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 SMEs, large industrial groups, competitiveness clusters, research and higher education players, laboratories of excellence, technological research institute, etc.

Context
The Linkmedia team (https://www-linkmedia.irisa.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 exploit 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 visualisations), get new insights into changing attitudes (individual or group reading), study the appearance of novel readers over time (women, lower classes, children, ethnic minorities), or analyse changes in mass consumption of genres (billets, 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 analyze 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 constantly learning as new data is being ingested.

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

by email (mentioning "Read-it postdoc position" in the email subject) to: Ewa KIJAK (ewa.kijak@irisa.fr) and Brigitte OUVRY-VIAL (brigitte.ouvry-vial@univ-lemans.fr)

General Information
- Theme/Domain : Vision, perception and multimedia interpretation
- Town/City : Rennes
- Inria Center : CRI Rennes - Bretagne Atlantique
- Starting date : 2018-10-01
- Duration of contract : 12 months
- Deadline to apply : 2018-08-31

Contacts
- Inria Team : LINKMEDIA
- Recruiter : Kijak Ewa / ewakijak@irisa.fr

About Inria
Inria, the French National Institute for computer science and applied mathematics, promotes "scientific excellence for technology transfer and society". Graduates from the world's top universities, Inria's 2700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

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- Ewa KIJAK (ewa.kijak@irisa.fr)
- Brigitte OUVRY-VIAL (brigitte.ouvry-vial@univ-lemans.fr) with copy to UBL (recherche@u-bretagneloire.fr)

Defence Security : This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorization to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy : As part of its diversity policy, all Inria positions are accessible to people with disabilities.

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.
Benefits package

- Subsidised catering service
- Partially-reimbursed public transport

Remuneration

Monthly gross salary amounting to 2653 euros.