

OpenAlea software platform

OpenAlea : An open-source software platform for plant modelling at different scales

ABSTRACT

: The aim of the Openalea project is to develop an open source platform for plant modeling at different scales and an international scientific community around this platform to enhance collaborative development between research teams and increase the diffusion of computational plant models at a national and international level. During this project, several achievements have been done, both to develop the OpenAlea software platform and the international community around the software. In France, OpenAlea is a national FSPM modeling platform at INRA and also the modeling platform of the Rhizopolis project. The main actions have been the development of the infrastructure and the integration of functional and structural models, the definition of standard data-structure, and the development of acquisition methods for medium and high-throughput phenotyping. Connexion with other international modeling platforms have been developed like LStudio/VLab (U. Calgary), GroImp (U. Goettingen) and RECORD (Inra Toulouse). These results have been presented in international conferences and in journals and a national scientific comity has been created. Currently, OpenAlea is also used to teach science (biology and mathematic) in high-school and in university.

Keywords : Modelling

Year : 2008

Project number : 0803-017

Type of funding : AAP

Project type : AAP INRIA

Research units in the network : PSH

Start date : 2009-01-01

End date : 2013-08-31

Flagship project : no

Project leader : Christophe Godin Christophe Pradal Christian Fournier

Project leader's institution : CIRAD

Project leader's RU : AGAP LEPSE

Budget allocated : 144541.46 €

Total budget allocated (including co-financing) : 198002 €

Funding : RTRA

PERSPECTIVES

Today, scientists have to solve new challenges due to technological and social innovation. High-throughput phenotyping platforms are producing a deluge of data that need to be processed; pluri-disciplinary model and data sharing is complex due to the lack of standards and of a common cyber infrastructure. Finally, biological systems are complex systems and require multi-scale and efficient computational models to be studied. The OpenAlea platform will evolved to a distributed and web infrastructre to manage the big data, produced by phenotyping platforms on the cloud. Web technologies will be used to promote the standard definition of standard for data and plant models in the international community.