2018-00873 - Concept Detection in Images from Cultural Heritage databases

Renewable contract : Oui
Level of qualifications required : PhD or equivalent
Fonction : Post-Doctoral Research Visit
Level of experience : Up to 3 years

About the research centre or Inria department

The Inria Rennes - Bretagne Atlantique Centre is one of Inria's eight centres and has more than thirty research teams. The Inria Center is a major and recognized player in the field of digital sciences. It is at the heart of a rich R&D and innovation ecosystem: highly innovative PMEs, large industrial groups, competitiveness clusters, research and higher education players, laboratories of excellence, technological research institute, etc.

Context

The Linkmedia team (https://www-linkmedia.inria.fr/) in Rennes has one open post-doctoral position. The proposed work is related to a European interdisciplinary R&D project (READ-IT) involving ICT scholars and Human and Social Sciences (HSS) scholars. The aim of Human and Social Sciences (HSS) researchers is to explore rich ‘human archives’ in multiple media and languages depicting reading experiences, e.g., the practical circumstances of, the facts and effects related to reading. Visual representations of reading, such as photos, paintings, drawings, engravings, or sculptures portraying readers, constitute a particularly valuable source for the history of reading that has been neglected until now, partly because of the lack of automated visual content analysis tools to explore at scale such resources.

Assignment

The goal of this work is to facilitate access to an enriched dataset of visual sources, in order to study representations of reading from past and present in a computer assisted way, building on a close collaboration between scholars in reading studies and scientists in multimedia and computer vision.

The final goal would be for example to be able to evaluate in a systematic way the qualities of visual sources (e.g., distinguish between stereotypical vs. more realistic visualizations), get new insights into changing attitudes (individual or group reading), study the appearance of new readers over time (women, lower classes, children, ethnic minorities), or analyze changes in mass consumption of genres (bibles, novels, newspapers, comic strips) and reading devices (books, computers, ipads, e-readers).

Investigating these key questions requires the development of high-level visual concept recognition tools for establishing comparisons (e.g., search for similar visual representations) and for automatic content analysis (recognition of visual concepts).

Main activities

The goal is to analyse images from ‘human archives’: (i) to identify how many persons are involved, their status, their position, if they are sitting or not, who is reading, what is the environment, (ii) also to discriminate between reading and non-reading situations, meaning trying to detect if there is an interaction or an engagement between a person and a text.

This calls for adaptable technology to detect domain-specific concepts in images, leveraging state-of-the-art deep learning approaches and domain adaptation to cope with the limited amount of available annotated data.

Two key challenges arise: learning from very few examples, a frequent situation in HSS, and available annotated data.

Detailed post-doc subject can be found on the following web link: https://www-linkmedia.inria.fr/files/2018/06/TrameOffreRecherchePostDoc-2018.pdf

Skills

Requirements
- PhD in machine learning, computer vision, or image analysis
- Relevant research skills and experience in computer vision, machine learning / deep neural networks
- Programming skills (e.g. Python or C++)
- Good English communication skills (oral and written)

Requirement due to funding
- Maximum 3 years of experience after thesis defense
- An international experience in research is required (during or after Doctorate).
- Candidates must not have supported their thesis at UBL and not previously worked in the IRISA research unit.

Applying

Please send the following documents before 8 July 2018:
- Short Curriculum Vitae and a covering letter showing your interest and especially addressing your professional project
- A list of your major works (2 pages max.): scientific publications, patents and others scientific productions
- Letters of recommendation (not mandatory, but appreciated)
- A copy of your PhD diploma

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.
by email (mentioning “Read-it postdoc position” in the email subject) to:
Ewa KIJAŁ (ewa.kijak@irisa.fr) and Brigitte OUVRY-VIAL (brigitte.ouvry-vial@univ-lemans.fr) with copy
to UBL (recherche@u-bretagne-loire.fr)

Benefits package

- Subsidised catering service
- Partially-reimbursed public transport

Remuneration

monthly gross salary amounting to 2653 euros