2018-00498 - [PostDoc2018-GRAPHDECO] 
Rendering with Uncertainty

Level of qualifications required : PhD or equivalent
Fonction : 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