We have an engineering position available in the context of several ongoing projects of the group GRAPHDECO (http://team.inria.fr/graphdeco), including the ANR SEMAPOLIS and ongoing and future European projects.

We are currently initiating a research effort on using state-of-the-art image synthesis for training and testing computer vision algorithms. We have already set up an initial pipeline based on 3DSMax (http://www.autodesk.com/products/3ds-max/overview) and the Mitsuba renderer (https://www.mitsuba-renderer.org/). This pipeline includes our own custom plugins to parse the 3D scenes and render high quality images, as well as to run various computer vision algorithms on the rendered images (structure from motion, multi-view stereo). We now want to build on this synthetic data to evaluate the accuracy of our recent algorithms on image relighting and image-based rendering. In the long term, we also want to generate large collections of rendered images for training machine learning algorithms such as Convolutional Neural Netwotks (CNNs).

In this context, the goal of the engineering position will be to significantly extend our software infrastructure to generate large amounts of high-quality realistic images. The engineer will be in charge of designing and implementing novel features of the pipeline to make it more flexible and easy-to-use. These include (among others) automating the conversion of 3D scenes from 3DSMax to Mitsuba; automating the generation of new scenes by modifying the geometry, materials and lighting of exisiting scenes; automating the use of the Inria cluster for large-scale computation. These new features will involve writing scripts and plugins for 3DS Max and Mitsuba, as well as implementing published methods on automatic scene generation and augmentation.

The ideal candidate will have a Masters in Computer Graphics, with extensive experience in building complex graphics systems in C++ as well as extensive knowledge of the theory and practice of the graphics pipeline (including GPU rendering and ray-tracing/global illumination). The ability to read, comprehend and implement research papers is also necessary. Knowledge of python and OpenCV will be very helpful, knowledge of cmake and some experience in deep learning and CNNs will also be appreciated. Fluency in spoken and written English is a requirement.

The position is available immediately at the Inria Sophia-Antipolis center in the South of France in the GRAPHDECO group. Compensation follows standard Inria salary scales.

Please contact George.Drettakis@inria.fr for more information.
