

AMIRA: Customizable 3D Processing Tool - Application to Correlative Imaging

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The increasing high performance in imaging techniques must be accompanied by software tools able to handle the high volumes of data and overcome the challenges specific to every type of technique (slice misalignment, high noise, artefacts...). Amira is a dedicated 3D image visualization and processing software for biomedical applications, which provides both generic and application-specific image processing tools, optimized for fast computation. Moreover, Amira has enhanced features for addressing the issue of correlative imaging, a topic of increasing interest in the field of biomedical image processing. Fusing data obtained through different imaging techniques is an increasingly current practice in many life science applications. The Amira features will be illustrated on a correlative light and electron microscopy application, part of an academic research project in cell biology.

The second part of the talk focuses on the various options for customizing Amira. This can be achieved through either scripting, for automatizing the workflows using existing tools, or via the XPand extension, to add new functionalities. This extension enables the user to develop new features in C++ to respond to the specific needs of its application. Moreover, the user can bridge to existing C++ libraries, to directly exploit the available open source resources in the image processing community.