

## Contact

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## Candidate's profile

Doctor in Robotics or equivalent

## Type of contract

CDD 12 month

## Job location

ESTIA  
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## FLEXIBLE ROBOTICS

Key words : flexible structure robot, flexible effector, reduced model, instrumentation and control.

We are interested in perfecting robots for which the structure or actuator is flexible. Controlling such robots requires precise knowledge about the physics of flexible parts. Generally, such models require partial differential equations to be solved using numerical methods, like finite elements. To be able to integrate this model in the monitoring loop, a reduced model that can be quickly assessed needs to be built. This is where we plan to use a tensorization (Proper Generalised Decomposition) method, enabling both a precise and real-time workable model to be obtained.

Little work has been carried out to take advantage of these reduced tensorized models in the robot monitoring/control loop. This will be the postgrad's work.

He/she will collaborate with researchers specialised in reduced modelling and will have the support of technical centres.

CompositAdour is specialised in robotic processes for implementing composite materials and Adimadour is specialised in additive manufacturing by the robotic projection of powder and depositing wire, within the axis of interactive and perceptive systems research for the robotisation of processes, combining the fields of robotics and digital simulation.

This work can be applied to create an application on the Coriolis Composite robotic fibre placement system. More academic applications, on flexible prehensors, will also be envisaged.