2018-00498 - [GRAPHDECO] Rendering with Uncertainty

Level of qualifications required: PhD or equivalent

Function: Post-Doctoral Research Visit

About the research centre or Inria department

The Inria Sophia Antipolis - Méditerranée center counts 37 research teams and 9 support departments. The center's staff (about 600 people including 400 Inria employees) is composed of scientists of different nationalities (250 foreigners of 50 nationalities), engineers, technicians and administrators. 1/3 of the staff are civil servants, the others are contractual. The majority of the research teams at the center are located in Sophia Antipolis and Nice in the Alpes-Maritimes. Six teams are based in Montpellier and a team is hosted by the computer science department of the University of Bologna in Italy. The Center is a member of the University and Institution Community (ComUE) "Université Côte d'Azur (UCA)".

Context

The goal of this postdoctoral fellowship is to rethink rendering algorithms by examining the inherent uncertainty of the input data and the rendering process itself. The topic is quite open and can focus either on examining uncertainty in "traditional" rendering algorithms (e.g., approximate global illumination) or on uncertainty in captured data (e.g., using geometry or materials captured from photographs or scanners), and algorithms such as image-based rendering (see our recent work [1-3]. Our methodology will be inspired by Uncertainty Quantification [4] and recent advances in machine learning [5].

Assignment

References

[1] Peter Hedman, Tobias Ritschel, George Drettakis, Gabriel Brostow

[2] Rodrigo Ortiz-Cayon, Abdelaziz Djelouah, George Drettakis
A Bayesian Approach for Selective Image-Based Rendering using Superpixels

Depth Synthesis and Local Warps for Plausible Image-based Navigation


Main activities

The main responsibilities involve leading research projects on the defined topic, and projects in collaboration with Ph.D. students or supervising Masters interns.

Skills

Expertise in developing graphics systems in C++ and OpenGL is required, as well as knowledge of computer vision systems (e.g., OpenCV). Knowledge of machine learning is a strong plus. The working language is English, so the candidate must be fluent and have excellent writing and presentation skills.

Benefits package

- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

Remuneration

Gross Salary: 2650 brutto per month

General Information
About Inria

Inria, the French national research institute for the digital sciences, promotes scientific excellence and technology transfer to maximise its impact. It employs 2,400 people. Its 200 agile project teams, generally with academic partners, involve more than 3,000 scientists in meeting the challenges of computer science and mathematics, often at the interface of other disciplines. Inria works with many companies and has assisted in the creation of over 160 startups. It strives to meet the challenges of the digital transformation of science, society and the economy.

The keys to success

We are searching for a candidate with a Ph.D. in Computer Graphics or Computer Vision (with an interest in image synthesis), with an established track record of top-level publications, preferably related to rendering.

Conditions for application

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.

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.