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Towards a Unified Portal for Bioimaging Software: The Open Bio Image Alliance

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The aim of image analysis in bioimaging is to use cutting-edge techniques from the fields of Image Processing and Computer Vision to achieve insights into biological problems through analysis of image datasets. The domain of action of the tools provided by these fields is very large. It begins during the image acquisition process, and extends until the final statistical analysis used when extracting the spatio-temporal information of the biological system. In order to properly analyze the experiments and draw conclusions from analysis results, the scientist should be aware of how these tools work. Simply pressing a button in a piece of software and interpreting the results is not good scientific practice. Open-source software provides the necessary transparency, giving scientists the opportunity to understand the algorithms and the computational methods behind their tools.

Among all open-source bioimage analysis tools, the one that has had the most impact so far is ImageJ. However, other open-source related platforms have recently emerged. Due to the possibility that all these image-processing packages diverge and interoperability becomes an issue, the Open Bio Image Alliance (OBIA) was constituted in 2012. Its primary mission is to provide biologists and researchers in life sciences with high-quality public-domain software resources and a corresponding knowledge base to analyze and quantitate their image data in a sound and reproducible fashion.

OBIA is building a web portal that centralizes the access to the open bioimaging software. It is designed to host various resources such as software, documentation, testing datasets, and references to scientific articles. Not only the system will host generic image-processing solutions like ImageJ, CellProfiler or Icy, but it will also include references to their plug-ins. Browsing and searching though all these items will be made easy thanks to an advanced search mechanism based on complementary search trees and nametags. The whole portal is designed as a community website: the content of the portal will be developed by the bioimaging community for the bioimaging community. Any user will be capable of contributing to the portal by creating new items, or by commenting and rating existing ones.

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