

# Soft robot design for in vivo cancer imaging

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## **ABSTRACT**

The aim of my thesis is to design a new soft robot to do in vivo cancer imaging.

Our prototype will be based on the SpiderMass technology, that is able to discriminate the composition of the surface of a tissue. With a laser shot, few molecules are vaporised and vacuum through a tube up to a mass spectrometer, and then we classify the different types of cells (cancerous, healthy, etc.). We want to use this system with a soft robotic arm to reconstruct all this data on 3D maps.

I already design a first prototype based on a rigid robot during my internship, as a proof of concept, and we published the results in Analytical Chemistry : <https://doi.org/10.1021/acs.analchem.1c01692>

During my thesis, I will model, simulate and analyse different kind of soft prototypes with different behavior and actuation system to test which one is the best for our application.