**Laboratoire d'Informatique, de Modélisation et d'Optimisation des Systèmes (CNRS UMR 6158)**
**Institut Henri Fayol**

# Open position of Associate Professor (*Maître de conférences*) in Artificial Intelligence – Reinforcement Learning

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, Industry and Digital Technology, 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, 400 staff, 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 Informatics, Modelling and Optimization of the Systems (LIMOS), which will be the host laboratory, is a Mixed Unit of Research (UMR 6158) in computing, and more generally in Sciences and Technologies of information and the Communication (STIC). The LIMOS is mainly connected with the Institute of the Sciences of the Information and their Interactions (INS2I) of the CNRS, and in a secondary way to the Institute of the Sciences of the Engineering and the Systems (INSIS). He has for academic supervision the Clermont Auvergne university and the graduate school of Mines of Saint-Étienne (EMSE), and as partner establishment the Engineer Institute SIGMA. The scientific positioning of the LIMOS is centered around the Computing, the Modelling and the Optimization of the Organizational and alive Systems.

The Henri Fayol Institute is a training and research center that brings together Mines Saint-Étienne's teacher-researchers in industrial engineering, applied mathematics, computer science, environment and management. The Henri Fayol Institute contributes to decision support for companies and territories through a quantitative, IT and managerial vision for sustainable development purposes. Two technological platforms have been developed to validate, promote and teach the work carried out within the institute in near-real conditions. The first is dedicated to the territory of the future (Plateforme Territoire[1] ) and the second to the industry of the future (IT'M Factory platform[2]). The Intelligent Systems and Informatics department (ISI) is a component of the Henri Fayol Institute. ISI aims to contribute to the development of computer models, algorithms and architectures for the interconnection of the physical, digital and social worlds.

[1] https://territoire.emse.fr/

[2] https://www.mines-stetienne.fr/entreprise/itm-factory/

To enforce his skills related to Industry of the future and Territory of the future, The École Nationale Supérieure des Mines de Saint-Étienne is hiring an associate professor (Maître de Conférences) in Artificial Intelligence - Reinforcement Learning.

### *1) Candidate profile and assessment criteria*

The candidate should hold a PhD degree in the field of Computer Science. A French CNU habilitation in section(s) 27 will be considered but is not mandatory. Specific skills and/or experience in the following fields will also be considered for this position:

The candidate should have a strong culture and have contributed in the area of reinforcement learning.

The position will strengthen and develop our research and teaching outreach in the field(s) of distributed artificial intelligence and/or knowledge representation and reasoning areas, both in terms of research topics and application domains.

In addition of the scientific skills described previously, skills and/or specific experience in the following domains will be also taken into account: i) internet of things, web architecture; ii) integration and engineering of intelligent systems; iii) industry and territory of the future.

A significant experience in teaching in the aforementioned fields at under-graduate or post-graduate cycle levels will be appreciated.

Command of the English language is essential. Given the School's international development projects, a significant international experience is strongly favoured. Otherwise, an international mobility with a foreign partner institution should be carried-out during the three years following recruitment.

Given the guidelines mentioned above, several characteristics will be important assets:

- Interest for teamwork and willingness to elaborate one's research project in this context,
- Interest in industrial relations, transfer and innovation
- appeal for interdisciplinarity and multi-discipline collaborations
- Practical common sense, openness and intellectual curiosity
- The quality of oral and written communication

### *2) Missions*

The research and teaching activities will be carried out on the Saint-Etienne campus. Occasional involvement in the other campus' activities is possible and encouraged. Associated transport and accommodation costs will be covered if necessary.

**Teaching**

The teaching mission consists of undertaking both supervised and practical courses, along with the tutoring of projects and internships/work experiences, in priority in the training of the flagship diploma of École des Mines (*Ingénieur Civil des Mines*[3]), the Master's degree(s) in Computer Science from the University of Lyon in the international track Cyber-Physical Social Systems[4] and the track Data and Connected Systems[5]. These tracks are co-accredited with the Jean-Monnet University.

The successful candidate will be actively involved with the teaching teams in charge of the courses cited above. The design of new activities and the development of innovative teaching methods, in particular related to digital technology, will be an integral component of the teaching mission.
The candidate should be able to carry out the teaching assignments and possibly deliver MOOCs in English.

[3] https://www.mines-stetienne.fr/formation/icm/

[4] https://www.mines-stetienne.fr/formation/cyber-physical-social-systems-cps2/

[5] https://www.mines-stetienne.fr/formation/master-donnees-systemes-connectes-dsc/

A minimum number of hours must be completed yearly. Course design, supervision and team management activities are included in the teaching hours log.

**Research**

The successful candidate will do his/her research in the axis Information System and Communication (SIC) of the Laboratory of Informatics, Modelling and Optimization of the Systems (LIMOS, UMR CNRS 6158)

Axis 2 ICS (Information and Communication Systems) focuses on the acquisition, transfer, processing and analysis of data. These data are generally massive, incomplete and heterogeneous. They can be acquired and transmitted through a wireless sensor network, and are stored in a database which can be distributed. They are processed and analyzed in order to identify their properties. More precisely, the successful candidate will be member of the theme Data, Services, Intelligence. This team includes specialists in mathematics and computer science who investigate different topics, all related to data: Management of large masses of data (big data) ; Knowledge extraction, artificial learning, data science; Analysis, verification, testing of applications, web services and business processes.

### 3) *Candidate assessment criteria:*

The main evaluation criteria are (non-comprehensive list):

- Significant teaching experience (development of digital courses, reference works…) in the previously mentioned fields, at under-graduate or post-graduate level, along with development of new teaching methods.
- Capacity to reinforce the research outreach of Mines Saint-Etienne in Artificial Intelligence – Reinforcement Learning through recognition of its research activities at the national and international levels and active involvement in the corresponding scientific networks;
- Capacity to successfully integrate and contribute to the group, centre and research unit project
- Scientific production: number, quality and impact of peer-reviewed original research papers, book chapters or conference proceedings indexed in international electronic databases such as, e.g.: Scopus, Web of Science, PubMed, Nature Index, arXiv.org …, contribution to and animation of national and international workgroups or research communities,
- Partnership-based research: direct industrial partnerships, collaborative research, support to start-ups …,
- International partnerships,
- Good command of the English language, significant international experience
- Capacity to obtain the French accreditation to supervise research qualification (*Habilitation à Diriger des Recherches*) in the five to seven years following the candidate's recruitment

### *4) Recruitment Conditions*

Permanent public law contract

Remuneration is based on the rules set out in the *Institut Mines Télécom* collective labour agreement.

Candidates should hold a doctorate diploma or a similar recognized qualification level, equivalent to the required national diplomas.

Required date for taking up the position: **October 1, 2022**

### *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

These documents should be submitted on the platform RECRUITEE by **April 15, 2022** at the latest
URL: https://institutminestelecom.recruitee.com/o/maitre-de-conference-en-intelligence-artificielle-apprentissage-par-renforcement-fh
Candidates selected for an interview will be informed rapidly. 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) Further information*

For further information concerning the position, contact:

– LIMOS Deputy Director :
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