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LUXEMBOURG
INSTITUTE OF SCIENCE
AND TECHNOLOGY



II-2301 - 6G NETWORK DIGITAL TWINNING: FROM THEORY TO PRACTICE

Internship contract – 6 months | Fulltime/40h | From 01.11.2023 on | Belval

Are you passionate about research? So are we! Come and join us

The Luxembourg Institute of Science and Technology (LIST) is a Research and Technology Organization (RTO) active in the fields of materials, environment and IT. By transforming scientific knowledge into technologies, smart data and tools, LIST empowers citizens in their choices, public authorities in their decisions and businesses in their strategies.

<https://www.list.lu/>

You 'd like to contribute as an intern? Join our IT for Innovation Services department

The IT for Innovative Services (ITIS) department, with its 100 researchers and engineers, focuses on the digital transformation of operations in organizations with traditional environments and digital ecosystems, with the aim of improving their performance and innovation capacity. The common thread throughout ITIS is to develop the most efficient use of big data to ensure the most appropriate decision-making processes.

The department relies on the Data Analytics Platform: a hybrid infrastructure covering the entire range of data analytics activities. The platform is based on three pillars: a high-performance computing (HPC) infrastructure, a cognitive analytics pillar and an interactive visualization wall (Viswall).

How will you contribute?

While 5G is being rolled out, the first research and standardisation efforts on the next generation have already started. One of the common visions for 6G involves the increasingly advanced use of artificial intelligence (AI) to dynamically manage the resources of these future networks. In this context, the concept of network digital twinning (NDT) — which involves creating a real-time digital replica of a physical network — is particularly relevant, since AI models can for instance be tested and calibrated before being deployed in the reality.

You will define a concrete and tangible example of an NDT and evaluate its performances through a demonstrator. It will target a use-case involving mobile nodes, including but not limited to drones and robot cars/dogs, and give the opportunity to the candidate to explore both theoretical and applied principles. It will be broken down into three phases:

- 1) Performing a review of the main research challenges related to NDT, with a specific focus on use-cases involving connected and automated mobility and unmanned aerial vehicles.
- 2) Defining an approach answering to one of the identified NDT challenges, together with a simplified scenario (i.e., that could be reproduced in a laboratory environment).
- 3) Evaluating the performances of this approach by implementing a demonstrator.

Is Your profile described below? Are you our future colleague? Apply now!

Education

Master/Engineering student in Computer Sciences or equivalent

Experience and skills

The Luxembourg Institute of Science and Technology (LIST) is a mission-driven Research and Technology Organisation (RTO) that develops advanced technologies and delivers innovative products and services to industry and society. Located at the heart of Luxembourg's vibrant Research and Innovation Campus in Esch-Belval, LIST can ideally connect its over 500 specialists in materials, the environment and IT with virtually all of Luxembourg's other main research players such as the University of Luxembourg, LIH, LISER, Technoport, Luxinnovation and the National Research Fund. **LIST.lu**

The LIST is committed with equality of opportunities and gender balance

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- Knowledge of wireless communication networks
- Having engineering and development skills is an advantage

Language skills

- Good level both written and spoken English or French

Your LIST benefits

An organization with a passion for impact and strong RDI partnerships in Luxembourg and Europe that works on responsible and independent research projects;

Sustainable by design, empowering our belief that we play an essential role in paving the way to a green society;

Innovative infrastructures and exceptional labs occupying more than 5,000 square metres, including innovations such as our Viswall, high-scale incubators and top of the range 3D/4D printings that are part of our toolkit for excelling in all we do;

Multicultural and international work environment with more than 50 nationalities represented in our workforce;

Diverse and inclusive work environment empowering our people to fulfil their personal and professional ambitions;

Gender-friendly environment with multiple actions to attract, develop and retain women in science;

32 days' paid annual leave for a full time internship, 11 public holidays per annum, flexible working hours,

An environment encouraging curiosity, innovation and entrepreneurship in all areas.

Apply online

<https://www.list.lu/en/jobs/interns/>

Your application must include a motivation letter oriented towards the position and detailing your experience

Application procedure and conditions:

- LIST is an equal opportunity employer and is committed to hiring and retaining diverse personnel. We value all applicants and will consider all competent candidates for employment without regard to national origin, race, colour, gender, sexual orientation, gender identity, marital status, religion, age or disability;
- Applications will be reviewed on an ongoing basis until the position is filled;
- An assessment committee will review the applications and select candidates based on guidelines that aim to ensure equal opportunities;
- The main criteria for selection will be the correspondence of the existing skills and expertise of the applicant with the requirements mentioned above.

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