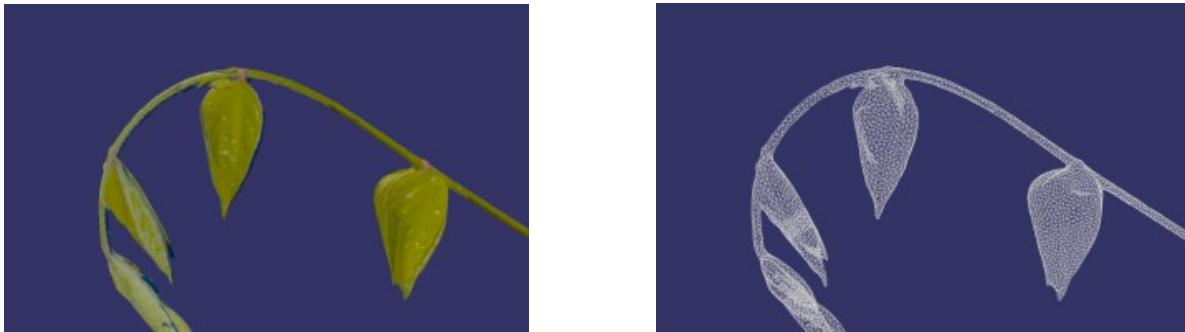


Motion tracking of a plant during its growth

Research Master thesis proposal



3D mesh model of an Averrhoa Carambola leaf with and without texture.

Advisors

[Franck Hétroy-Wheeler](#) and [Julien Pansiot](#), [Morpheo](#) team, [LJK](#) & [Inria](#)

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Location: [Inria Grenoble Rhône-Alpes](#), France.

A follow-up PhD thesis may be possible on this topic.

Context

The [Carambole](#) project aims at constructing a virtual space-time 3D model of a growing plant and using this model to give accurate measurements about the plant motion.

Reconstruction is done using a multi-camera set-up, which enables to create independent mesh models at each time step. In order to recover the motion of the plant, leaves should then be tracked over time. The goal of this Master internship is to develop a new **tracking** method which would enable to process shapes with **appearing or disappearing geometries**, such as growing plants.

Objectives

The master student will perform the following tasks:

- Study the relevant bibliography about non-rigid shape tracking;
- Discuss and propose a solution relevant to this problem with advisors;
- Exhibit a preliminary implementation of the proposed solution;
- Validate this solution on acquired datasets of *Averrhoa Carambola* and other plants. The student will have access to the [Kinovis platform](#) to perform her/his own 3D acquisitions.

Student profile/prerequisites

- MSIAM Master student, "Modeling, Scientific Computing and Image analysis" track.
- Creative and highly motivated.
- Solid programming skills; the project involves programming in Python and using Matlab.

For a detailed version of the proposal, with more context, images and bibliography, please visit <http://morpheo.inrialpes.fr/2016/10/05/master2-motion-tracking-of-a-plant-during-its-growth/>