UTT LABORATORY
INTERNSHIP OFFER

Optimisation of a Real-Time Acquisition and Image Processing Software for Optical Microscopy

LABORATORY / PROJECT / TEAM DESCRIPTION

The internship will take place in the L2n (Light, nanomaterials, nanotechnologies) laboratory, at the UTT in Troyes (France), under the supervision of Dr. Benoit ROGEZ, who develops new optical microscopy technics for the label-free imaging of cells, and optical characterisation of nanomaterials.

One of these technics is Quantitative Phase Imaging (QPI), which gives access to both the intensity and phase of the light. However, unlike conventional optical microscopy, the raw images obtained with the so-called phase camera cannot be used as it, and require computational processing to extract the relevant information.

The applicant will work in close interaction with Dr. Benoit Rogez, his 2 PhD students, and possibly some other PhD students or trainees using the microscope.

INTERNSHIP'S MISSIONS

The current setup available at UTT is an homemade setup, both on the hardware and software parts. It is controlled with a GPU-powered python-based code and already achieves a 15 to 20 fps reconstruction rate, which is good enough for most applications, but still below the potential 40 fps acquisition rate of the camera. The first objective of the internship will be to get a 40 fps or higher reconstruction rate.

The second objective of the internship will be to develop a more "user-friendly" interface and implement some new possibilities on this interface, depending on the requests of the different users.

CANDIDATE'S PROFILE

The applicant should have good knowledge of Python, object-oriented programming, and GPU-based computation. It should also know about parallel computing and multithreading, which is expected to be the key to increase computation speed (but out of the scope of competences available in the team).

During the internship, the applicant will learn/improve his knowledge in computer-devices interfacing, and be involved in several research projects.

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INTERNSHIP MODALITIES

Internship Start Date :	July 2026 possible, September 2026 preferred (or depending on student's availability)
Internship Duration :	6 months
Location :	Université de Technologie de Troyes (UTT), France
Language :	English or French
Expected Internship Level:	M1 or M2
Area of expertise:	IT

HOW TO APPLY

If you wish to be considered for this internship opportunity, please send your CV and cover letter to *benoit.rogez@utt.fr*