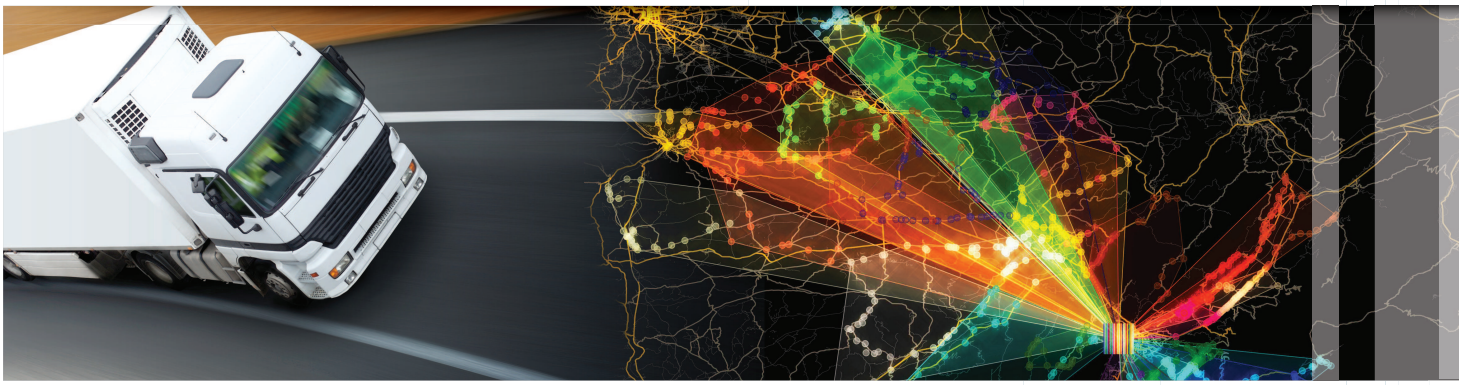
G-SCOP
SCIENCES POUR LA CONCEPTION, L'OPTIMISATION ET LA PRODUCTION

ROSP TEAM

Operational Research for Production Systems

Developing efficient optimization methods for the operational management of production systems

The objective of our team is to model, analyze and develop optimization methods to solve logistic and production problems. To do this, we use operational research tools and techniques. We work both on theoretical models and on industrial applications.



Research Topics

- **Industrial logistics:** problems relating to supply chain design, service network design (location, network flows), planning (lot sizing), and transport (TSP, VRP, IRP, TPP)
- **Proximity logistics:** short (food) supply chains, urban logistics, home healthcare, vehicle sharing systems (bikes and cars)
- **Scheduling:** robust solutions under demand uncertainty, high multiplicity problems under uncertainty and resource constraints (robots, AGV), and considering machine or operator unavailability
- **Development and integration of OR tools:** cooperation of different techniques, e.g. mathematical programming, dynamic programming, constraint programming, graph theory and math/metaheuristics

Scientific Challenges

- **Development of original methods** for tackling today's industrial and societal problems
- **Strengthening of our actions** in order to integrate sustainable development in our models
- **Further integration of OR tools** to solve difficult problems thanks to our team's expertise

Partnerships

- **Bilateral agreements with a range of industrial** (A-Systems, Le Bon Côté des Choses, Les Fermes de Gally, Geoconcept, Renault, STMicroelectronics, etc.) **and institutional partners** (Isère County Council, Chambers of Agriculture of Isère and Rhône-Alpes Region, Grenoble-Alpes Métropole)
- **Joint publications as part of extensive international collaboration** (U.K., Canada, Hong Kong, Morocco, Poland, etc.)

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