



**Laboratory of Computer Science, Systems Modelling and Optimization (CNRS UMR 6158) — Henri FAYOL Institute
Associate Professor in Statistical Learning and Decision Support
for Industry and Territory of the Future (12 months)**

Mines Saint-Etienne (MSE), one of the graduate schools of Institut Mines Télécom, the #1 group of graduate schools of engineering and management in France under the supervision of the Ministry of the Economy, Finance and Industrial Sovereignty, is assigned missions of education, research and innovation, transfer to industry and scientific, technological and industrial culture. MSE consists of 2,400 graduate and postgraduate students, 450 employees, a consolidated budget of €46M, three sites on the Saint-Etienne campus (Auvergne Rhone-Alpes region, Lyon Saint-Etienne metropolitan area), a campus in Gardanne (SUD region, Aix Marseille metropolitan area), a site in Lyon within the digital campus of Auvergne Rhone-Alpes Region, six research units, five teaching and research centres and one of the leading French science community centres (La Rotonde €1M budget and +40,000 visitors per year). The Times Higher Education World University Ranking ranked us for 2022 in the 251-300 range for Engineering and Technology. Our work environment is characterised by high Faculty-to-Student, Staff-to-Faculty and PhD-to-Faculty ratios, as well as comprehensive state-of-the-art experimental and computational facilities for research, teaching and transfer to industry.

The Laboratory of Computer Science, Systems Modelling and Optimization (LIMOS¹), is a Mixed Research Unit (UMR 6158) in computer science, and more generally in Science and Information and Communication Technologies (STIC). It is linked with the Institute of Information Sciences and their Interactions (INS2I) of the CNRS and in a secondary way with the Institute of Engineering and Systems Sciences (INSIS). The LIMOS belongs to the University Clermont Auvergne (UCA) and Mines Saint-Etienne (MSE). It is also a member of Clermont Auvergne INP. The scientific positioning of LIMOS is centered on Computer science, Modeling and Optimization of Organizational and Living Systems.

Founded in 2011, the Henri Fayol Institute², brings together academics in industrial engineering, IT, environment and management to work on the theme of the global performance of companies. From a sustainable development and social responsibility perspective, a company's performance must be considered not only from a technical and economic standpoint, but also from a social, environmental and territorial standpoint. Two technological platforms have been developed to validate, promote and teach the work done within the institute under near-real conditions. The first one is dedicated to the territory of the future (Territoire Platform³) and the second one deals with the industry of the future (IT^mFactory Platform⁴).

Mines Saint-Etienne is recruiting an **Associate Assistant Professor (post-doc equivalent) for 12 months in Data Science : statistical learning, decision support** for industry and territories of the future. The proposed position is open within the GMI (Mathematical and Industrial Engineering) department of the Henri Fayol Institute with research activities developed in the SIC and MAAD axis of the LIMOS , axis of the UMR CNRS 6158 LIMOS.

¹ <https://limos.fr/>

² <https://www.mines-stetienne.fr/recherche/centres-et-departements/institut-henri-fayol/>

³ <https://territoire.emse.fr/>

⁴ <https://www.itm-factory.fr>

1) Candidate profile

The candidate, who holds a PhD in Applied Mathematics or Data Science (CNU sections 26 and 61 and 24), should have expertise in data science and statistical learning, and in decision support. These skills may include statistical modeling of discrete and/or continuous processes, functional approaches in data science, continuous optimization under uncertainty, decision optimization kernel on the reinforcement used in Machine Learning. As the expected contributions must be integrated into the current transformations in the industry and territories of the future, experience in these two application areas through initial training and/or professional experience will be a plus.

2) Missions

The associate professor position includes a teaching and a research mission.

Teaching

The teaching mission consists of providing courses, tutorials and practical work in the teaching of mathematics in initial training for the Ingénieur Civil des Mines (ICM) cursus in the fields of numerical methods, probability and statistics, data science, as well as project and internship supervision. The courses may also concern more specialized master's degree courses, particularly those with an international dimension, engineering training under salaried status, doctoral training and continuing education. Teaching in English is also possible.

Research

The research mission is to develop work related to one or more of these domains: probability, statistics, data science, meta-modelling for estimation. In particular, the development of mathematical modelling approaches for discrete or continuous random processes in data science is expected. For decision-making and dynamic system, optimization processes, several techniques could be considered such as the theory of optimal stochastic control or those related to machine learning with reinforcement. Whatever the approaches, they must integrate the consideration of time data – multivariate - qualitative or qualitative and often uncertain.

The SIC axis (Limos UMR) is dedicated to data acquisition, management and analysis of large amounts of data, data mining techniques and statistical and machine learning. The MAAD axis (Limos UMR) focuses on statistical models of the metamodeling type using a limited amount of data and developed in continuous optimization methods

The research contribution could be made in different forms: theoretical developments, applications and prototype developments (packages in different scripting languages such as R, Matlab, Python, etc.).

3) Assessment Criteria:

The main evaluation criteria are the following (non-exhaustive list):

- PhD in Applied Mathematics or Data Science (CNU Section 26, 61, or 24);
- Ability to strengthen the ongoing activities and projects with the 3 research chaires - chaire Valadoe⁵ - chaire Corenstock⁶ - consortium Ciroquo (ex chaire oquaido) ;
- Ability to contribute to the projects of the GMI department in the Henri Fayol Institute and to the SIC and MAAD axis in the LIMOS laboratory;
- Scientific production: quality and number of publications in journals and conferences indexed by the main electronic databases (Scopus, Web of Science, PubMed, Nature Index, arXiv.org ...);
- Experience in teaching (instructor, temporary assistant) in the above-mentioned fields at a graduate level as well as experience in the development and use of new pedagogical methods;
- Fluency in English and, if possible, international experience;

⁵ <https://www.mines-stetienne.fr/recherche/5-centres-de-formation-et-de-recherche/institut-henri-fayol/actualites/>

⁶ <https://www.mines-stetienne.fr/panoramines/2021/03/23/mines-saint-etienne-partenaire-de-la-chaire-industrielle-corenstock/>

4) **Recruitment Conditions**

- In application of the special status of teachers at the Institut Mines Télécom (decree n° 2007-468 of 28 March 2007, as amended), candidates must hold a doctorate or a recognized qualification at least equivalent to the national diploma required.
- These missions will be carried out on the Saint-Etienne (42) Campus of Mines Saint-Etienne.
- The duration of the contract is a 12-month fixed-term contract **from January 1, 2023 to December 31, 2023.**
- Desired start date: **January 1, 2023**

5) **Application procedures**

The application file should include:

- An application cover letter
- A curriculum vitae outlining teaching activities, research work and where appropriate, relations with economic and industrial sectors (maximum 10 pages)
- Recommendation letters, at the discretion of the candidate,
- A copy of the Doctorate diploma (or PhD),
- A copy of an identity document

Applications must be submitted on the RECRUITEE platform **by November 15, 2022 at the latest via the following link :**

<https://institutminestelecom.recruitee.com/o/maitreassistant-associe-en-apprentissage-statistique-et-aide-a-la-decision-pour-lindustrie-et-les-territoires-du-futur>

Candidates selected for an interview will be informed rapidly. The **interview will take place on the afternoon of November 24, 2022.** Part of the interview will be held in English. Cover letters, CVs and application files written in English will be accepted, but applicants will have to demonstrate in their application file their operative ability to communicate in French with students, fellow faculty members and the school administration. For those invited to be interviewed, the same will be expected in oral form and tested by the selection committee.

6) **More Information**

For further information concerning the position, contact:

- Head of MAAD axis of LIMOS:

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