Did You Know?
Olea Developer Platform Project

The Olea Developer Platform project was conceived in January 2016 from the need to integrate research work into an industrial and clinical platform. In 2018, Olea Medical® achieved 10 years of architecture enhancement, and this evolution has enabled us to create a simple and user-friendly SDK (Software Development Kit) for researchers and engineers working in medical imaging and image processing.

The desire for this functionality has been expressed for many years by the research community, whether or not they are users of Olea Medical® products. In addition, Olea Medical® has determined that this need also exists within our own company in order to:
  - evaluate algorithms in a clinical validation context (testing an algorithm on medical digital data, directly within a hospital);
  - create specific tools for clinical evaluation;
  - accelerate software development by maximizing value added over novelty.

The mission of this project is to deliver a very high level of software development capabilities which are intuitive and simple to use even for non-computer scientists in order to rapidly create a custom module compatible with Olea Sphere®. Olea Medical® offers a starter kit with the essential components to begin (UI, database & algorithms) that are already used and validated. Thanks to the Olea Developer Platform, it is possible to integrate researchers' proper algorithms whatever the programming language used (Java, Python, C, C++, MatLab, and others).

The Olea Developer Platform also enables researchers and engineers to prove the effectiveness of their work and to have the means to clinically validate their results.

At Olea Medical®, we have multiple objectives concerning the Olea Developer Platform. For example, allowing researchers to easily develop successful prototypes using the advanced capabilities offered by the tool, then simply and efficiently testing their solution, and finally submitting/sharing their work in a better way. Moreover, the Olea Developer Platform permits researchers to discover solutions from other researchers to advance, improve, and complete their work. Users are connected through SDK and its platform for exchange of information, providing opportunities to accelerate the integration of the algorithms or functionalities of the research and innovation department, capture the research, and increase scientific collaboration.

Olea Developer Platform in Girona University algorithm for Multiple Sclerosis (MS) Studies

The analysis of longitudinal studies of **multiple sclerosis (MS)** patients and in particular the quantification of the number of new lesions of a patient is especially relevant for the diagnosis and prognosis of MS disease. At Girona University, a team of engineers and radiologists has developed a methodology based on **the subtraction of the longitudinal images,** incorporating information from different modalities and the inclusion of deformation fields to improve the final detection of new lesions. The preliminary results that have been attained show a good sensitivity of the tool as well as **a reduced number of false positive detections,** yielding a state-of-the-art approach.

The primary difficulties the research group faced in the project, completed in collaboration with the **Hospital Vall d'Hebron**, were the **integration of the tool into the hospital workflow (pipeline),** linking with the PACS system, and enabling the use of the tool in the clinical routine for a more exhaustive evaluation with new patients. Olea Medical® provides an ideal tool to perform this integration into the hospital, linking the PACS system with the Olea Medical® software and the research tool (**SDK development plugin,** Figure 1) to perform a new MS lesion detection (Figure 2).
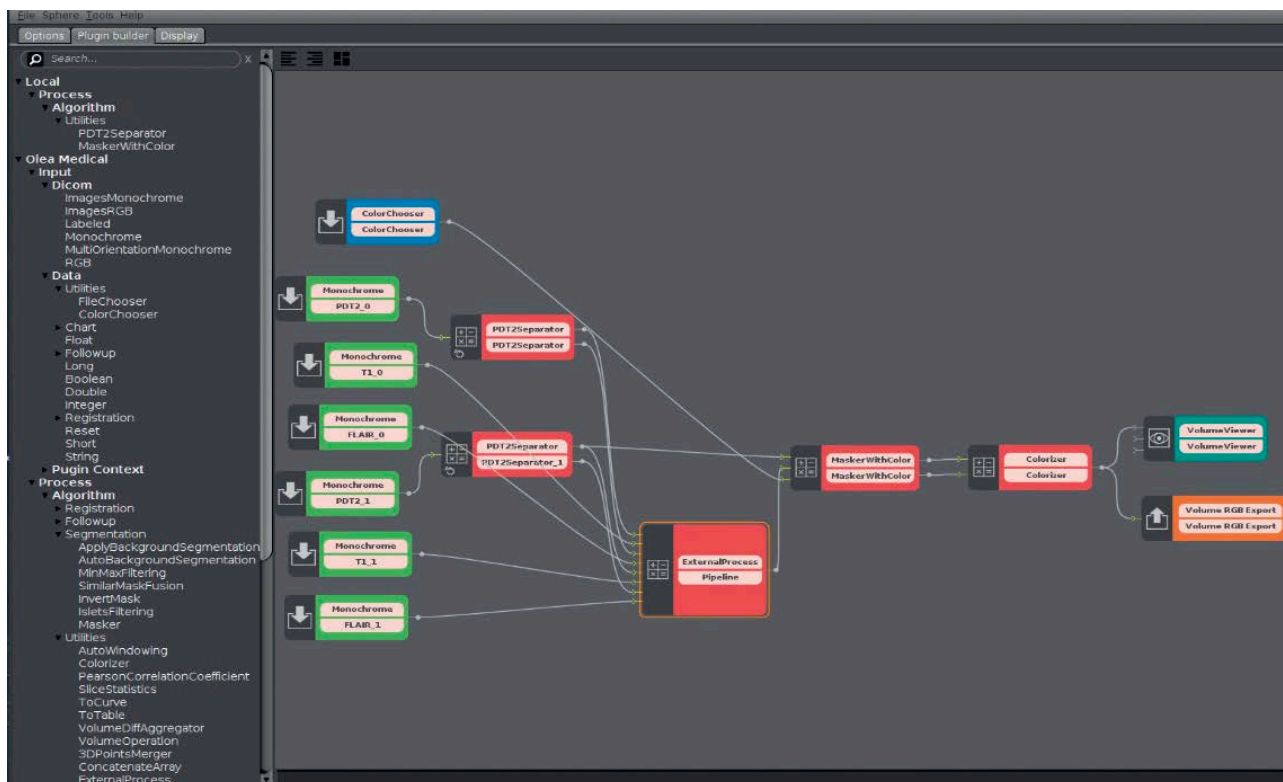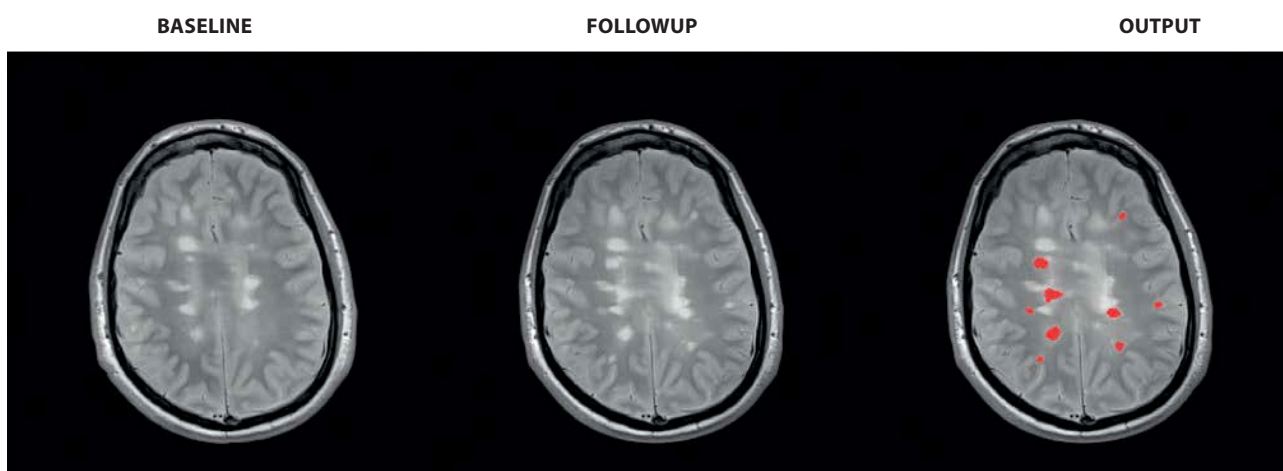
Figure 1 SDK development plugin

BASELINE	FOLLOWUP	OUTPUT

Figure 2 Input images and the result obtained with the tool

OLEA MEDICAL®

IMPROVED DIAGNOSIS FOR LIFE