



MASSEY UNIVERSITY
COMMERCIALISATION

CLASSIFYNDER™

Pollen **Classifynder™**



Dr Katherine Holt, Palynologist

Classifynder™ is an intelligent digital microscope and software capable of accurately counting and classifying pollen and other organic microfossils in a fraction of the time taken using traditional methods.

The system combines robotics, image processing and neural network technology into a system directed at automated counting and classification of objects on standard glass microscope slides. The Classifynder™ system offers a highly repeatable and accurate process that saves significant time and effort for scientists and it is easy to use.

The technology has been developed by a team led by Emeritus Professor Bob Hodgson at Massey University, aiming to alleviate the drudgery for palynologists, who would normally spend weeks squinting down a microscope to count and identify the tiny pollen grains they had collected in the field.

The system has the potential to be applied to a range of fields including palynology, aerobiology, biosecurity, oil and gas exploration, public health, forensic science and food technology.

The microscope uses optical texture analysis, shape and other features to classify the surface of pollen or other particles and a neural networking classification system to learn to

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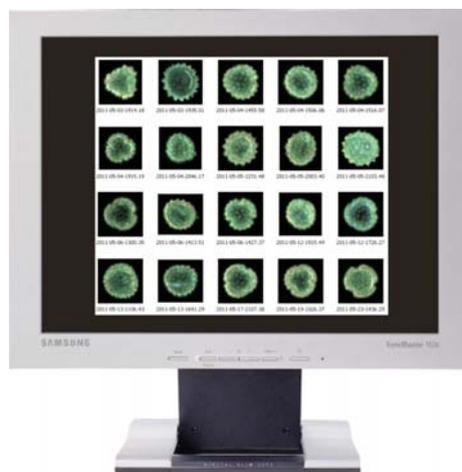
Massey will continue to lend its support to the start-up company for market development activities.

recognise particles. It uses a low-resolution stage to locate grains on a slide so that a high-resolution stage can take image snapshots of each grain across nine focal depths. Any fluff and detritus is recognised and ignored, leaving the scientist with the particles of interest.

The Classifynder™ offers scientific investigators the potential to:

- attempt larger sampling regimes
- demonstrate more repeatable and consistent counting and identification (compared to human experts)
- rapidly estimate the relative abundance of objects
- maintain sets of ‘virtual slides’
- develop and share library images between research groups
- have the ability to trace captured objects back to their original location on their source slide.

for further information about Classifynder™, visit www.classifynder.com



SPECIFICATIONS:

- Digital optical microscope with robotic x, y & z digital stage (0.625µm per step).
- Two objective lenses (effective magnification 200x & 1000x) + two 1.3 megapixel USB cameras (1 pixel = 0.25µm at high resolution).
- Image capture rate of 10 -12 images per minute on intel core i7 processor.

For more information about commercialisation or about this particular project, contact the Massey Commercialisation Team - phone (06) 356 9099 or visit www.massey.ac.nz



MASSEY UNIVERSITY
COMMERCIALISATION

THE COMMERCIAL JOURNEY FROM LAB TO MARKET



IDENTIFY

Massey University's Emeritus Professor John Flenley, himself a widely published palynologist, first promoted the potential benefits of the application of computers to palynology studies as far back as 1968. But it wasn't until 2002 that technology had advanced to the point that Massey colleague and digital image processing expert, Professor Bob Hodgson, was able to take up the challenge to come up with a workable system.

The system began life as a series of postgraduate projects. The first of these involved development of a feature set to allow discrimination between pollen types, followed by a study of the design of direct imaging digital microscopes. Then followed a systems integration project, which led to the development of the series one and series two 'AutoStage' - the precursors to the current system.

After demonstrating these early prototypes at an international conference in 2007, Professor Hodgson and his student team realised that their system had commercial potential. Massey University's commercialisation team were able to provide an assessment of competing technologies and patents, identify market size and a development pathway potential to assist the developers refine a further prototype.



PROTECT

The developers knew that with much of the early development work published it would be difficult to protect some of the core intellectual property (IP). However, Massey University's Commercialisation Office was able to secure international trademarks for a new name for the system - 'Classifynder™', thereby securing a brand name for the product.

All improvements and updates to the software code since 2007 have been protected by copyright and released to users only as run time modules. Similarly all CAD/CAM manufacturing files for the new Generation 3 prototypes have been protected under copyright and confidentiality agreements.

The commercialisation team have also assisted the developers with sales and purchase agreements for all machines now sold, which maintain background and foreground IP rights for Massey University's benefit.

Professor Hodgson is thankful for this support, 'At first we did not appreciate the issues with IP protection, but now we have managed to secure a foothold that makes our commercial proposition more robust. Our early adopter user community have been happy to provide feedback and improvement ideas that assist us develop the system and build the IP position for Massey's benefit'.



MARKET

Massey's commercialisation team has encouraged the formation of a start-up company with shares in return for capital and labour investment from the technology inventors.

The team, in conjunction with Massey University researchers, is also supporting efforts to broaden the application range and hence the potential market for the technology. Massey too will lend its support for market development activities.

... "A number of Classifynder™ units have already been sold to research groups."

Massey has granted an exclusive license for the Classifynder™ technology to this start up company, and the inventors are negotiating an agreement with a New Zealand based manufacturer to enable the systems to be manufactured and delivered worldwide on a commercial basis.

A number of Classifynder™ units have already been sold to research groups. These groups are providing useful development feedback and are generating research publications, which in turn should lead to an increase in sales enquiries.

Massey's Director of Research Management Services, Mark Cleaver notes, "This is a great example of how University researchers who believe in the commercial benefits of their research and are prepared to take risks can progress and take on a new market"

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