Reshma Chirayil Chandrasekharan

Current Position
Assistant Professor, Decision Sciences Area, Indian Institute of Management, Bangalore, India.

Research Interests

Decomposition based heuristics for very large combinatorial optimization problems
Matheuristics, constructive matheuristics, hybrid algorithms
Graph vertex coloring, Task scheduling, personnel scheduling, rostering

Education

PhD, Industrial Engineering, 2016 - 2021
CODes Research Group, Dept. of Computer Science, KU Leuven, Belgium.
PhD Thesis: Constructive matheuristics for combinatorial optimization problems
PhD Supervisor: Dr. Tony Wauters

BS MS dual degree in Science, 2010 - 2015
Indian Institute of Science Education and Research (IISER) Pune, India
Master's Thesis: Constructions of Covering Arrays
Supervisor: Dr. Soumen Maity, Associate Professor, IISER Pune

Seminars, Workshops, Short courses attended

- NATCOR short course on Combinatorial Optimization, 4 – 9 Sep, 2018, University of Southampton.
- 2018 School on Column Generation, sFeb 26 - March 2, 2018, Paris.
- Workshop on Fairness in Sports, April 12, 2018, Ghent, Belgium.
- Matheuristics 2018, June 18-20, Tours, France.
- Lecture series by Brenden Mckay, International Francqui Chair 2018-2019, June 2019, Belgium
- The Ghent Graph Theory Workshop – on structure and algorithms, 12-14 August 2019, Ghent, Belgium

Conferences attended

- PATAT 2020 — A constructive matheuristic approach for the vertex colouring problem
- ORBEL 33 — A Time-Based Constructive Matheuristic for the Shift Minimization Personnel Task Scheduling Problem
- OR 2018 — A comparison of mathematical formulations for the superpermutation problem
- EURO 2018 — Two decomposition strategies for a constructive matheuristic applied on shift minimization personnel task scheduling problem
- Matheuristics 2018 — Analysis of a Constructive Matheuristic for the Traveling Umpire Problem
- ORBEL 32 — A constructive matheuristic strategy for the Traveling Umpire Problem
- Mathsport International'18 — Analysis of a Constructive Matheuristic for the Traveling Umpire Problem

Publications

- Chandrasekharan, R. C & Wauters, T., A constructive matheuristic approach for the vertex colouring problem, Under review

- Chandrasekharan, R. C & Wauters, T., A constructive matheuristic approach for the vertex colouring problem, Proceedings of the 13th International Conference on the Practice and Theory of Automated Timetabling - PATAT 2021: Volume I, ISBN: 978-0-9929984-3-1,
link: http://www.patatconference.org/patat2020/proceedings/papers/20.%20PATAT_2020_paper_49.pdf

- Christiaens J., Çalik H., Wauters T., Chandrasekharan R. C., & Vanden Berghe G., The prisoner transportation problem, European Journal of Operational Research, Volume 284, Issue 3, 2020, pp. 1058-1073, DOI: 10.1016/j.ejor.2020.01.027.

- Chandrasekharan, R. C, Smet, P. & Wauters, T. An automatic constructive matheuristic for the shift minimization personnel task scheduling problem, Journal of Heuristics, pp. 1–23, 2020. DOI: 10.1007/s10732-020-09439-9

- Chandrasekharan, R., Toffolo, T. & Wauters, T. (2018). Analysis of a constructive matheuristic for the traveling umpire problem. Journal of Quantitative Analysis in Sports, 15(1), pp. 41-57. DOI:10.1515/jqas-2017-0118

- Maity, S., Akhtar, Y., Chandrasekharan, R. C., and Colbourn, C. J., Improved strength four covering arrays with three symbols, Graphs and Combinatorics, Vol. 34 (1), pp. 223-239, 2018.
DOI: 10.1007/s00373-017-1861-9

- Akhtar, Y., Maity, S., and Chandrasekharan, R. C., Generating test suites with high 3-way coverage for software testing, Proc. 16th IEEE International Conference on Computer and Information Technology, IEEE Computer Society, pp. 10 -17, 2016. DOI: 10.1109/CIT.2016.89

- Akhtar, Y., Maity, S., Chandrashekharan, R. C., Covering Arrays of Strength Four and Software Testing, Book Name: Mathematics and Computing, Springer Proceedings in Mathematics and Statistics, Vol. 139, pp. 391-398, 2015. DOI: 10.1007/978-81-322-2452-5_26

- Chandrasekharan, R. C. and Maity, S., Covering arrays of strength two and pair wise software testing, Book Name: Mathematical and Computational Sciences, Narosa, 115 121, 2015.

- Akthar, Y., Maity, S. and Chandrasekharan, R. C., Covering arrays of strength four with budget constraints, Mathematical and Computational Sciences, Narosa, 106 114, 2015.

Teaching Experience

- Teaching Assistant, Master's level course: Optimization Techniques
- Master's thesis co-supervision, Project: Optimization algorithms for the superpermutation problem