

## Post-doctoral research associate: Applied mathematician for Industry 4.0

1 year position, Saint-Etienne, France

### Context

The École Nationale Supérieure des Mines de Saint-Étienne (EMSE), is a French engineering school depending on the Mines Telecom Institute. Its missions include undergraduate and graduate education, research, innovation, transfer to industry and scientific culture.

The Henri Fayol Institute is one of the 5 Departments at EMSE within which the Mathematics and Industrial Engineering team ("Génie Mathématique et Industriel", GMI) develops quantitative tools for decision making and data science. His scope of activities is in the frame of "Industry 4.0", the name for the new industrial system based on automation and data analysis. Among them, the department is launching the IT'm Factory, a real model of an automated plant, which is useful for online big data analysis. The team is also leading the Chair in Applied Mathematics OQUAIDO ([oquaido.emse.fr](http://oquaido.emse.fr)) whose mission is centered on the design and analysis of small data, collected in pilot studies for complex systems.

To reinforce the activities of this team, Mines Saint-Etienne is recruiting an applied mathematician with an expertise in data science for a 1-year position.

### Missions

The applicant will participate in the teaching and the research missions of the Mathematics and Industrial Engineering team, especially the missions related to Data Science and Industry 4.0.

**Teaching** The needs in teaching concern data science: probability, statistics, statistical learning, machine learning. It includes classes, computer labs, student projects and internship supervision. The main courses are:

- Licence (L3): Probability and Statistics
- Master (M1 & M2): Major Data science, Master Mathematics in Action, Challenge Big Data

**Research** The research carried out should play a part in the mathematical analysis of big data as well as small data. For small data, we expect contributions to the topics "Inversion problem for categorial inputs", corresponding to a case study of the Chair in Applied Mathematics. Some knowledge in Gaussian processes and optimization will be appreciated. For big data, the needs concerns the analysis of offline / online data, but the research topic is quite open in this area, depending on the skills of the candidate. The work should lead to theoretical developments as well as applications with publications in international journals and diffusion of R packages.

### Applicant profile

Candidates should have completed a PhD in applied mathematics, statistics, machine learning, or related disciplines. The applicant should demonstrate both theoretical and computational skills. Implementations in the R language are expected. CV and motivation letter in English or French should be sent to Olivier Roustant ([roustant@emse.fr](mailto:roustant@emse.fr)).

### Conditions

- Date/duration: The position is 1-year, to be filled as soon as possible. Application deadline: 31th August 2018.
- Location: Mines Saint-Étienne, France.
- Net salary (indicative): between 1.871 €/month and 2.104 €/month, according to experience.