



**EC H2020 IW-NET project is funding a postdoctoral position starting in October 2022 at LAMIH-UPHF**

**Title:** Transport Planning and Revenue Management Optimization for Inland Waterway Service Networks

**Key-words:** *Mathematical Programming, Capacity Allocation, Network Routing, Revenue Management, Decision Support Systems, Uncertainty, Inland Waterway Transport (IWT)*

**Topic and activities:** Planning and optimization methodologies based on revenue management concepts are developed and deployed on practical application scenarios, in collaboration with the IW-NET project's partners. The objective is to assess the capability of revenue management optimization models to setup favorable conditions for a structured and innovative service offer fostering a new equilibrium in operations and interactions between IWT stakeholders.

We are looking for a motivated postdoctoral researcher whose responsibilities would primarily include the development and validation of advanced mixed integer linear programming models and methods dedicated to tactical and/or operational planning for intermodal barge freight transportation applications.

The contribution of the research work is to propose and evaluate advanced planning, optimization and decision-making methodologies for vehicle and service planning, demand booking, demand routing, and execution of transportation activities, enabling synchromodality on IWT networks, in a dynamic and stochastic context. Planning policies, optimization models and methods are developed under a revenue management based decision-making framework. The algorithms are implemented, tested and validated through practical application scenarios, using real data collected from the ground, in various types of networks and settings specified in collaboration with our European industrial and academic partners, on different geographical European zones.

The postdoctoral researcher will belong to the UPHF research team (two women researchers, two men researchers), in a very dynamic and international environment (close collaboration with researchers in Spain, Austria, Germany, Greece, Belgium, ...), within the consortium of the IW-NET project funded under H2020-EU3.4, and gathering 26 industrial and academic partners from 9 different European countries ([www.iw-net.eu](http://www.iw-net.eu)).

**Position requirements:** We are inviting applications from candidates holding a **PhD in Operational Research or in Computer Science** and with experience and interest in:

- mathematical modeling and solution techniques for computational optimization,
- dynamic and/or stochastic aspects in algorithmics and optimization;
- implementing optimization models and algorithmic solutions in C++/Python/... and familiar with CPLEX.

Practice in one of the following topics would be a plus: stochastic programming, revenue management, planning transportation systems, intermodality, synchromodality.

Strong skills in English (scientific writing) are a pre-requisite.

Knowledge of French, or willingness to learn, would make life in Valenciennes more enjoyable.

The position is open to candidates of any nationality and the selection will be based on the candidate's research record and potential, and **also on her/his immediate availability**.

The salary is based on **French national standards**, according to the years of experience as a researcher.

The position is located in Valenciennes, in the Computer Science department of the LAMIH, Polytechnic University Hauts-de-France, Mont-Houy Campus. The postdoctoral researcher will work closely with professors Ioana Bilegan, David Duvivier, Igor Crévits (from LAMIH), but also with professors Teodor Gabriel Crainic and Walter Rei (from CIRRELT, Montreal, Canada), in a multidisciplinary and international research environment.

The position is available **immediately**. Ideal starting date: October 1<sup>st</sup> 2022.

Applications will be received until the position is filled.

**To apply**

The application should be submitted by e-mail to [ioana.bilegan@uphf.fr](mailto:ioana.bilegan@uphf.fr) and should include, in a single *PDF* file, the following elements:

- CV,
- list of publications,
- a motivation letter,
- a research statement,
- two reference letters.



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