

3D graphic engineer/Master's thesis internship

Location: INRA/Jouy-en-Josas **Department:** Computer Science **Experience:** Master

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INRA/MaIAGE and INRIA/AVIZ join their efforts to create efficient software for the investigation of complex image data in the live sciences. Specifically, we are investigating the early development of plant embryo which can be observed in 3D light microscopy at different stages of the development. Even with a single 3D image (Fig. 1), much of the needed information can be traced back and some traits of the history of the embryo can be inferred. In order to analyze and compare some traits of the development efficiently we need specific graphical interfaces to assist researchers in the construction of lineage trees (Fig. 2). The design and implementation of this interface are the core aspects of the internship and Master's research.



Fig. 1 An *A. thaliana* embryo inside seed.

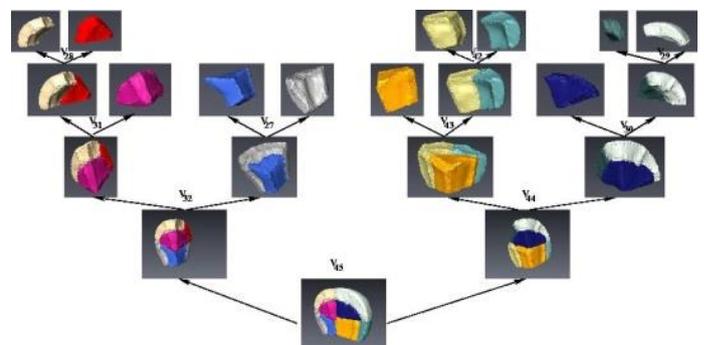


Fig. 2 Lineage tree of half of an embryo.

Position overview

As an intern you will be expected to:

- collaborate with computer scientists, computer graphics researchers, and biologists to define the user interface for fast lineage of plant embryos,
- create a functioning prototype implementation in a participatory design process,
- document the prototype, and
- conduct scientific research (including literature studies) and write a Master's thesis on the project.

Requirements/skills:

- you are a highly motivated student who is pursuing MS degree in computer graphics, visualization, HCI, or related computer science topics,
- you have experience with software development, in C++ and/or Java,
- you have experience in modern computer graphics (GPU) and/or visualization programming,
- you are able to communicate on a regular basis with supervisors and end-users,
- you will spend parts of the project in AVIZ research team at DIGITEO Moulon (e.g., 1 day per week),
- you are receptive to directions and feedback from supervisors, and
- you are able to clearly and concisely communicate in English in written and spoken form.