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Self-training video analytic software developed to monitor crowds

Curtin University of Technology researchers have developed computer software that can detect unusual behaviour in crowds and other high-motion environments, providing a new tool in the fight against crime and terrorism.

Developed by a team led by Professor Svetha Venkatesh of Curtin's Institute of Multi-sensor Processing and Content Analysis (IMPCA), the technology learns typical behaviour in busy environments, such as crowds, and can then report unusual activity.

The software will be commercialised by iCetana Pty Ltd and is supported by up to \$1.5 million in investment from venture capital firm Yuuwa Capital and Curtin pre-seed funding.

"The software does not require the user to specify which events are considered out of the ordinary," Professor Venkatesh said.

"It identifies events of interest which may never have been foreseen by the user, and can alert security officers to their occurrence in real time.

"Existing video analytics systems require the customer to define the events of interest in advance, this system only requires a 'normal' data stream to be defined. Exceptions are automatically identified after this learning phase.

"Fewer incidents will be missed and there will be a faster rate of response to problems that do occur."

Professor Venkatesh said iCetana's software was extremely easy to set-up and train compared to other available video analytics applications.

She said the software had been used by the City of Belmont over the past six months with very encouraging results.

"During this pilot program the software was able to identify behaviour such as loitering in a normal social and built environment, arson attempts, unusual sized groups, incorrect vehicle traffic direction, and anti social and illegal behaviour," she said.

When this software was linked to the City of Belmont CCTV AlarmAssist program, it provided unmonitored cameras with an improved intelligence capability.

Investment Director for Yuuwa Capital LP and interim CEO of iCetana, Matthew Macfarlane, said the software would be available soon for use in video surveillance systems around the world.

“iCetana is a revolutionary technology that will change the way high motion environments are monitored by video surveillance,” he said.

“Using this software, overstretched and understaffed security staff will be able to better focus their real-time surveillance of locations of interest.

“iCetana will also seek partnering opportunities for non-security applications such as manufacturing process control systems.”

Besides being groundbreaking software, iCetana’s application is also substantially more processor efficient than existing programs, running comfortably on a standard dual-core PC.

This is the first investment by Yuuwa Capital LP, a \$40 million early-stage venture capital firm based in Perth and backed by local investors and the Australian Government’s Innovation Investment Fund program. Yuuwa seeks to invest in businesses where it can provide both capital and expertise to help founders, management and early investors turn good ideas into great companies.

Contact: Matthew Macfarlane; Investment Director; Yuuwa Capital LP; 0400 605 960; matthew@yuuwa.com.au OR Shaun Ratcliff; Public Relations Consultant; Curtin; 08 9266 9085; 0401 103 755; s.ratcliff@curtin.edu.au