Postdoctoral Positions

IFP Energies Nouvelles
Process Division
BP3 - Rond point de l'échangeur de Solaize
69360 SOLAIZE

Post Doc topic

Big Data on chemical process

Project

We are looking for a highly motivated postdoctoral fellow in the area of Big Data and Data Science with a particular focus on chemical data. The project aims to establish a Big Data Ecosystem in order to predict chemical properties.

The ideal candidate shall pursue exciting research in the areas of Big Data, chemical data analytics, machine learning, large-scale networks, deep learning, ...

In chemical product properties prediction, the systems under study are too complex to be mathematically formalized. In the absence of first principles models, experimental data can be used to derive models by estimating useful relationships between variables (i.e. unknown input-output dependencies). Thus there is currently a paradigm shift from classical modeling and analyses based on first principles to developing models and the corresponding analyses directly from data.

In this framework, IFPEN is currently developing a big data project in order to predict these properties.

Candidates with a computational background (PhD) and the desire to get involved in application-driven project in a stimulating, interdisciplinary environment (process engineer, applied mathematics, catalysis, analysis, , …) are encouraged to apply.

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Subject

The aim is to work on existing data:

- Develop and apply advanced statistical methodology for analyzing sparse, and high-dimensional process chemical data (feedstock characterization, operating condition, product properties).
- Build on multivariate data-mining/machine-learning theory and methods for visualize and automatically predict some properties (cetane index, density, conversion, selectivity …).
- Develop methods for handling incomplete data in process chemical.
- Discover hidden patterns in chemical data:
  - To define new relationships between variables
  - To detect early warning signs of trouble shooting.
- Publish in leading conferences and journals.

The development will be realized in R or Python.

This post-doctoral position will provide a first experience in the following areas:

- Data mining
- Big data
- IT development
- System process Engineering
- Project management.

The candidate will work at IFPEN.

Required skills

Desired Skills and Experience

- Degree in Bioinformatics, Data Mining/Data Science or Computer Science (PhD)

- Demonstrated expertise in machine learning, data mining
- Experience with one or more of the following: R, SQL, and Python
- Background in process engineering
- English skills
- Motivation to work in a transdisciplinary team

Contact

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Informations

Desired duration: 12 months
Desired period: 2017
Location: IFP Energies Nouvelles - Lyon
Application: Please send your application (CV, cover letter, Statement of Research Interests, References) to benoit.celse@ifpen.fr and marion.lacoue-negre@ifp.fr