

Intitulé : Data science internship – VERI

INFORMATIONS

ENTITÉ : Veolia Recherche & Innovation

SITE : Maisons-Laffitte

SERVICE : DIN-SIA

DURÉE DU STAGE : 6 months

A POURVOIR : Early 2020

RESPONSABLE ET CONTACT :

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- Anne-Sophie Guilbert, anne-sophie.guilbert@veolia.com

VERI : who we are ?

Veolia group is the global leader in optimized resource management. With nearly 169 000 employees worldwide, the Group designs and provides water, waste and energy management solutions that contribute to the sustainable development of communities and industries. Through its three complementary business activities, Veolia helps to develop access to resources, preserve available resources, and to replenish them.

Veolia Recherche et Innovation (VERI) has two research centers : Maisons-Laffitte et Limay. In line with the Group's strategy , the R&I of Veolia relies on Scientific Excellence in its R&I programs to support the development of business, the improvement of performance and productivity, while preparing for a competitive edge for tomorrow.

About the intern

✓ Context and objectives

Smart district heating systems play an important role of smart cities concept. Heating system accounts for huge energy consumption and CO2 emission. Reducing power consumption for heating building is a key action to have a positive impact on energy depletion, climate change and temperature rises. Hence, the reduction of energy consumption is significant in both economic and environmental senses. In this internship, the focus will be put on District Heating Systems (DHS), a method of delivering thermal energy in the form of hot water through a network of highly insulated pipelines. Energy can be produced from a variety of sources and technologies at large plants and transported over a distribution network, where the usage is metered at each building. Various Internet Of Things (IoT) sensors and wireless transmission technologies are applied to monitor data in real-time and to form a historical database of information about indoor temperature, pressure, heat

load, flow, etc... The goal of the project is to explore these data to develop an intelligent heating system that contributes to energy planning and operation regulation.

✓ **Your Role and Responsibilities**

As a data science intern, you'll be an integral part of our Intelligent and Learning Systems team which develops decision support tools that provide users optimization, anticipation and automation capabilities. You'll support the project team in the development of the planification service.

The work you may do :

- Collecting and collating the large historical dataset and use innovative ideas to synthesis and provide insight (data visualisation) in an international context
- Use statistical concepts such as regression, mixed models, time series, clustering, etc. to analyse data
- Implement and validate predictive models
- Communicate your work and achievements among the team

✓ **Business Lines**

- Déchets solides
- Déchets toxiques / Déchets liquides
- Service aux industries - Propreté
- Eau municipale
- Eau industrielle
- Energie municipale
- Services énergétiques aux bâtiments
- Gestion déléguée aux industriels - Energie
- Multi services industriels
- Fonctions supports

What we are looking for

You are Master student from university or engineering school (BAC+5 / Master 2) in Statistics, Data science, Mathematics, or other quantitative related field. You have a knack for analytics and solving problems using (big) data.

✓ **Requirements**

- Good understanding of the digital and data ecosystem and its technologies: programmatic, Datalake, dataviz, data science, etc.
- Experience in Statistics (i.e. statistical analysis, regression analysis, ...) and/or Artificial Intelligence (i.e. Data Mining, Machine Learning, ...).
- Strong understanding and capabilities in programming languages extensively used in Data Science applications (e.g., Python, R)
- Experience in data visualization tool (Dash, Shiny)
- Experience collaborating on coding projects, e.g. sharing code and resolving issues through GitHub
- Exceptional communication and presentation skills, especially in English (technical reports, meetings)
- Notions in energy and/or district heating network

✓ **Your soft skills**

- Drive and the resilience to try new ideas if the first one doesn't work
- Researching and developing new technical approaches to address problems efficiently
- Working collaboratively with the team, able to explain your decision and share your knowledge.