

17/07/18: Post doc (collaboration MMN/THALES – 12 months (minimum))

"Active optical lenses based on microfluidics"

Today, there is a strong interest for increasing the capacities of vision of pilots, drivers or astronauts, by adding optical functionalities imaging sensors. In this domain, there exist bottlenecks challenging to meet, among which the question of integrating optical elements that would allow, at all times, to adapt focal lenses to the optics of the embarked cameras, without substantially increasing the weight or the volume. Additional difficulties are related to the range of short focal lenses that must be matched.

The goal of the project is to propose and evaluate an active lens solution based on microfluidics. The idea is to use microfluidic systems, incorporating arrays of membranes, with pressure controlled deflections. Such a system has the capacity to focus light under fine control, while working in the appropriate range of focal lengths.

The objective, in the first 12 months period, will be to investigate the capabilities of such an approach, and eventually obtain a proof of concept based on a simple device. The work is based on a close collaboration between Thales and MMN. The work will be carried out mainly in MMN/IPGG, taking advantage of the facilities and known-how developed locally. Optical calculations will be carried out with the Thales Research and Technology team.

The role of Thales Research and Technology (TRT) is to extend the influence of Thales within the scientific and technical communities, offering a platform for innovation and knowledge sharing in order to obtain increasingly sophisticated technologies for critical systems.

Highly motivated candidates are encouraged from the present to send an application including a CV and a letter of motivation. Applications will be accepted until the position is filled.

The candidate should directly contact:

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