Postdoctoral Fellowship under the Marie S. Curie Actions Cofund project "Opening Sphere UAB-CEI to Postdoctoral Fellows (P-Sphere)" Gran Agreement 665919.

Department or Institution involved

<u>Holistic interpretation of urban scene imagery - Ref: CVPR01</u>

Topic Description

The goal of this research line is to automatically learn models (i.e. meanings) to which experiences (i.e. images and video from wearable devices or from social media streams) can be associated.

The selected candidate is expected to align his research to the research line on holistic interpretation of urban scene imagery, investigating techniques for automatic interpretation of indoor and outdoor urban scenes. Of particular interest is the interplay between visual and textual content in a scene image, and to what extent such modalities can work synergistically towards urban scene imagery interpretation.

To achieve this goal, contextual information should be modelled over distinct context spaces that include textual cues, visual cues and interpretation of user behaviour. The Fellow could work, for example, on a single inference model in which these separate elements serve as mutual context to each other.

Project supervisor & hosting group

The selected candidate will join a vibrant team of four researchers and three PhD students pertaining to two recognised Consolidated Research Groups (SGRs) within the Catalan research system, with background on pattern recognition, scene classification, object recognition and reading systems. The hosting team is widely recognised in its areas of research: robust reading systems, object recognition and scene interpretation.

The Fellow with be co-supervised by Dr Dimosthenis Karatzas, Dr Andrew Bagdanov and Dr Ernest Valveny.

The activities of the team take place within the Computer Vision Centre, a research institute comprising more than 100 researchers and support staff, dedicated to computer vision research and knowledge transfer.

The activities of the team are supported by multiple research and technology transfer projects, including a recent national project focused on the exploitation of scene context to support interpretation of text in urban scenes. Some recent relevant projects are listed below.

- "Reading in the Wild: Exploiting Text-User-Scene mutual context for reading and scene understanding", [TIN2014-52072-P] € 109,021, PI: D. Karatzas, A. Bagdanov o"Interactive vision for ambient intelligent spaces", [RYC-2012-11776] € 40,000, PI: A. Bagdanov
- "Yo Leo Gas", Gas Natural Fenosa, € 56,625, PI: E. Valveny, D. Karatzas
- "Text and the City – Human Centred Scene Text Understanding", [TIN 2011-24631] € 78,045, PI: D. Karatzas
- "Documents On Demand – Next Generation Interfaces", ITESOFT, € 142,000, PI: D. Karatzas
- "OCR for Gas Meters", Gas Natural Fenosa, € 211,824, PI: D. Karatzas, E. Valveny

Planned Secondments

The host team is collaborating with a number of institutions world-wide. In the context of this research, we expect that the research fellow will realize stays of about 3 months to one or more of the following institutions:

- Osaka Prefecture University, Japan, to with Prof. K. Kise on wearable devices
- Google Inc, USA, to work with Dr. R. Smith on text recognition in the wild
- Media Integration and Communication Center, Italy, to work with Prof. A. del Bimbo on scene interpretation and object recognition
- The University of Liverpool, UK, to work with Prof. S. Wuerger on eye-tracking and gaze interpretation

Candidate's profile

A PhD in computer science or a related field is required.

The applicants must have experience in pattern recognition and machine learning techniques, and be able to demonstrate strong analytical and programming skills.

The applicants are expected to be fluent in both oral and written communication in English. They should work well in a team, while demonstrating initiative and independence.

Research contact

- Name: Dimosthenis Karatzas
- Email: dimos@cvc.uab.es
- Phone: +34 935813841