

Automated cell tracker software saves weeks of image data analysis

June 28 2011

An Australian-developed software tool that dramatically reduces the amount of time it takes cell biologists to analyse the results of their experiments was unveiled today at Bio2011, the largest global event for the biotechnology industry.

TrackAssist, developed at NICTA's Victoria Research Laboratory in Melbourne, Australia, offers researchers in academia and industry an advanced tool that automates microscopic image data analysis and quickly extracts biologically relevant information from video sequences of live cells. This breakthrough promises to dramatically reduce the time it takes researchers to analyze microscopic videos.

Current methods of cell analysis require a lab technician to spend several days undertaking experiments in which several thousand microscopic video images are collected. These are then manually analysed in a process that can take 9-12 months. TrackAssist can reduce this timeframe by weeks or even months. The tool also allows researchers to extract additional cell data such as cell size, intensities and lineage, providing detailed insight into the workings of cells, enabling new types of experiments to be conducted quickly.

“This is not just a productivity tool but a facilitator of new insights that were not previously possible. This advance is of immeasurable value,” said Professor Terry Caelli, Director of NICTA's Health Business Area.

He highlighted TrackAssist as an example of NICTA's role in

showcasing the impact of ICT in translational medical research. “In cell biology research, determination of cell characteristics through microscopic videos is extremely important. NICTA has used its world leading expertise in object tracking to develop a tool that assists medical researchers by reducing the time it takes to analyse data and allowing them to better understand cell biology. We expect TrackAssist to become an important tool used in the development of new vaccines and drugs,” said Professor Caelli.

NICTA collaborated with the Immunology Lab at the Walter and Eliza Hall Institute of Medical Research (WEHI) in Melbourne to develop TrackAssist. WEHI provided important information on what immunologists look for in an experiment and validated the software features, ensuring TrackAssist can address the emerging challenges in the field of cell analysis.

“TrackAssist will make a major contribution to medical research and pharmaceutical development. It will potentially revolutionise the use of single cell tracking to evaluate drugs or evaluate the effect of hormones or evaluate the effect of genetic changes on cell behaviour. It has the potential to underwrite a whole new branch of biological investigation,” said Professor Phil Hodgkin, Head of the WEHI Immunology Lab.

Provided by Nicta

Citation: Automated cell tracker software saves weeks of image data analysis (2011, June 28) retrieved 26 April 2024 from

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