

# Optimization Engineer (internship)

## Wiremind – Paris, France

### WHO WE ARE, WHAT WE DO

Since 2014, Wiremind develops solutions for optimizing sold capacity (passenger transportation, airfreight and event/sport ticketing) that blend UX, software and data science. We build solutions that mix great design with cutting-edge technology (e.g. deep learning, distributed computing) to process vast quantities of data.

This leads us to work on **varied and challenging projects**, including:

- Forecasting demand and optimizing prices for railway passengers between two major cities
- Handling millions of data points collected daily through web-crawling
- Calculating optimal ways to fill an aircraft with boxes of unpredictable shapes and displaying the result in 3D

Our applications are used daily by hundreds of users among the largest players of each target industry across many countries and several continents. **We are now a team of 70+, growing by ~100% every 18 months.**

Our business model is built on software-as-a-service solutions licensed through long-term contracts, allowing our **rapid growth to be based on strong, stable profitability** – without requiring any fundraising.

### CONTEXT

At Wiremind, **the Data Science team is responsible for the development, monitoring and evolution of all ML-powered forecasting and optimization algorithms in use in our Revenue Management systems.** Our algorithms are divided in 2 parts:

- A modeling of the unconstrained demand using ML models (e.g. deep learning, boosted trees) trained on historical data in the form of time-series
- Constrained optimizations problems solved using operational research techniques

The team is now entering a scaling phase where **we will face the challenge to stay agile in terms of innovation while supporting and closely monitoring deployed algorithms.** To address this issue, we organize our work around Mixed Integer Linear Programming combined with existing solver and dynamic programming to continuously validate our linear model.

This rapid growth comes with a **multiplication of optimization problems to solve, of increasing sizes, and of business constraints to take into account.** In order to **expand the set of optimized cases while maintaining high-performances**, we are looking for a Junior Optimization Engineer with a taste for software development and a strong background in operational research.

### WHAT YOU WILL DO

You will be joining a team shaped to have all profiles necessary to constitute an autonomous departement (devops, software and data engineering, data science, AIML, operational research). There, you will develop innovative operational research techniques and design validation processes to deliver robust and impactful algorithms.

As Junior Optimization Engineer, you will be responsible for :

- **Designing and implementing new business constraints** to extend the optimized perimeter for existing clients,

- **Monitoring and validating algorithms** to maintain high quality for deployed models in production environments
- **Developing performance monitoring tools** with support from experienced engineers
- **Taking part in the maintenance, development and search for new models** in innovative optimization contexts

#### TECHNICAL STACK

- Python 3.7+ with Coin Branch and Cut solver (<https://projects.coin-or.org/Cbc>)
- Data-store: Postgresql, Druid
- Monitoring tools: Kibana, Grafana
- Gitlab for continuous delivery
- Self hosted Kubernetes for infrastructure

#### WHAT MATTERS TO US

- Operational research background with strong knowledge of multiple modelization techniques: (mixed integer) linear programming, dynamic programming, path finding in a directed graph...
- Computer science background in Python, with a keen interest for code quality and best practices (unit testing, pep8, typing)
- You are above average in terms of rigor and autonomy, you are proactive and curious.

#### WHAT WOULD BE A PLUS

- A first experience in a pricing-related domain

Offered package is **1600€/month**. The position is based in the city center of Paris (Etienne Marcel métro station).

**To apply: [careers@wiremind.fr](mailto:careers@wiremind.fr)**