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Open position for a Postdoc at Inria - SIROCCO research group in Rennes (ERC Advanced Grant project CLIM).

The goal of the postdoc will be to develop methods for light-field editing focusing on new inpainting methods adapted to the light field data for applications such as object removal. Light fields are densely sampled high-dimensional signals containing information about the light rays interacting with the physical objects in the scene. They yield a very rich description of a 3D scene which enables advanced creation of novel images from a single capture [1][2]. However, if we want the light field technology to be as widely used as classical imaging and video systems, it is necessary to offer the users the possibility to edit and manipulate light fields as it is quite common with 2D images and videos [3]. Editing means for example removing objects directly in the light field and reconstructing the light field of the background only, hence handling problems of occlusions in the 4D/5D domain.

Although the ultimate goal is to develop these tools for dynamic light fields (light fields videos), the work will naturally start by developing methods for static light fields and then be extended taking into account the temporal dimension. The work will be at the frontier between computer vision and signal processing, exploring concepts of super-pixels and RGB-D processing methods, as well as the use of sparse and low rank data priors. Various approaches will be explored, either local greedy methods in the ray space, or more global methods to guarantee consistency across sub-aperture images.

The position is funded by the ERC advanced grant project CLIM: Computational Light Fields Imaging led by Dr Christine Guillemot at INRIA in Rennes, France

Profile:

- PhD degree in image processing and/or computer vision; prior knowledge in the areas of multi-view processing, inpainting will be appreciated.
- Solid programming skills (matlab, C/C++)
- Solid mathematical background
- Fluent in English, both written and spoken

Duration: 2 years

Start date: Sept. or Oct. 2016.

Location: Inria Rennes, France.

Contact: Christine.Guillemot@inria.fr

Please send applications via email, including:

- CV
- A two-page description of your research discussing your research results.
- A cover letter discussing your motivation to apply for this postdoc position.
- The names of two referees for letters of recommendation.

References

- [1] M. Levoy and P. Hanrahan, Light Field Rendering, ACM Siggraph, pp. 31-42, 1996.



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- [2] R. Ng, “Digital light field photography,” Ph.D. dissertation, Stanford university, 2006.
- [3] C. Guillemot, O. Le Meur, Image inpainting: Overview and recent advances, IEEE Signal Processing Magazine, 31 (1), pp. 127-144 Jan. 2014.