FENS Forum 2008

For posters, morning sessions: 9:30-13:30; afternoon sessions 13:30-17:30.
Authors are expected to be in attendance at their posters at the time indicated.
For other sessions, time indicates the beginning and end of the sessions.

First author Sage, Daniel (speaker)

Workshop W02-4. Sat 12/07/2008, 13:30 - 16:30 - Room Cervin
Session 003 - Integrated open-source solutions for data acquisition, management and dynamic analysis of cell structures in the nervous system.
Abstract n° 003.4
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Title Tracking particles in live cell imaging: ImageJ solutions.

Text Advancements in microscopy technology and the availability of fluorescent proteins have allowed the observation of molecular dynamics within living cells. These technologies have led to major innovations in different fields of biomedical study. Nevertheless, the task of accurately identifying the trajectory of moving particles over a sequence of images remains as a challenge to the better understanding of intracellular structures and mechanisms. From an image analysis point of view, the tracking of individual particles is complicated by the fact that imaging data can be corrupted by high levels of noise. In addition, the particles of interest are often numerous and typically very small (no more than a few pixels in diameter). In practice, tracking is often done by hand, which is tedious, time-consuming, and not truly objective. For certain types of tracking problems, computer-aided solutions exist in the form of commercial, or alternatively, open-source software packages. In the second category, a widely-used program is ImageJ (National Institutes of Health, Bethesda, Maryland), a multiplatform general-purpose framework for image-analysis that has been put in public domain. ImageJ can easily handle sequences of images, and its open architecture facilitates the development of third-party Java plugins and macros. Initiatives have been taken to add particle and object tracking functionality to ImageJ. Here, we present a variety of practical approaches to tracking, from plugins that allow manual recording of positions to more sophisticated modules that do automatic trajectory extraction. In particular, we focus on SpotTracker, our solution to automatic tracking of single moving particles.

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