# Université Gustave Eiffel

# POST-DOCTORAL POSITION: ARTIFICAL INTELLIGENCE FOR WATER RESOURCES FORECASTING

**Location:** Part-time position between the Water and environment laboratory of the University Gustave Eiffel (Bouguenais, France) and the aQuasys company (Port Saint Père, France)

**Period:** 24 months starting in September of October 2022. Hiring by the aQuasys company at the end of the Post-doc is envisaged.

**Remuneration**: according to the French public service salary scale

**Tasks:** The post-doctoral fellow will develop generic forecasting models for the management of water resources, based on data mining and machine learning methods. A particular attention will be devoted to the evaluation of the potential of federated learning methods and to the estimation of the forecasting uncertainties, which are an important information for decision processes. The proposed generic methods are intended to be included in the water monitoring and management platforms proposed by the aQuasys company. The various tasks of the post-doctoral fellow will comprise:

- Determining the target hydrological variables for an efficient water resource management by end-users,
- Extracting the working datasets from the aQuasys database,
- Data analysis and processing and proposal of approaches for an automatic implementation of the selected methods: data mining, neural network training, including federated learning and simulation uncertainty assessment.
- Preparing the implementation of the proposed methods in the aQuasys operational platform in connection with the aQuasys development team.
- Selecting, documenting use-cases and organizing demonstration exercises with end users (i.e. water resource management services selected among the customers of aQuasys),
- Writing reports and scientific papers and presenting the advancement of the work to the research laboratory and aQuasys company teams.

## Required profile:

The candidate must hold a PhD degree. He/she is skilled in data analysis, programming (R, Python…) and more specifically in the implementation of data mining et machine learning methods. Ideally, he/she has knowledge of hydrology and hydrogeology, read, writes and speaks English fluently and is able to speak and understand French.

**To apply:** send a CV, a motivation letter and list of publications to:

- Eric Gaume, Université Gustave Eiffel: eric.gaume@univ-eiffel.fr
- Michaël Savary, aQuasys: michael.savary@aquasys.fr
- Dominique Theriez, aQuasys: dominique.theriez@aquasys.fr

**Appointment**
Univ Eiffel / département GERS / Laboratoire Eau et Environnement

aQuasys company

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**Location**
Univ Eiffel, campus de Nantes
Aquasys , Port-Saint-Père

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**Type of contract**
Fixed-term contract

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**Start**
September - October 2022

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**Contacts**

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Dominique Theriez
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**Knowledge**

**Skills**

**Know how**