

**FULL-TIME ACADEMIC POSITION IN  
EMBEDDED ELECTRONICS FOR SMART ENVIRONMENTS**

**BRUSSELS SCHOOL OF ENGINEERING - ECOLE POLYTECHNIQUE DE BRUXELLES**

Reference : 2021/A038

Application deadline : 15/02/2021

Start date : 01/10/2021

## Job description

The Brussels School of Engineering is hiring a full-time professor in the field of embedded electronics for smart environments. The candidate will be joining the BEAMS – Embedded Electronics research group, and will be teaching in the Bachelor of Engineering in Charleroi which ULB is coordinating in partnership with UMONS.

### Research Field

The usage of embedded electronics in smart cyber-physical systems is in full expansion. Smart cities, autonomous vehicles, smart roadside infrastructures are a few examples of such applications.

From a hardware perspective, the diminishing cost of sensors leads to an increase of the number of connected sensors, while developments in machine learning and artificial intelligence (AI) are changing the hardware architectures and the type of programs that need to be implemented on embedded systems. Moreover, the inclusion of embedded electronics in critical systems such as autonomous vehicles or critical infrastructures (such as railway systems) require improvements of embedded systems in terms of robustness, reliability, response time and critical performance.

The candidate for this post should have expertise in embedded electronics with focus in one or multiple of the following topics:

- Design and integration (hardware or software) of embedded cyber-physical systems for machine learning algorithms or artificial intelligence;
- Design of programmable and reconfigurable architectures for machine learning and AI algorithms for smart systems;
- Design and usage of embedded systems for critical cyber-physical systems (autonomous vehicles, roadside infrastructure, etc.);
- GDPR-compliant cyber-security architectures for cyber-physical embedded systems;
- Real-time architectures for embedded cyber-physical systems.

The candidate will develop his/her research in collaboration with industrial partners in the Walloon Region, and more particularly with industrial partners in the area of Charleroi that are active in smart mobility and infrastructure.

### **Scientific and educational objectives**

The candidate will have to develop a research activity in his/her field and have an active scientific output. It will be expected from the candidate to apply for funding through different funding organizations (European Research Council, Fonds National de la Recherche Scientifique, regional funding, European commission ...). One specificity about this chair is that the candidate will have to develop research collaborations with local industrial partners through regional funding mechanisms.

The candidate will also have to teach in the Bachelor in Engineering on ULB's Charleroi campus (in collaboration with UMons). This concerns courses related to electronics and signal processing. Bachelor courses are taught in French.

### **Courses covered at the time of recruitment**

The candidate will have to teach some of the following courses (lectures and/or practical sessions):

- Electronics and Instrumentation
- Circuit theory
- Physics of telecommunication systems
- Telecommunication signals and systems
- Logic circuits

The teaching load of the candidate will be progressively increased until a full teaching load is achieved.

### Qualifications required :

The candidate should have a PhD in Electrical Engineering or Computer Science (with a focus on electronics or related field).

### Skills required

- Applicants should have at least 4 years of research experience at the time of their recruitment.
- Post-doctoral experience and an excellent scientific record are a plus.
- Exchange periods outside of the applicants' home institution (during or after their PhD) will be taken into consideration when evaluating applications.
- You speak fluent French (level B2 or better), as well as English (level B2 or better)
- You have experience in setting up and participating in research projects
- You have experience in the different aspects of academic teaching: course coordination and organization, developing didactic tools, supervising student projects.

### Interested ?

For more information, please contact Prof. François QUITIN (phone: 32 2 650.28.29 - e-mail: [fquitin@ulb.be](mailto:fquitin@ulb.be)).

Applications must be sent by e-mail to the rectorate of the Université Libre de Bruxelles ([rectrice@ulb.be](mailto:rectrice@ulb.be)) and to the faculty deanship ([le-doyen-polytech@ulb.be](mailto:le-doyen-polytech@ulb.be)).

They must include the following :

- an application letter
- a Curriculum vitae including a list of publications :  
*if you want you can complete a standard form via our website at <https://www.ulb.be/fr/documents-officiels/completer-votre-cv-en-ligne>. Once completed, it must be downloaded and attached to the application file.*
- any relevant documents showing 4 years of research experience
- a 7,000-character report (4 pages) presenting the applicant's research activities and a research project, including how these will integrate into ULB's research teams
- a teaching report including a 7,000-character report (4 pages) on the applicant's previous teaching activities and a teaching project for the first five years in this position; these must be relevant to the faculty and to the teaching profiles for the programmes to which the applicant is to contribute
- a note on the applicant's international achievements and projects (no more than 4 pages)
- the names and e-mail addresses of five references (with equal gender representation) who may be contacted by those in charge of evaluating applications. These references should not have conflicts of interest because of family or emotional ties.

The appointment to the academic staff of ULB is made at "Premier Assistant" level, if the candidate has had a PhD for less than eight years (on 1 October of the year of appointment). If the candidate has had a PhD for eight or more years, on 1 October of the year of appointment, then the appointment is made at "Chargé de Cours" level. As of their appointment, members of academic staff are authorised to use the honorary title of "Professeur".

## Equal opportunities policy

ULB's personnel management policy is geared towards diversity and equal opportunities.

We recruit candidates on the basis of their skills, irrespective of age, gender, sexual orientation, origin, nationality, beliefs, disability, etc.

Would you like to be provided with reasonable accommodation in the selection procedure because of a disability, disorder, or illness? Do not hesitate to contact Marie Botty, the Gender and Diversity resource person of the Human resources Department - SPES ([marie.botty@ulb.be](mailto:marie.botty@ulb.be)). Be assured of the confidentiality of this information.

More details on the ULB gender and diversity policy are available at <https://www.ulb.be/en/about-ulb/gender-equality-at-ulb>.

You will find all the regulations relating to academic careers on our site at <http://www.ulb.ac.be/emploi/academique.html>.

## EURAXESS SPECIFIC INFORMATION

Type of contract : temporary

Hours per week : 38

Required Research Experiences : (domaine – voir liste EURAXESS) : (+ nombre d'années d'expérience (0 à xx))

Main research field:

- 15. Engineering
- 09. Computer Science

Sub-research fields:

- 15.7. Communication engineering
- 15.8. Computer engineering
- 15.12. Electronic engineering
- 15.14. Industrial engineering
- 9.3 Computer architecture
- 9.4. Computer Hardware

Researcher profile : Experienced researcher - R3 (4 – 10 years)

Additional requirements :

[texte libre où l'on peut renseigner les domaines et disciplines non disponibles dans les listes Euraxess par exemple]