

**The Royal Museums of Fine Arts of Belgium**  
and  
**Université catholique de Louvain**  
are recruiting

**Senior researcher position**

(project: RMFAB/UCLouvain/FED-tWIN)

REF : Prf-2020-022 SIAMESE – Seamless Image Archiving for Museums and Enhanced Sharing Experiences

**Project and Content of the Position**

The twinned research profile between the Royal Museums of Fine Arts of Belgium (RMFAB) and the ICTEAM institute, Université catholique de Louvain (UCLouvain) will establish a research workforce through their own work and grants at the regional, national, and European levels, to provide new, innovative image-processing techniques applied to cultural heritage preservation. The goals are, among others, to develop low-footprint solutions in order to provide trustworthy and “intelligent” remote access to image archives. This will rely on the expertise of ICTEAM in

- wavelet-based image compression, including contributions to the development of the JPEG-2000 standard and more recently the JPEG-XS standard (compression with low-latency and low carbon footprint)
- watermarking technologies
- objective and subjective image quality assessment; and on new research activities dedicated to content-based image retrieval in the compressed domain.

These research activities will be targeting cultural heritage and images archiving for museums first and foremost, but could also address other domains such as medical imaging, satellite imaging, and any other domains producing mega-images and large amounts of image records.

**Description of the federal scientific institute (FSI) and of the university**

The Royal Museums of Fine Arts of Belgium ([RMFAB](https://www.fine-arts-museum.be/)<sup>1</sup>, Brussels) are a Federal Scientific Institution (FSI) with important heritage collections. Their fine arts collections provide a vast overview of western art from the 15<sup>th</sup> century until today, with remarkable ensembles of works of artists from Belgium and the former Southern Netherlands. Included are works of the Flemish Primitives, Pieter Bruegel

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<sup>1</sup> <https://www.fine-arts-museum.be/>

the Elder, Peter Paul Rubens, James Ensor, Constantin Meunier, Paul Delvaux, René Magritte, Marcel Broodthaers, Jan Fabre, and many others.

The “Pixels and Interactions Lab” (PiLAB<sup>2</sup>) is a research team from the Institute of Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM<sup>3</sup>), within the Université catholique de Louvain (UCLouvain<sup>4</sup>) in Belgium. The team is involved in three main research topics: Signal & Pixels, Medical Imaging, and Interaction. Inspired by fundamental research, PiLAB is designing innovative software, and hardware signal processing solutions.

## Job description

### Subject area / research field

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Thanks to Belgium’s federal digitization program (DIGIT, 2005-...), the digitization of the collections of the Royal Museums of Fine Arts of Belgium has been underway for the last fifteen years. As of today, most of the 15<sup>th</sup>- to 21<sup>st</sup>-century paintings, sculptures, drawings and installations in the RMFAB’s collections have already been digitized. This represents a tremendous amount of images stored in various formats (HD and gigapixel images stored as 16-bit RGB TIFF, CMYK TIFF, etc.) generated by multiple external professional photographers. Thanks to an investment by the DIGIT program, the RMFAB are getting ready to set up a digitization lab. In order to position themselves with respect to other museums specialized in artwork photography (such as the Rijksmuseum, Amsterdam, NL), this lab, combined with the ICTEAM’s experience in this field, will envision new techniques related to the life cycle of the images, especially regarding their **acquisition, storage, and secure sharing** including enhanced user experiences, such as content-based retrieval.

This research takes part in the dynamic instilled by the Victoria & Albert Museum (London), the world’s largest museum of applied and decorative arts and design (including sculpture) through its ReACH (Reproduction of Art and Cultural Heritage)<sup>5</sup> initiative, launched in 2017. The RMFAB expressed their interest in this initiative since its presentation to the members of the Bizot group (established in 1992 to enable the directors of the world’s largest museums’ to exchange and discuss new ideas) in 2018. The ReACH declaration, aimed at museum and private sector contractors, enumerates points to look out for and best practices regarding the preservation and sharing of art and cultural heritage.

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2 <https://pilab.be/>

3 <https://uclouvain.be/en/research-institutes/icteam>

4 <https://uclouvain.be/fr/index.html>

5 <https://vanda-production-assets.s3.amazonaws.com/2018/06/15/11/42/57/e8582248-8878-486e-8a28-ebb8bf74ace8/Copy%20Culture.pdf>

## Other

The candidate will be a member of the RMFAB and of the ICTEAM institute at Université catholique de Louvain.

S/he will be expected to participate in the operational and administrative aspects of these departments.

This includes to embed her/his research activities within the broader research and outreach strategies of the institutions and through the valorization of the RMFAB collections.

This may also be as a member of (various) faculty/department boards.

With a 50% appointment in each institution, the FED-tWIN would however have limited administrative responsibilities at the department or faculty level.

## Profile

PhD degree in computer science with experience in signal and image processing obtained at the earliest 12 years prior the submission of the job application with derogations. The 12-year period is extended by one year for each maternity, parental & adoption leave of the candidate & for each long-term sick leave of the candidate or his/her immediate family.

The research of the candidate is focused on the field of signal and image processing and compression techniques.

The candidate has a strong background in computer science, signal and image processing and compression and more specifically with image compression codecs such as JPEG 2000 and JPEG XS.

Programming skills in C, C++, Python are highly desirable.

The candidate has a strong interest for Museums and their digital concerns in terms of images (digital preservation, content retrieval, image interoperability,...). He/she has to actively participate in profiling the UCL and the Royal Museums of Fine Arts of Belgium as leading figures of the GLAM (Galleries, Libraries, Archives and Museums) sector in the field of innovative image-processing techniques applied to cultural heritage.

Strong experience in Open Science is necessary. The candidate should reuse existing datasets whenever possible, and give access to the research data generated throughout the research project through an open data platform (such as UCLouvain's Dataverse instance or an equivalent federal platform whenever available). The candidate has to keep in mind the development of a Data Management Plan (compliant with the FAIR research data management principles) [http://www.belspo.be/belspo/openscience/opendata\\_DMPintro\\_en.stm](http://www.belspo.be/belspo/openscience/opendata_DMPintro_en.stm), ensure the coordination between the work packages and stimulate cooperation with colleagues in both organizations where necessary.

The candidate also has to conform to the “Code of Ethics for Scientific Research in Belgium” that establishes the major principles of ethically justified scientific practice.

[http://www.belspo.be/belspo/organisation/publ/pub\\_ostc/Eth\\_code/ethcode\\_en.pdf](http://www.belspo.be/belspo/organisation/publ/pub_ostc/Eth_code/ethcode_en.pdf)

The candidate has at least two years of experience as post-doc researcher.

The candidate has a strong scientific track record in the field of research.

He/she has a track record in research grant fund raising and in project management.

He/she has developed a network facilitating international collaborations.

The candidate has experience in supervising students in research projects at MSc or PhD level.

Experience in teaching at graduate or undergraduate level is an asset.

The candidate is fluent in English. Knowledge of French or Dutch is an asset.

## Offer

We offer a full time senior researcher position that will take place as two 50% contracts at the RMFAB and UCLouvain.

The appointment will take place at the SW2 level (senior researcher full time contract for indefinite period) for the RMFAB 50% part while for the UCLouvain 50% part, the salary will be granted according to the legal rules applied for the contractual scientific staff of the university (undetermined duration for postdoctoral researcher)

## Additional information

The expected start date of the position is 01/03/2021.

For further information regarding this call, you can contact:

- Karine Lasaracina: [karine.lasaracina@fine-arts-museum.be](mailto:karine.lasaracina@fine-arts-museum.be)
- Pr. Benoît Macq: [benoit.macq@uclouvain.be](mailto:benoit.macq@uclouvain.be)

## Application

Applications can only be made ONLINE.

**Application Deadline:** 15/01/2021 00:00 – Europe/Brussels

**Company:** Université catholique de Louvain (UCLouvain) & Royal Museums of Fine Arts of Belgium (RMFAB)

**Website(s):** <https://www.uclouvain.be> [www.pilab.be](http://www.pilab.be) & <https://www.fine-arts-museum.be>

**Send to :** [benoit.macq@uclouvain.be](mailto:benoit.macq@uclouvain.be) + [karine.lasaracina@fine-arts-museum.be](mailto:karine.lasaracina@fine-arts-museum.be) ;  
reference to mention : FEDTWIN/SIAMESE

Your application must include the following as a minimum:

- A concise CV;
- The academic dossier with all relevant elements;
- Vision of education and research and a list of your five most important publications;
- A brief statement of reasons for the candidature, including an explanation of the expansion of future research;
- Degrees and diplomas.

**Work location:** UCLouvain, Louvain-la-Neuve, RMFAB, Brussels