Nerve cell software keeps track of brain change

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Brain research will get a boost tomorrow as CSIRO launches in the United States its HCA-Vision nerve cell analysis software at Neuroscience 2006 in Atlanta, Georgia, the world's largest conference for brain researchers.

HCA-Vision is based on a proprietary mathematical method, patented by Australia's CSIRO, for automatically tracing and measuring lines in complex images.

With up to 40,000 delegates expected, the conference will be an ideal focus for the software's international launch.

Dr Pascal Vallotton, Leader of Biotech Imaging at CSIRO Mathematical and Information Sciences, says there are few images more complex than the intricate, web-like branches of nerve cells photographed down a microscope.

HCA-Vision allows researchers to reliably measure significant features of cells' appearance as they change in response to drugs, biochemicals or diseases like dementia.

"Benchmarking studies have shown that the software can do this one hundred times faster than a person using manual tracing methods can," Dr Vallotton says.

"This improvement will speed the progress of brain research – research

which is becoming increasingly urgent in a world where tens of millions of people suffer neurodegenerative diseases like Alzheimer's and Parkinson's."

HCA-Vision was developed by CSIRO's Biotech Imaging team who built on mathematical software code libraries from many years of image analysis research and added a user-friendly, database-supported interface.

"We're working with a leading Australian brain research institute to thoroughly validate HCA-Vision. The results will be reported in scientific journals in the near future", Dr Vallotton says.

A version of the software for 3D images is under development and will provide 'another dimension' of detail for researchers about nerve cell change. CSIRO is Australia's largest scientific research agency.

Source: CSIRO Australia