

Full Time Marie Curie Early Stage Researcher Positions in the fields of

Geometrically enriched computer vision algorithms for 3D/4D reconstruction

Applications are invited from candidates who possess the necessary qualifications in order to fill one (1) full time Marie Curie Early Stage Researcher (ESR) Fellow Position within the Department of Electrical Engineering - ESAT - PSI, Processing Speech and Images Laboratory, Katholieke Universiteit Leuven (KUL) in Belgium in the fields of computer vision in Cultural Heritage. The selected Marie Curie ESR will work for 24 months within the ITN-Digital Cultural Heritage (ITN-DCH: www.itn-dch.eu) Marie Curie ITN Programme which, is the only EU funded programme bringing together fourteen (14) leading European Institutions as full partners and nine (9) other as associated partners in a transnational network, aiming at implementing a multidisciplinary and intersectorial research and training programme between the academic and the industrial partners. *In order to allow the candidate to complete a PhD thesis, the ESAT-PSI group will extend the duration of the contract up to 4 years, if the candidate shows enough progress.*

Description

Cultural Heritage (CH) is an integral element of Europe and vital for the creation of a common European identity and one of the greatest assets for steering Europe's social, economic development and job creation. However, the current research training activities in Cultural Heritage are fragmented and mostly design to be of a single-discipline, failing to cover the whole lifecycle of Digital Cultural Heritage (DCH) research, which is by nature a multi- disciplinary and intersectorial research agenda. ITN-DCH aims for the first time worldwide that top universities, research centers, industries and CH stakeholders, end-users and standardized bodies will collaborate to train the next generation of researchers in DCH. The project aims to analyze, design, research, develop and validate an innovative multi-disciplinary and intersectorial research training framework that covers the whole lifecycle of digital CH research for a cost-effective preservation, documentation, protection and presentation of CH. ITN-DCH targets innovations that covers all aspects of CH ranging from tangible (books, newspapers, images, drawings, manuscripts, uniforms, maps, artifacts, archaeological sites, monuments) to intangible content (e.g., music, performing arts, folklore, theatrical performances) and their inter-relationships. The project aims to boost the added value of CH assets by re-using them in real application environments (protection of CH, education, tourism industry, advertising, fashion, films, music, publishing, video games and TV) through research on (i) new personalized, interactive, mixed and augmented reality enabled e-services, (ii) new recommendations in data acquisition, (iii) new forms of representations (3D/4D) of both tangible /intangible assets and (iv) interoperable metadata forms that allow easy data exchange and archiving. **One ESR will be recruited by the host organization at the Katholieke Universiteit Leuven in Belgium at the Department of Electrical Engineering ESAT, Lab. for the Processing Speech and Images PSI, Research Team on VISion for Industry, Communcations, and Services VISICS.**

Position ESR5:

One ESR to be recruited by the host organization of the Department of Electrical Engineering - ESAT at the Katholieke Universiteit Leuven (KUL) in Belgium for the duration of 24 months under full employment contract. The selected candidate's contract will be extended up to a full PhD duration (4 years) when desired and if performing well.

The fellow will perform research along the following lines:

As a result of the 3D documentation of CH objects or scenes, the resulting 3D scans tend to be incomplete, i.e. they contain holes. This happens with different types of scanning devices, be it on the basis of structured light, Lidar, or image-based structure-from-motion. There are graphics techniques to fill up such holes, but better results can probably be achieved in case one is aware of the type of object that has been scanned. The theme of this research training is to exploit visual object class recognition for shape completion. A strongly related topic is to consider a series of 3D models for similar objects (e.g. all horse statues) and to jointly combine such information in order to ensure the completeness of each individual model. The methodology/algorithms will take into account the appearance of traditional (historic) materials (such as wood, clay products, stone and mineral plasters), as well as the visible traces of ageing due to impact from the environment.

The ESR is expected to present his/her research results on project meetings, international conferences and in scientific publications and to contribute to patents applications.

Research Fields

Computer Science, Computer Vision, Computer Graphics,
Digital Libraries, Metadata, Semantics and Ontologies
Geodetic Engineering – Photogrammetry supporting Cultural Heritage documentation
Architecture - Programming in the field of Database Management Systems of Cultural Heritage (CH-BIM Systems)

Career Stage

Early stage researcher or 0-4 years of experience (Post graduate) – According to the FP7-PEOPLE (Marie Curie Actions) Regulations. Eligibility rules for the Marie Curie fellows can be found at the FP7-PEOPLE 2013 Work programme:

http://ec.europa.eu/research/mariecurieactions/documents/about-mca/actions/itn/marie-curie-actions-fellowships-people-wp-201301_en.pdf

Research Profile

First Stage Researcher (R1)

Benefits

- Competitive salary to cover living and, mobility costs, social and health insurance **(according to the FP7-PEOPLE Marie Curie Actions Programme regulations).**
- In the context of a personal Career Development Plan, opportunities for international collaboration and exchanges to world-class academic and industrial

partners will take place.

- Opportunity to register for a PhD at the Katholieke Universiteit Leuven.
- Training in a range of state-of-the-art scientific skills, intellectual property and project management skills.
- Secondment placements within the network's partners (max. duration 2 months).

For more details on salary and other benefits please refer to the FP7-PEOPLE Marie Curie actions website at: http://ec.europa.eu/research/mariecurieactions/careers_en.htm and

the FP7-PEOPLE ITN2013 work programme:

http://ec.europa.eu/research/mariecurieactions/documents/about-mca/actions/itn/marie-curie-actions-fellowships-people-wp-201301_en.pdf

Applicants are requested to submit the following:

1. Detailed Curriculum Vitae with all the certified copies of their awards translated in English.
2. Motivation Letter
3. Official transcripts of grades from all academic institutions of higher education listed in his/her application, certified copies of degrees, or/and certifications of fulfillment of the required obligations for entering a graduate PhD programme
4. Official certified copies of titles and documents in English
5. Names of three referees who, upon request, can provide recommendation letters
6. Copies of any related research papers or other significant work by the applicant

Applications must be submitted in a closed express courier envelope marked as “[Application for Marie Curie ITN-DCH Research Fellow Position](#)” – **Prof. Luc Van Gool, ESAT - PSI, Processing Speech and Images Kasteelpark Arenberg 10, Katholieke Universiteit Leuven (KUL) , B-3001 Leuven, Belgium**. Otherwise it must be sent via regular registered post with a clearly visible post office stamp of a date **not later than 3rd of August 2014, 24:00** that is the deadline for the submission of the applications.

Applicants are also requested to send their applications electronically to these email addresses luc.vangool@esat.kuleuven.be and marinos.ioannides@cut.ac.cy **before the deadline of 3rd of August 2014, 24:00**, however, please note that the electronic submission alone will not be considered as a formal application unless the printed application is received as requested in the previous paragraph.

For enquiries: luc.vangool@esat.kuleuven.be

Start of the fellowship: 1st of September 2014

Comment/web site for additional job details

The Applicant should have:

- Master of Science Degree from a recognized university in Computer Science, Electrical Engineering, or Physics.
- Excellent knowledge of the English language at a proficiency level (spoken and written) is required.
- Capacity to program their own algorithms (C++, Matlab as most important tools).

Requirements

- **The ESR candidate, at the time of recruitment, must not have resided (or carried out his/her main activity e.g. work, studies, etc.) in Belgium (host country), for more than 12 months in the last 3 years immediately prior to the reference recruitment date!**

(See also: http://ec.europa.eu/research/mariecurieactions/documents/about-mca/actions/itn/marie-curie-actions-fellowships-people-wp-201301_en.pdf)

- Required Education Level

Degree	Scientific Master Degree or equivalent, as described above
Degree Field	Computer Science, Electrical Engineering or Physics

Required Languages

Language	ENGLISH
Language Level	Excellent

Additional Languages (optional)

Language	
Language Level	