RESEARCH ENGINEER / POST-DOCTORAL
Computer science - electronics
DESIGN AND DEVELOPMENT IN EXPERIMENTATION (M/F)
18-month fixed-term contract starting May 2023

JOB DESCRIPTION

The Université Catholique de Lille (France) is recruiting a **research engineer / post-doctorate in "conceptualization and development in experimentation"** to join the *Neurethic* project team.

Neurethic is a cognitive neuroscience research project developed in two main axes, one dedicated to the study of the emotional and cognitive aspects of multiple sclerosis, and a second dedicated to the neurophysiology of digital interactions.

Scientific and technological context

Exploring the mechanisms of human cognition requires the design of protocols combining **theoretical approach and technological innovation** and involves numerous measurement equipment and digital devices: electrophysiological sensors, VR headsets, networks, real-time analysis, etc. **Dedicated digital research applications** are traditionally developed to operate in combination with existing software and are based on languages combining flexibility and performance (**Python** in particular). They can sometimes be perpetuated in more industrial formats using lower-level languages such as **C#** or JAVA. Some software solutions such as Matlab or Opensesame are often embedded in cognitive science research protocols. In addition to the software layer, the design of experiments can reveal **hardware or electronic challenges** such as the integration of Arduino circuits, acquisition cards or the configuration of measurement equipment.

QUALIFICATIONS

Our research protocols thus involve multiple engineering matters, including:

- The development of dedicated research applications: data collection, dissemination of visual and sound stimuli, etc.

- Synchronisation of measurement and broadcasting equipment,

- Analysis of multimodal signals: time series, event markers, etc.

- Software configuration,

- Implementation of tests (unit and functional),

- Documentation writing,

- Knowledge sharing (open science, open-source development).

We are looking for a candidate with strong development skills in one or more essential languages (Python and/or C#) and ideally notions of electronics or robotics. **Knowledge about the cognitive neuroscience concepts is not required to apply**, an appetite for cognition (biological or artificial) remains desirable.

Beyond the activities related to developments for research, the candidate is expected to participate in the various activities of the team (meetings, seminars, etc.), a daily presence of 200 days per year on site, on mission, with a share of distance work. The selected candidate will have a personal workspace, a complete computer setup, any tool required in the design of lab experiments and access to the various digital resources and infrastructures of the university. Remuneration is set according to qualifications and experience based on the contractual provisions in force.

ENVIRONMENT

ETHICS (EA 7446) - THE ANTHROPO-LAB & PSyCOS

Neurethic is a project involving researchers from Anthropo-Lab and PSyCOS, two teams from the ETHICS laboratory (EA 7446), a labeled and multidisciplinary research unit of the Institut Catholique de Lille (https://lillethics.com/).

The research work carried out within **ETHICS** focuses on the ethical reflections raised by the techno-scientific and socio-economic changes of the contemporary world. The first object of interest of ETHICS is therefore ethics and, more broadly, the Human and its inclusion in society and its environment. This anthropological concern is expressed through the various themes that bring together the laboratory teams.

The **Anthropo-Lab** was created in September 2015 to improve understanding of the social and ethical dimensions of human behavior. To address these questions, the team uses a wide range of methodologies including the use of experimentation (laboratory, field and online) and neurophysiological measurements, behavioral modeling, and data analysis. The team is made up of researchers in economics, psychology, neuroscience, management science, political science, and ethology.

The **PSyCOS** (Social and Cognitive Processes in Organizations and Health) research team brings together teacher-researchers, study engineers and doctoral students in neuropsychology, cognitive psychology, social psychology, and occupational psychology. The work and projects of the members of this team focus on the study of cognition and individual, group and intergroup dynamics, more particularly in connection with health issues within organizations or in the face of neurological pathologies.

The *Neurethic* project team is made up of researchers in neuropsychology and cognitive neuroscience and benefits from IT and administrative support.

THE UNIVERSITE CATHOLIQUE DE LILLE

The Université Catholique de Lille (UCL) is a university federation welcoming 36,000 students and bringing together 2 engineering schools (JUNIA and ICAM), 2 labeled business schools (EDHEC, IESEG), a hospital group (GH ICL) developing 1,000 hospital beds hospitals, a group of EHPADs (500 beds) and core faculties called the Institut Catholique de Lille, including several associated schools. The university's research activity is carried out by nearly 700 permanent teacher-researchers, researchers, and hospital-university staff. Essentially, research is structured around a clinical research center, 2 UMR CNRS in joint supervision (LEM and IEMN), 3 Reception Teams in joint supervision (LGCGE, L2EP, Institut Charles Viollette) and 1 Own reception: ETHICS – EA 7446.

APPLICATION PROCEDURE

Candidates are invited to submit their application files through our portal https://recherche.univ-catholille.fr/candidatures-en-ligne/ (available in french only, contact us for any help in submitting). They should also send a copy to Olivier Capra (olivier.capra@univ-catholille.fr)

The file includes a letter describing the motivations to join the UCL and presenting the proposed contribution, a detailed CV and the copy of the last diploma obtained.

Applications close in May 2023. Auditions take place during the recruitment campaign and end in May 2023.

For any clarification on this job profile, you can contact: olivier.capra@univ-catholille.fr, co-leader of the *Neurethic* project and nicolas.vaillant@univ-catholille.fr, Head of ETHICS.