

JOCELIN CAILLOUX

PhD • Operations Research & Quantitative Modeling

French · G permit eligible (cross-border, EU) · Annecy, France
jocelincailloux.ch · contact@jocelincailloux.ch
linkedin.com/in/jocelin-cailloux · github.com/jocelin-cailloux

PROFILE

7 years building optimization and decision-support systems for industrial operations, from mathematical modeling to high-performance C++ implementation and deployment at industrial clients. Results: 30,000+ physical assets simulated in seconds (versus 3 hours for 3,000 assets with the previous tool) and production planning time cut from 4 hours to 30 minutes.

PROFESSIONAL EXPERIENCE

PhD Researcher in Operations Research Sept. 2020 – Sept. 2025
University of Geneva – GSEM | Geneva, Switzerland
Optimization and simulation, 2 solutions deployed at industrial clients

- Designed and developed a maintenance simulator to replace a physical asset manager's existing tool (failure and safety risk, replacement timing, dependencies between assets): full fleet (30,000+ assets) simulated in seconds with all business rules, where the previous tool took 3 hours for 3,000 assets and applied only part of the rules
- Developed and deployed at DIXI Polytool (precision machining) a robust production planning algorithm that groups jobs so as to minimize the cost of the worst possible schedule: planning time cut from 4 hours to 30 minutes (published in *Discrete Applied Mathematics*, 2024, recognized as a top publication of the year by GSEM)
- Worked with client teams to define and formalize their business rules, and presented results to their management
- Taught optimization and operations management from Bachelor to MBA level, including continuing education

Research Associate in Optimization Nov. 2018 – Aug. 2020
FernUniversität – Dept. of Mathematics and Computer Science | Hagen, Germany

- Designed heuristics for a complex production scheduling problem within the European IDEV40 project (ECSEL/H2020, semiconductor sector)

EDUCATION

PhD in Management (thesis in Operations Research) Sept. 2020 – Nov. 2026
University of Geneva – GSEM | Geneva, Switzerland
Thesis accepted without revisions and public defense assessed as *Excellent* (highest possible rating)
President of the PhD students' association (2021–2023)

Master's in Operations Research Sept. 2016 – June 2018
Nantes (M1) | Paul Sabatier / ENAC / ISAE-SUPAERO / ENSEEIHT, Toulouse (M2)

Bachelor's in Computer Science Sept. 2013 – June 2016
University of Nantes

SKILLS, PROJECTS & INTERESTS

Optimization	Combinatorial optimization, Robust optimization (min-max), Linear and mixed-integer programming (LP/MILP), Constraint programming, Metaheuristics (Tabu search, Genetic algorithms, Simulated annealing), Multi-objective optimization, Simulation
Programming & Tools	C++ (advanced: multithreading, concurrency, atomics, memory management), C, Python (NumPy, Pandas, SciPy), Julia, SQL | Gurobi, CPLEX, JuMP, MiniZinc | Docker, Git, Linux, CI/CD, REST APIs
Open Source	**periple** – C++20 TSP library, extensible to variants and algorithms, benchmarked on TSPLIB **relais** – C++23 PostgreSQL library with transparent in-memory caching synchronized with the database, lock-free reads, outperforms Caffeine (Java) when memory runs low, used in production
Domains	Production and maintenance planning, Scheduling, Routing (TSP), Decision support
Languages	French (native) · English (C1) · German (B1)
Interests	Mountain hiking · Piano (7 years of conservatory) · Wildlife and portrait photography