ULB UNIVERSITÉ LIBRE DE BRUXELLES

FULL-TIME ACADEMIC POSITION IN IMMERSIVE TECHNOLOGIES

SCHOOL OF ENGINEERING

Reference : 2025/A038
Application deadline: 31/01/2025
Start date: 01/10/2025

Job description

The candidate will conduct teaching activities at the faculty of Engineering of Université Libre de Bruxelles (ULB), Brussels School of Engineering, Belgium, as well as research activities in immersive visual media at the LISA-VR research unit: Laboratory of Image Synthesis and Analysis, Virtual Reality. The position is open to researchers holding a PhD in Computer Sciences and Engineering (or similar degree), having a strong background in 2D & 3D multimedia.

Area of Research : *immersive visual media*

The main field of research covers the acquisition and processing of visual data beyond 2D images for immersive rendering in free viewpoint applications, with a particular focus on the photorealistic synthesis of virtual views for stereoscopic and/or light field rendering of real scenes, cf. *https://lisa.polytech.ulb.be/en/research/immersive-visual-media*.

The applicant shall demonstrate solid background and expertise in foundation disciplines of immersive multimedia and virtual reality, among which camera and image formation models and sensing, scene modeling and representation under various data formats (multiview, multiview+depth, point clouds, etc.), as well as view synthesis.

In the short and mid-term, special attention will be paid to expertise in methods for optimizing the volumetric visual data representation and its rendering with innovative view synthesis approaches, including learning-based methods such as neural radiance fields, and point clouds with Gaussian splats or ellipsoid primitives, amongst others.

Long-term goals should go beyond scientific perspectives only, also covering the collaborative, societal and/or valorization impact of the developed technologies. The candidate shall gradually find the necessary funds to further expand the LISA-VR team, develop its research activities and collaborations, and reach a strong publication and/or software portfolio (github and/or gitlab).

Expertise is highly recommended in multi-cameras' setups and/or plenoptic capture of light fields, their real-time processing on multi-processors (GPUs) and/or dedicated hardware, and/or prototyping innovative optical devices along the light field processing pipeline (capture, display). Expertise beyond visual media is a plus, e.g. immersive audio.

A link with standardization committees around the multimedia streaming ecosystem is appreciated, in view of valorizing the research output in practical settings. It is, however, not requested to the candidate to be active in industrial standardization committees, with stakeholders far outside the academic community.

Educational and scientific goals : Teach multimedia technologies to engineers, i.e. image, video and/or 3D graphics processing. Study scientifically innovative volumetric visual data representations and their real-time processing in photorealistic rendering, with a clear scientific impact (publications and/or github/gitlab software) and back-fertilization towards the teaching activities.

The candidate will take part in various educational activities (supervision of Master theses, projects, laboratories and exercises) in the Bachelor and/or Master's program of the Brussels School of Engineering, with a focus on Multimedia Technologies for the Engineer.

The teaching workload typically covers 3 courses of 5 ECTS each (might be gradually built up over the years), amongst following topics: GPU computing, C/C++ & CUDA/HIP, 3D Graphics, Virtual Reality, Multimedia Compression and Multimedia Immersive Technologies, e.g. INFO-H502, INFO-H503, INFO-H516 and INFO-H518 in https://www.ulb.be/en/programme/m-irifs-1.

The teaching workload might also include introductory programming courses in the bachelor program: https://www.ulb.be/fr/programme/ba-ircib-1.

Courses in Masters are taught in English; courses in the Bachelor are taught in French. The teaching distribution will be discussed accordingly with the applicant, to best serve the faculty's needs. An adaptation period to reach a B2 level in French is planned. A budget will be allocated to the hired person to enable them to attend training programs.

Qualifications required

PhD Degree (with doctoral thesis) in Computer Sciences and Engineering (or similar domain) with a proven expertise in image, video and/or 3D graphics processing.

Skills required

- Applicants should have at least 4 years of research experience (including their PhD period) at the time of their recruitment.
- Post-doctoral experience and an excellent scientific record (publications and/or open access software) are a plus.
- Applicants who do not speak French may be granted a period of adaptation, but they must be able to reach a B2 level in French at the end of the third year following their appointment. A budget will be allocated to the hired person to enable them to attend training programs. If language training is necessary, this budget will be prioritized for that purpose.

Interested ?

For more information, please contact Prof. Gauthier Lafruit (secretariat's telephone: +32 2 650 22 91 – e-mail: Gauthier.Lafruit@ulb.be). For information about the gender equality politics of the Faculty, please contact Prof. Alessia Cuccurullo (E-mail: alessia.cuccurullo@ulb.be).

Your application will consist of a Curriculum Vitae*(if you wish, a standard CV can be downloaded from the website: https:* //www.ulb.be/fr/documents-officiels/emplois-academiques-et-scientifiques-cv-type) and a document completed using the template available at this URL address https://www.ulb.be/fr/documents-officiels/1e-applic-form-acad-tps-plein-docx. This template structures your application by including the following elements:

- an application letter
- 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 dossier 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 programs 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 referees (respecting the gender balance) who may be contacted by those in charge of evaluating applications. These referees should not have conflicts of interest because of family or emotional ties.
- The shortlisted candidate will be invited to an interview conducted in English. Candidates will be asked to present a short lecture (English) on a prescribed topic of the chair domain aiming to assess the pedagogical skill. If the candidate has some knowledge of French, their level will be assessed with a short informal discussion that will close the interview.

Incomplete applications or applications that do not use the template provided will not be examined by the selection committee.

The appointment to the academic staff of ULB is made at" Chargé de Cours" level. As of their appointment, members of academic staff are authorized to use the honorary title of "Professeur".

Equal opportunities policy

Applications from women are strongly encouraged.

Equal pay between men and women is ensured by identical salary scales for all academic staff.

The purpose of the 'Cascade' initiative, which has no equal in the Wallonia-Brussels Federation, is to fight the 'leaky pipeline' effect, which refers to the decrease in parity at higher stages of academic careers and is common in Europe, in Belgium, and at the Université libre de Bruxelles. In order to fight this phenomenon, it was decided that the gender balance among promoted staff members is at least equal to that observed at the lower level of career progression.

The Brussels School of Engineering is particularly attentive to work-life balance: flexible working hours, telework options, etc.

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? Please contact Marie Botty, the person in charge of diversity aspects for the academic and scientific staff (marie.botty@ulb.be). Be assured of the confidentiality of this information.

More details on the ULB gender and diversity policy are available at Diversity at ULB - ULB.

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