Researcher in Applied Machine Learning

Department: Smart Technologies
Type of contract: CDI
Reports to: G. Flandin
Status:
Workplace: Toulouse
Gross Salary (according to experience):

Duty and responsibilities

Context: IRT Antoine de Saint Exupéry is a world-class excellence center in Aeronautics, Space and Embedded Systems. This Technology Research Institute combines resources from public and private partners to lead Research & Technology activities in three strategic domains: High Performance Multifunctional Materials, More Electrical Aircraft and Innovative Systems.

IRT Saint Exupéry is promoting the transfer of innovative digital technologies (Machine Learning, Signal processing, Human Machine Cooperation) towards industrial partners. More specifically, we are developing means and skills in Artificial Intelligence (AI) applied to several industrial domains. You will join a team of approximately 70 persons in AI, with recognized success in Earth Observation applications and other fields where dependable AI is mandatory. The team is strongly linked with the Toulouse AI Institute ANITI and benefits from its 100 researchers ecosystem in Toulouse.

Why and how are we different? Many companies and research entities work in the AI domain. We chose to focus on high-value, specific open problems shared by many industries. This led to the Dependable and Explainable Learning program, a 30 M€ program focusing on designing robust and explainable Machine Learning algorithms to be used in critical systems (airplanes, space systems, and also cars and trains). This ambitious collaborative program attracted leading researchers from the prestigious MILA in Quebec, and is coordinated by IRT, ANITI, CRIAQ, IVADO and IID.

IRT Saint Exupéry is looking for a Researcher in Applied Machine Learning. You will develop the next generation of Machine Learning algorithms with safety-critical constraints. You will work in an environment composed of researchers and engineers from industry and academic research, with diverse and international profiles (mathematicians, data scientists, experts in safety and certification).

Your mission and technical contributions:

- Development of disruptive technologies in the field of Machine Learning (ML) for critical systems (80% of the overall activity). You will design, improve, implement, and analyze/evaluate ML algorithms for settings where small risk, robustness, and safety are critical. This includes, but is not limited to: uncertainty quantification methods, conformal prediction methods, calibration of classifiers, robust ML and statistics. You will develop your expertise and international recognition through your own research activities, participating in cutting-edge research. You will leverage your expertise in the team with an outstanding leadership, fostering new collaborations with other academic and industrial researchers.
- Exploration of new applications for in-house technologies (20%)
- Participate to technology state-of-the-art and propose industrial transfers.
- Publish papers at leading international conferences.
- You may even teach!
### Skills

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<tr>
<th>Knowledge (theoretical skills)</th>
<th>Expert in artificial intelligence, machine learning and data science with strong background in mathematics and statistics, software development skills in Python.</th>
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<tr>
<td>Know-how (practical skills)</td>
<td>Implementation of machine learning and/or deep learning libraries (PyTorch, Tensorflow). Ability and willing to extrapolate on new applications, innovation of uses (e.g. Health, industry, SMART cities, intelligent transport systems…).</td>
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<td>Social skills (behavior)</td>
<td>Open-minded with holistic mindset. Swiftness, ability to go to the essential.</td>
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### Background

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<tr>
<th>Education</th>
<th>PhD in Computer Science or Applied Mathematics</th>
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<td>Experience</td>
<td>Academic experience (through PhD or more)</td>
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