Anne-Laure Ladier

PhD in Industrial Engineering

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26 years old
Driving license

Education

2011–2014 **PhD**, *G-SCOP Laboratory*, Grenoble, France. Defense: 2014, the 21st of November.
Scheduling cross-docking operations – Integration of operational uncertainties and resource capacities. Supervised by Gülgün Alpan.

In a cross-docking platform, goods are unloaded from inbound trucks, sorted and directly reloaded in outbound trucks – each product typically stays less than 24 hours in the platform. By analyzing the gaps between the literature and on-field observations, we highlight two research directions: accounting for operational uncertainties, and for the human resource capacity in the platform.

A truck scheduling problem with time windows for the inbound and outbound trucks is modeled with an integer program and solved with three different heuristics. The robustness of the schedules obtained is then tested with a discrete-event simulation model, which enables to evaluate several robust reformulations of the initial model.

The employee timetabling and rostering problem in the platform is addressed with three mixed integer linear problems solved sequentially. The two models can be combined to serve as a decision-support tool for a cross-docking platform.

2009–2011 **Master in Research in Industrial Engineering and Management**, *G-SCOP Laboratory*, Grenoble, France.
Timetabling optimization in logistics platforms, supervised by Gülgün Alpan and Bernard Penz. With honors.

2007–2011 **Engineering degree in Industrial Engineering and Management**, *Grenoble Institute of Technology*, Grenoble, France.
Specialized in supply chain management. With honors.

Work experience

2014–2015 (1 year) **Assistant lecturer and researcher**, *Grenoble Institute of Technology, school of Industrial Engineering and Management and G-SCOP Laboratory*, Grenoble, France.

2011–2014 (3 years) **Junior lecturer**, *Grenoble Institute of Technology, school of Industrial Engineering and Management*, Grenoble, France.
64 hours per year.

2010–2011 (1 year) **Project supervision**, *Yusen Logistics France*, St Quentin Fallavier, France.
Design, development and setting up of a decision-support tool for the employee timetabling and rostering in a logistics platform.

2009 (3 months) **Internship**, *Procter&Gamble France*, Asnières/Seine, France.
Management of the interface with the logistics service provider Kuehne+Nagel.

International experience

2013 (6 months) **Doctoral exchange**, *Mississippi State University*, Starkville, Mississippi, USA.
Development of a simulation model of a logistics platform.
With Dr. Allen G. Greenwood.

2010 (6 months) **Exchange program in Operations Management & Logistics**, *Eindhoven University of Technology*, Eindhoven, Netherlands.

Skills

Languages

French ★★★★ English ★★★★ Spanish ★★★☆

Computer skills

Office	LaTeX ★★★★	Word ★★★★	Powerpoint ★★★★	Excel ★★★★
Programming	Java ★★★★	Caml ★★★☆	VBA ★★★★	SQL ★☆☆☆
Optimization	CPLEX ★★★☆	OPL ★★★☆	LocalSolver ★☆☆☆	lp_solve ★★★☆
Simulation	Arena ★☆☆☆	FlexSim ★★★★		
Design	Photoshop ★★☆☆	InDesign ★★★★	Inkscape ★★★★	

Teaching

Bachelor 3 **Computer science**, Foundations of algorithmics, data structures,OOP, Java.

Computer science project, IT solution to a complex industrial problem.

Industrial management, MRP, Kanban, inventory management (EOQ).

Master 1 **Operational research and production planning**, Model and solve production planning problems using LP solvers, branch&bound, dynamic programming.

Assistant engineer intership, Solving within a company a specific IEM problem.

Master 2 **Tactical and operational supply chain management**, Introduce up-to-date supply chain management techniques, including cross-docking. Preparation of a 10h case study.

Participation to teaching projects

2012-2014 Participation in CaseInE project – Cases in Industrial Engineering. Setting up a platform with a case study database and an programming skills self-assessment tool.

2014 Participation in recruitment committees to select the future students in Génie industriel.

Participation to research community tasks

Reviews

European Journal of Operational Research (3 articles)

Industrial and Systems Engineering Research Conference (1 article)

Master project supervision

S. Essaidi *Rolling horizon heuristics for the crossdock truck scheduling problem w/ time windows.*

M. Lyacoubi *Study of picking problems in a warehouse.*

H. Hales *Daily management of operations in a cross docking platform under uncertainties.*

Conference organization

2014 Helper in the 3rd PUBLISH-ED Workshop to foster publications in Engineering Design.

2014 Coordinator and speaker in one of the Industrial Performance Conference organized by Génie industriel.

2012 Organization of a 2-days scientific seminar in Annecy, France, for all members of G-SCOP (110 participants).
Hosting, catering, meeting rooms organization, chairmen nomination. Facilitation of a workshop. Edition of the seminar booklets.

Communication

2013 Member of the editorial board of *Chercheurs d'horizons*, the magazine of Grenoble university PhD students.
2000 paper versions printed, electronic version sent to about 4000 doctoral students.

Publications

Journal articles

Anne-Laure Ladier, Gülgün Alpan, and Bernard Penz. Joint employee weekly timetabling and daily rostering: A decision-support tool for a logistics platform. *European Journal of Operational Research*, 234(1):278–291, 2014.

Gülgün Alpan, Anne-Laure Ladier, Rim Larbi, and Bernard Penz. Heuristic solutions for transshipment problems in a multiple door cross docking warehouse. *Computers & Industrial Engineering*, 61(2):402–408, 2011.

Anne-Laure Ladier and Gülgün Alpan. Crossdock truck scheduling with time windows – Earliness, tardiness and storage policies. *Journal of Intelligent Manufacturing*, 2014.

Anne-Laure Ladier and Gülgün Alpan. Cross-docking operations: current research vs. industry practice. 2014.

Anne-Laure Ladier and Gülgün Alpan. Robust cross-dock scheduling with time windows. *European Journal of Operational Research*, 2015.

International conference articles

Anne-Laure Ladier, Gülgün Alpan, and Allen G. Greenwood. Robustness evaluation of an IP-based cross-docking schedule using discrete-event simulation. In *Industrial and Systems Engineering Research Conference*, Montréal, Canada, 2014.

Anne-Laure Ladier and Gülgün Alpan. Scheduling truck arrivals and departures in a crossdock: earliness, tardiness and storage policies. In *International Conference on Industrial Engineering and Systems Management*, Rabat, Marocco, 2013.

Communications without proceedings

Anne-Laure Ladier and Gülgün Alpan. Planification intégrée des camions et des employés dans une plateforme de cross-docking. In *Congrès annuel de la société française de recherche opérationnelle et d'aide à la décision (ROADEF)*, Marseille, France, 2015.

Quentin Christ, Anne-Laure Ladier, and Bernard Penz. Ordonnancement d'atelier avec lissage de consommation d'énergie dans une industrie chimique. In *Congrès annuel de la société française de recherche opérationnelle et d'aide à la décision (ROADEF)*, 2015.

Anne-Laure Ladier and Gülgün Alpan. Planification des opérations de cross-docking. In *Congrès annuel de la société française de recherche opérationnelle et d'aide à la décision (ROADEF)*, Bordeaux, France, 2014.
ROADEF (French Operations Research Society) young researcher award.

Anne-Laure Ladier, Gülgün Alpan, and Allen G. Greenwood. Une approche optimisation-simulation pour la planification robuste des opérations sur une plateforme de cross-docking. In *18èmes journées STP du GdR MACS*, St Etienne, France, 2013.

Anne-Laure Ladier, Allen G. Greenwood, Gülgün Alpan, and Halston Hales. A cross dock simulation model to assess the robustness of an IP-based truck schedule. In *European Conference on Operational Research*, Rome, Italy, 2013.

Allen G. Greenwood, Halston Hales, Gülgün Alpan, and Anne-Laure Ladier. Performance evaluation of worker timetables in cross-docking facilities using simulation. In *European Conference on Operation Research*, Rome, Italy, 2013.

Working papers

Anne-Laure Ladier, Allen G. Greenwood, Gülgün Alpan, and Halston Hales. Issues in the complementary use of simulation and optimization modeling. *Les Cahiers Leibniz*, 211, 2014.

Anne-Laure Ladier and Gülgün Alpan. Integrating truck scheduling and employee rostering in a cross-docking platform. In preparation for submission to *Journal of Intelligent Manufacturing*.

Associative work

ESTIEM, European Students of Industrial Engineering and Management.

2013–2014 Vice-President of the Alumni association
In charge of the finances, public relations and network administration, within an international Board. Organization of the general assembly of the association in Budapest.

2009 Public Relations Committee Leader
Management of an international team of 15 members.

A-DOC, Association of G-SCOP PhD students.

2011–2012 President
Management of the association. Animation of the laboratory by organizing monthly convivial events. Management and animation of the relations with G-SCOP Alumni.