

Luc LIBRALESSO

RESEARCHER

DISCRETE OPTIMIZATION

Awards

EURO/ROADEF 2018 challenge final phase <i>best team on junior, open source and senior categories among 64 registered participants</i>	2019
ACP summer school 2019 hackaton <i>best team on easy and hard instances</i>	2019
Metaheuristic summer school competition 2018 <i>best results among 9 registered participants</i>	2018

Published articles

Full list of publications with their PDFs on: librallu.gitlab.io/research

- N. Brauner, Y. Crama, E. Delaporte, V. Jost, and **L. Libralesso**, “Do balanced words have a short period?”, *Theoretical Computer Science*, vol. 793, pp. 169–180, 2019.
- **L. Libralesso**, A.-M. Bouhassoun, H. Cambazard, and V. Jost, “Tree search algorithms for the Sequential Ordering Problem”, 24th European Conference on Artificial Intelligence (ECAI 2020), Nov. 2019.

Pre-prints

- F. Fontan and **L. Libralesso**, “PackingSolver: a tree search-based solver for two-dimensional two-and three-staged guillotine packing problems”, working paper or preprint, Apr. 2020.
- **L. Libralesso**, P. A. Focke, A. Secardin, and V. Jost, “Iterative beam search algorithms for the permutation flowshop”, working paper or preprint, Sep. 2020.
- **L. Libralesso** and F. Fontan, “An anytime tree search algorithm for the 2018 ROADEF/EURO challenge glass cutting problem”, working paper or preprint, Apr. 2020.
- **L. Libralesso**, A. Secardin, and V. Jost, “Longest common subsequence: an algorithmic component analysis”, working paper or preprint, Jul. 2020.
- **L. Libralesso**, V. Jost, K. Hadj Salem, F. Fontan, and F. Maffray, “Study on partial flexible job-shop scheduling problem under tooling constraints: complexity and related problems”, working paper or preprint, Jul. 2019.

Experience

Research engineer
LIMOS, Clermont Auvergne University

Clermont Ferrand, France
2020 - Current

- Optimization tools for related-keys attacks
- We apply optimization and modelization tools to propose attacks to classical cryptosystems

Projects

See full list of projects with their demos and sources on: librallu.gitlab.io/projects

Combinator-based Anytime Tree Search framework

Implements several generic tree search algorithms

Microfluidic chip designer

Collaboration with netri.fr. Computer assisted microfluidic-chip design

Triangle width app

Instance and Solution visualizer for triangle width

Packing viz

Cutting and packing visualization tool

Advising experience

- **Pablo Andres Focke** L3 May - July 2020
Co-advised with Vincent Jost: Iterative beam search algorithms for the permutation flowshop problem.
- **Aurélien Secardin** M2 Feb - July 2020
Co-advised with Vincent Jost: Steps towards a Reinforcement Learning assisted anytime tree search.
- **Paul Revenant** L3 June - July 2019
Co-advised with Vincent Jost: Longest chains in divisibility graphs.
- **Abdel-Malik Bouhassoun** M2 Feb - July 2019
Co-advised with Vincent Jost: Generic tree search algorithms and the Sequential Ordering Problem.
- **Abdel-Malik Bouhassoun** M1 June - Aug 2018
Co-advised with Vincent Jost: On hypergraph ordering problems.

Teaching

- **Course project design** at the Ensimag (2A) Spring 2020
Second year Specialty project
- **Teaching assistant** at M1 INFO, Grenoble Alpes University Spring 2020
Introduction to Operations Research
- **Course project design** at M2 ORCO, Grenoble Alpes University Autumn 2019
Advanced Methods in Operations Research
- **Teaching assistant** at L2 INFO, Grenoble Alpes University Autumn 2018
Introduction to graph theory
- **Teaching assistant** at L2 INFO, Grenoble Alpes University Autumn 2018
Introduction to software engineering
- **Teaching assistant** at L1 INFO, Grenoble Alpes University Spring 2018
Modelization and data structures
- **Teaching assistant** at M1 INFO, Grenoble Alpes University, and, Polytech'Grenoble 3A Autumn 2017
Introduction to computer networks

Education

Grenoble Alpes University Ph.D. in discrete optimization, Advisors: Louis Esperet, Thibault Honegger, Vincent Jost	Grenoble, France 2017–2020
Grenoble Alpes University M.S. in Operations Research and Combinatorial Optimization (ORCO master)	Grenoble, France 2016–2017
Québec University at Chicoutimi M.S. in Computer Science	Chicoutimi, Canada 2015–2017
Polytech' Grenoble Engineering degree	Grenoble, France 2012–2015
Grenoble Alpes University B.S. in Computer Science	Grenoble, France 2010–2012

Extracurricular Activities

- **Eat & Move**, founder and treasurer
We proposed various sport sessions in Grenoble 2017–2019
- **A-DOC**, treasurer
We organized various activities at G-SCOP, including the 2-days seminar. 2017–2018