2023-06430 - Computer vision or signal processing Engineer for the video analysis of crowd movements

Contract type: Fixed-term contract
Renewable contract: Yes
Level of qualifications required: Graduate degree or equivalent
Function: Temporary scientific engineer

About the research centre or Inria department

The Inria Rennes - Bretagne Atlantique Centre is one of Inria's eight research 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

This position aims to participate in the development of new technologies to assist in the operational management of crowds during mass events using computers. During large gatherings, the density of people can become very high, creating a risk of turbulent crowd movements, shock wave propagation or trampling, and consequently, leading to victims by crushing or suffocation. The analysis and understanding of these phenomena is crucial to eventually enable better crowd management, and to provide technological solutions to assist public place managers in their operational management.

More specifically, this position aims to develop methods for analyzing the global movement (macroscopic analysis) of the crowd filmed on video. The objective is to create a processing chain that includes video capture of crowd scenes, estimation of apparent movement in the image, calculation of the characteristics of this movement, extraction of relevant information for feedback and possible alerting of those responsible for the operational management of the site.

This position is available for a team of about ten people specialized in crowd analysis, modeling and simulation. This work is also carried out in close collaboration with industrial partners in the field of crowd simulation for the design and management of public places. Finally, this work includes an important experimental part. We aimed to implement the technologies developed during events such as music festivals or in high-traffic areas.

Assignment

In this position:

- You are in charge of developing some software components of methods for analyzing crowd movement.
- You work in collaboration with the scientific staff also working on the topic (researchers, PhD students, postdocs)
- You assist the planning and realization of experiments necessary for the evaluation and empirical validation of the methods developed, in close collaboration with public place managers and mass event managers.

Main activities

In this position:

- You participate to the IT development of solutions that implement crowd motion analysis. You maintain an operational version of the video processing chain. You assist field experiments.
- You work with local team members to integrate the analytical methods developed as part of the broader crowd modeling and simulation process. You will explore relevant internal collaborations.
- You collaborate with our industrial partners to consider the industrial transfer of your solutions.
- You participate in the technical supervision of students who share the same objective of crowd movement analysis.

Skills

Technical skills and level required: Master degree or Engineer degree in Computer Science or Computer Vision
Languages: english

Benefits package

Yearly salary: 43,000 €

General Information

- Theme/Domain: Interaction and visualization
- Scientific computing (BAP E)
- Town/city: Rennes
- Inria Center: Centre Inria de l'Université de Rennes
- Starting date: 2023-09-01
- Duration of contract: 2 years
- Deadline to apply: 2023-08-20

Contacts

- Inria Team: VIRTUS
- Recruiter: Julien Pettre / julien.pettre@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 220 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. R&D research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

The keys to success

Our expectations for candidates for this position are:

- A very high competence in software development, in particular computer vision technologies, visual scene interpretation, time series analysis
- Appetence for empirical approaches and experimental validation. A pronounced taste for music festivals!
- Good communication and collaboration skills will be an asset for a good integration into our team.

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
Subsidized meals
Partial reimbursement of public transport costs
Possibility of teleworking (90 days per year) and flexible organization of working hours
Partial payment of insurance costs

Remuneration
- Monthly gross salary from 2655 euros according to diploma and experience

Instruction to apply
Please submit online: your resume, cover letter and letters of recommendation eventually.
For more information, please contact julien.petre@inria.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). Authorisation 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.