



HÉLOÏSE GACHET

PhD student in Operations Research
Cermics, SNCF (industrial partnership)

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EXPERIENCE

PhD november 2023 - 2026
Cermics Champs-sur-Marne
SNCF Saint-Denis

Integrated and robust design of cyclic grids for railway freight
• Column generation for a crew scheduling and crew rostering integrated problem
• Periodic schedules

Internship april-october 2023
Air France Tremblay-en-France

Ground Ressource planification and team sizing
• MILP formulation, resolution using Gurobi
• Metheuristics for the ressource optimization : Genetic Algorithm and Adaptive Large Neighborhood Search

Internship février-août 2022
Polytechnique Montréal Montréal, CANADA

• Predictive allocation of digestive endoscopy procedural time : XGBoost framework to estimate endoscopy duration, and simple algorithms for appointments' scheduling.

Internship june-december 2021
SNCF Innovation & Recherche Saint-Denis

Introdction of repeatability in freight driving crew schedules with non-periodic tasks
• Changes in the existing scheduling algorithm to optimize repeatability scores : heuristic for duty generation and MILP for duty selection using Java, CPLEX

PROJECTS

Team project

Case study of an on-demand bus system

janvier-juin 2021 Padam Mobility & ENPC

• Exact resolution using a MILP for a single bus with time windows (TSPTW), clustering heuristics for the multiple buses problem

EDUCATION

École des Ponts ParisTech 2019-2023
Paris Master of Operations Research (MPRO) (2022/2023)
Engineering degree : Mathematics and Computer Science

Preparatory classes for the French Grandes Écoles 2017-2019
Lycée Louis le Grand Paris

MPSI, MP* (Mathematics and Physics)

PROGRAMMING

Python

C++ Java Julia

Cplex Gurobi

Git Latex

LANGUAGES

French

English
(970/990 TOEIC score)

German

Japanese

DISTINCTION

- Excellence Scholarship from the chaire Saint-Gobain - Ecole des Ponts
- Bronze medal at the 2017 European Girl's Mathematical Olympiad

HOBBIES

- Ice skating
- Board games
- Student representative at the residence Maison des Mines et des Ponts in 2022/2023