5	0	0	1	0	0	0	0	0	0	3	0	0	0	0
AntuoriHHEN21 [2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0
ArmstrongGOS21 [3]	1	2	0	9	2	0	1	0	0	0	0	2	4	0	1	0	0	0	0	8	11	15	0	11
ArmstrongGOS22 [4]	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Astrand0F21 [5]	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
BoudreaultSLQ22 [6]	0	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	11	0	0	8
ColT19 [7]	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	23	0	36	0	0	0	10
EfthymiouY23 [8]	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
FrimodigS19 [9]	0	2	0	0	0	3	0	0	0	0	0	3	1	0	2	0	0	0	0	0	0	0	0	1
GalleguillosKSB19 [10]	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GeibingerKKMMW21 [11]	0	0	0	0	0	0	0	0	0	0	0	0	12	12	4	0	0	4	0	0	0	0	0	1
GeitzGSSW22 [12]	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
GroleazNS20 [15]	0	32	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	94	0	0	0	0
HanenKP21 [16]	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HillTV21 [17]	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JuvinHHL23 [18]	0	1	20	0	0	0	0	28	1	0	0	0	0	0	0	0	16	0	0	29	0	0	0	0
JuvinHL23 [19]	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
KameugneFND23 [20]	0	31	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
KimCMLLP23 [21]	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0
KlankeBYE21 [22]	0	4	1	0	0	0	7	5	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0
KovacsTKSG21 [23]	0	6	0	0	0	0	0	0	0	0	0	0	3	21	0	0	0	14	0	0	0	0	0	0
LacknerMMWW21 [24]	0	9	0	0	0	0	0	1	1	0	0	0	4	34	0	0	0	19	9	9	20	0	0	7
Mercier-AubinGQ20 [25]	0	8	2	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
MurinR19 [26]	3	0	0	0	0	0	0	5	2	0	0	0	7	0	0	0	0	0	3	0	0	0	0	0
NattafM20 [27]	0	3	0	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	7	0	0	0	0
OuelletQ22 [28]	0	42	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1

Ref.	alternative constraint	cumulative	disjunctive	diffn	table constraint	regular expression	circuit	nooverlap	endbeforestart	alwaysin	span constraint	bin.?packing	cplex	gurobi	gecode	choco	mistral	or.?tools	OPL	cpo	chuffed	sicstus	eclipse	mini.?zinc
PopovicCGNC22 [29]	0	2	0	0	0	0	0	6	0	6	0	0	1	0	0	0	0	0	0	0	0	1	0	0
PovedaAA23 [30]	0	8	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	8	0	0	5
SquillaciPR23 [31]	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
TangB20 [32]	0	0	0	0	0	0	0	0	2	4	1	15	1	0	0	0	0	0	0	2	0	0	0	0
TardivoDFMP23 [33]	0	46	2	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0	13
WessenCS20 [34]	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
WinterMMW22 [35]	1	0	0	0	0	0	0	2	0	0	0	0	10	12	0	0	0	0	0	6	0	0	0	0

References

[1] Younes Aalian, Gilles Pesant, and Michel Gamache. Optimization of short-term underground mine planning using constraint programming. In Roland H. C. Yap, editor, *29th International Conference on Principles and Practice of Constraint Programming, CP 2023, August 27-31, 2023, Toronto, Canada*, volume 280 of *LIPIcs*, pages 6:1–6:16. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

[2] Valentin Antuori, Emmanuel Hebrard, Marie-José Huguet, Siham Essodaigui, and Alain Nguyen. Combining monte carlo tree search and depth first search methods for a car manufacturing workshop scheduling problem. In Laurent D. Michel, editor, *27th International Conference on Principles and Practice of Constraint Programming, CP 2021, Montpellier, France (Virtual Conference), October 25-29, 2021*, volume 210 of *LIPIcs*, pages 14:1–14:16. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.

[3] Eddie Armstrong, Michele Garraffa, Barry O'Sullivan, and Helmut Simonis. The hybrid flexible flowshop with transportation times. In Laurent D. Michel, editor, *27th International Conference on Principles and Practice of Constraint Programming, CP 2021, Montpellier, France (Virtual Conference), October 25-29, 2021*, volume 210 of *LIPIcs*, pages 16:1–16:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.

[4] Eddie Armstrong, Michele Garraffa, Barry O'Sullivan, and Helmut Simonis. A two-phase hybrid approach for the hybrid flexible flowshop with transportation times. In Pierre Schaus, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 19th International Conference, CPAIOR 2022, Los Angeles, CA, USA, June 20-23, 2022, Proceedings*, volume 13292 of *Lecture Notes in Computer Science*, pages 1–13. Springer, 2022.

[5] Max Åstrand, Mikael Johansson, and Hamid Reza Feyzmahdavian. Short-term scheduling of production fleets in underground mines using cp-based LNS. In Peter J. Stuckey, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 18th International Conference, CPAIOR 2021, Vienna, Austria, July 5-8, 2021, Proceedings*, volume 12735 of *Lecture Notes in Computer Science*, pages 365–382. Springer, 2021.

[6] Raphaël Boudreault, Vanessa Simard, Daniel Lafond, and Claude-Guy Quimper. A constraint programming approach to ship refit project scheduling. In Christine Solnon, editor, *28th International Conference on Principles and Practice of Constraint Programming, CP 2022, July 31 to August 8, 2022, Haifa, Israel*, volume 235 of *LIPIcs*, pages 10:1–10:16. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.

[7] Giacomo Da Col and Erich Christian Teppan. Industrial size job shop scheduling tackled by present day CP solvers. In Thomas Schiex and Simon de Givry, editors, *Principles and Practice of Constraint Programming - 25th International Conference, CP 2019, Stamford, CT, USA, September 30 - October 4, 2019, Proceedings*, volume 11802 of *Lecture Notes in Computer Science*, pages 144–160. Springer, 2019.

[8] Nikolaos Efthymiou and Neil Yorke-Smith. Predicting the optimal period for cyclic hoist scheduling problems. In André A. Ciré, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 20th International Conference, CPAIOR 2023, Nice, France, May 29 - June 1, 2023, Proceedings*, volume 13884 of *Lecture Notes in Computer Science*, pages 238–253. Springer, 2023.

[9] Sara Frimodig and Christian Schulte. Models for radiation therapy patient scheduling. In Thomas Schiex and Simon de Givry, editors, *Principles and Practice of Constraint Programming - 25th International Conference, CP 2019, Stamford, CT, USA, September 30 - October 4, 2019, Proceedings*, volume 11802 of *Lecture Notes in Computer Science*, pages 421–437. Springer, 2019.

[10] Cristian Galleguillos, Zeynep Kiziltan, Alina Sîrbu, and Özalp Babaoglu. Constraint programming-based job dispatching for modern HPC applications. In Thomas Schiex and Simon de Givry, editors, *Principles and Practice of Constraint Programming - 25th International Conference, CP 2019, Stamford, CT, USA, September 30 - October 4, 2019, Proceedings*, volume 11802 of *Lecture Notes in Computer Science*, pages 438–455. Springer, 2019.

[11] Tobias Geibinger, Lucas Kletzander, Matthias Krainz, Florian Mischek, Nysret Musliu, and Felix Winter. Physician scheduling during a pandemic. In Peter J. Stuckey, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 18th International Conference, CPAIOR 2021, Vienna, Austria, July 5-8, 2021, Proceedings*, volume 12735 of *Lecture Notes in Computer Science*, pages 456–465. Springer, 2021.

[12] Marc Geitz, Cristian Grozea, Wolfgang Steigerwald, Robin Stöhr, and Armin Wolf. Solving the extended job shop scheduling problem with agvs - classical and quantum approaches. In Pierre Schaus, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 19th International Conference, CPAIOR 2022, Los Angeles, CA, USA, June 20-23, 2022, Proceedings*, volume 13292 of *Lecture Notes in Computer Science*, pages 120–137. Springer, 2022.

[13] Diarmuid Grimes, Georgiana Ifrim, Barry O'Sullivan, and Helmut Simonis. Analyzing the impact of electricity price forecasting on energy cost-aware scheduling. *Sustain. Comput. Informatics Syst.*, 4(4):276–291, 2014.

[14] Lucas Groleaz, Samba Ndojh Ndiaye, and Christine Solnon. ACO with automatic parameter selection for a scheduling problem with a group cumulative constraint. In Carlos Artemio Coello Coello, editor, *GECCO '20: Genetic and Evolutionary Computation Conference, Cancún Mexico, July 8-12, 2020*, pages 13–21. ACM, 2020.

[15] Lucas Groleaz, Samba Ndojh Ndiaye, and Christine Solnon. Solving the group cumulative scheduling problem with CPO and ACO. In Helmut Simonis, editor, *Principles and Practice of Constraint Programming - 26th International Conference, CP 2020, Louvain-la-Neuve, Belgium, September 7-11, 2020, Proceedings*, volume 12333 of *Lecture Notes in Computer Science*, pages 620–636. Springer, 2020.

[16] Claire Hanen, Alix Munier Kordon, and Theo Pedersen. Two deadline reduction algorithms for scheduling dependent tasks on parallel processors. In Peter J. Stuckey, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 18th International Conference, CPAIOR 2021, Vienna, Austria, July 5-8, 2021, Proceedings*, volume 12735 of *Lecture Notes in Computer Science*, pages 214–230. Springer, 2021.

[17] Alessandro Hill, Jordan Ticktin, and Thomas W. M. Vossen. A computational study of constraint programming approaches for resource-constrained project scheduling with autonomous learning effects. In Peter J. Stuckey, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 18th International Conference, CPAIOR 2021, Vienna, Austria, July 5-8, 2021, Proceedings*, volume 12735 of *Lecture Notes in Computer Science*, pages 26–44. Springer, 2021.

[18] Carla Juvin, Emmanuel Hebrard, Laurent Houssin, and Pierre Lopez. An efficient constraint programming approach to preemptive job shop scheduling. In Roland H. C. Yap, editor, *29th International Conference on Principles and Practice of Constraint Programming, CP 2023, August 27-31, 2023, Toronto, Canada*, volume 280 of *LIPIcs*, pages 19:1–19:16. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

[19] Carla Juvin, Laurent Houssin, and Pierre Lopez. Constraint programming for the robust two-machine flow-shop scheduling problem with budgeted uncertainty. In André A. Ciré, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 20th International Conference, CPAIOR 2023, Nice, France, May 29 - June 1, 2023, Proceedings*, volume 13884 of *Lecture Notes in Computer Science*, pages 354–369. Springer, 2023.

[20] Roger Kameugne, Séverine Betmbe Fetgo, Thierry Noulamo, and Clémentin Tayou Djamégni. Horizontally elastic edge finder rule for cumulative constraint based on slack and density. In Roland H. C. Yap, editor, *29th International Conference on Principles and Practice of Constraint Programming, CP 2023, August 27-31, 2023, Toronto, Canada*, volume 280 of *LIPIcs*, pages 20:1–20:17. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

[21] Dongyun Kim, Yeonjun Choi, Kyungduk Moon, Myungho Lee, Kangbok Lee, and Michael L. Pinedo. Iterated greedy constraint programming for scheduling steelmaking continuous casting. In André A. Ciré, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 20th International Conference, CPAIOR 2023, Nice, France, May 29 - June 1, 2023, Proceedings*, volume 13884 of *Lecture Notes in Computer Science*, pages 477–492. Springer, 2023.

[22] Christian Klanke, Dominik R. Bleidorn, Vassilios Yfantis, and Sebastian Engell. Combining constraint programming and temporal decomposition approaches - scheduling of an industrial formulation plant. In Peter J. Stuckey, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 18th International Conference, CPAIOR 2021, Vienna, Austria, July 5-8, 2021, Proceedings*, volume 12735 of *Lecture Notes in Computer Science*, pages 133–148. Springer, 2021.

[23] Benjamin Kovács, Pierre Tassel, Wolfgang Kohlenbrein, Philipp Schrott-Kostwein, and Martin Gebser. Utilizing constraint optimization for industrial machine workload balancing. In Laurent D. Michel, editor, *27th International Conference on Principles and Practice of Constraint Programming, CP 2021, Montpellier, France (Virtual Conference), October 25-29, 2021*, volume 210 of *LIPIcs*, pages 36:1–36:17. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.

[24] Marie-Louise Lackner, Christoph Mrkvicka, Nysret Musliu, Daniel Walkiewicz, and Felix Winter. Minimizing cumulative batch processing time for an industrial oven scheduling problem. In Laurent D. Michel, editor, *27th International Conference on Principles and Practice of Constraint Programming, CP 2021, Montpellier, France (Virtual Conference), October 25-29, 2021*, volume 210 of *LIPIcs*, pages 37:1–37:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.

[25] Alexandre Mercier-Aubin, Jonathan Gaudreault, and Claude-Guy Quimper. Leveraging constraint scheduling: A case study to the textile industry. In Emmanuel Hebrard and Nysret Musliu, editors, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 17th International Conference, CPAIOR 2020, Vienna, Austria, September 21-24, 2020, Proceedings*, volume 12296 of *Lecture Notes in Computer Science*, pages 334–346. Springer, 2020.

[26] Stanislav Murín and Hana Rudová. Scheduling of mobile robots using constraint programming. In Thomas Schiex and Simon de Givry, editors, *Principles and Practice of Constraint Programming - 25th International Conference, CP 2019, Stamford, CT, USA, September 30 - October 4, 2019, Proceedings*, volume 11802 of *Lecture Notes in Computer Science*, pages 456–471. Springer, 2019.

[27] Margaux Nattaf and Arnaud Malapert. Filtering rules for flow time minimization in a parallel machine scheduling problem. In Helmut Simonis, editor, *Principles and Practice of Constraint Programming - 26th International Conference, CP 2020, Louvain-la-Neuve, Belgium, September 7-11, 2020, Proceedings*, volume 12333 of *Lecture Notes in Computer Science*, pages 462–477. Springer, 2020.

[28] Yanick Ouellet and Claude-Guy Quimper. A mincumulative resource constraint. In Pierre Schaus, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 19th International Conference, CPAIOR 2022, Los Angeles, CA, USA, June 20-23, 2022, Proceedings*, volume 13292 of *Lecture Notes in Computer Science*, pages 318–334. Springer, 2022.

[29] Louis Popovic, Alain Côté, Mohamed Gaha, Franklin Nguewouo, and Quentin Cappart. Scheduling the equipment maintenance of an electric power transmission network using constraint programming. In Christine Solnon, editor, *28th International Conference on Principles and Practice of Constraint Programming, CP 2022, July 31 to August 8, 2022, Haifa, Israel*, volume 235 of *LIPIcs*, pages 34:1–34:15. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.

[30] Guillaume Povéda, Nahum Álvarez, and Christian Artigues. Partially preemptive multi skill/mode resource-constrained project scheduling with generalized precedence relations and calendars. In Roland H. C. Yap, editor, *29th International Conference on Principles and Practice of Constraint Programming, CP 2023, August 27-31, 2023, Toronto, Canada*, volume 280 of *LIPIcs*, pages 31:1–31:21. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

[31] Samuel Squillaci, Cédric Pralet, and Stéphanie Roussel. Scheduling complex observation requests for a constellation of satellites: Large neighborhood search approaches. In André A. Ciré, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 20th International Conference, CPAIOR 2023, Nice, France, May 29 - June 1, 2023, Proceedings*, volume 13884 of *Lecture Notes in Computer Science*, pages 443–459. Springer, 2023.

[32] Tanya Y. Tang and J. Christopher Beck. CP and hybrid models for two-stage batching and scheduling. In Emmanuel Hebrard and Nysret Musliu, editors, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 17th International Conference, CPAIOR 2020, Vienna, Austria, September 21-24, 2020, Proceedings*, volume 12296 of *Lecture Notes in Computer Science*, pages 431–446. Springer, 2020.

[33] Fabio Tardivo, Agostino Dovier, Andrea Formisano, Laurent Michel, and Enrico Pontelli. Constraint propagation on GPU: A case study for the cumulative constraint. In André A. Ciré, editor, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 20th International Conference, CPAIOR 2023, Nice, France, May 29 - June 1, 2023, Proceedings*, volume 13884 of *Lecture Notes in Computer Science*, pages 336–353. Springer, 2023.

[34] Johan Wessén, Mats Carlsson, and Christian Schulte. Scheduling of dual-arm multi-tool assembly robots and workspace layout optimization. In Emmanuel Hebrard and Nysret Musliu, editors, *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 17th International Conference, CPAIOR 2020, Vienna, Austria, September 21-24, 2020, Proceedings*, volume 12296 of *Lecture Notes in Computer Science*, pages 511–520. Springer, 2020.

[35] Felix Winter, Sebastian Meiswinkel, Nysret Musliu, and Daniel Walkiewicz. Modeling and solving parallel machine scheduling with contamination constraints in the agricultural industry. In Christine Solnon, editor, *28th International Conference on Principles and Practice of Constraint Programming, CP 2022, July 31 to August 8, 2022, Haifa, Israel*, volume 235 of *LIPIcs*, pages 41:1–41:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.