A technique to generate more efficient scalable video streams compared to other commonly used methods.

The Technology
Professor David Taubman has developed an improved method for producing scalable video and a system for implementing this method for network streaming. The technique is based upon the use of block coding to provide a selectable set of blocks to be transmitted for the required resolution. Video content may be augmented over time as bandwidth becomes available, increasing quality, frame rate and resolution that is available for the client.

This method produces improved compression over other techniques increasing the video quality for individual viewers at a specific bandwidth. The technique is particularly effective used in conjunction with the associated scalable video technology employing motion compensated lifting.

Key Benefits
- Useful for online and other network streaming applications allowing end user adaptable resolution.
- Generates improved scalable video compression for network streaming compared to other techniques.

Applications
- Online video streaming services where continuity of the video stream is important, no more buffering
- Security based video streaming connections where network connection may be intermittent but a constant stream is paramount (mobile and wireless units)

The Opportunity
NewSouth Innovations is currently looking for partners to licence the technologies developed by Professor David Taubman, the inventor of the successful Kakadu Software JPEG2000 compression SDK. This technology is part of the image compression portfolio available as a group or individually for use in potential licensee’s commercial products.

For more information contact:
Daniel Gronowski
Business Development Manager
NewSouth Innovations
Ref: 99_0825
T: +61 2 9385 7772 M: +61 415 044 589
E: d.gronowski@nsinnovations.com.au
The Opportunity

NewSouth Innovations is currently looking for partners to licence the technologies developed by Prof David Taubman, the inventor of the successful Kakadu Software JPEG2000 compression SDK. Due to the similarities across the portfolio these technologies are available as a group or individually for use in potential licensee’s commercial products.

Efficient Scalable compression of spatial data sets, images and video.
A method of representing geometric information in image compression. The technique can prioritize and estimate information for greater performance.

Efficient image and video compression, for surveillance and streaming media applications.
Using Meta Data information representing objects motion images and video can be efficiently compressed to maximise bandwidth use while maintaining quality.

Protection for scalable data transmissions over lossy networks.
A system for optimising the transmission efficiency and reliability of scalable data sent over unreliable packet networks.

A Motion sensitive video transformation. Compresses video data once, but use in many ways.
A method of compressing scalable video, based on motion compensated lifting. This allows FPS, bit depth and resolution selection, suitable for systems where the bandwidth is not guaranteed.

Highly interactive remote browsing of video for network streaming.
A technique to generate more efficient scalable video streams compared to other commonly used methods.

Visual optimization and compression to maximize the efficient storage of media.
A method for achieving the highly efficient compression of images in a lossy manner while maintaining a pre-set standard of visual quality.

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About the Inventor and UNSW

Professor David Taubman

Prof David Taubman, a leader in the field of image and video compression techniques, has developed a suite of patented methodologies and software in this field. The suite provides various technologies to improve video and image compression and manipulation to suit specific market needs.

Professor Taubman is with the School of Electrical Engineering and Telecommunications, at UNSW Australia (The University of New South Wales) where he heads the Telecommunications Research Group and is also Director of Research. Before joining UNSW at the end of 1998, he spent 4 years at Hewlett-Packard’s research laboratories in Palo Alto, California.

He received the B.S. and B.E. (Electrical) degrees in 1986 and 1988 from the University of Sydney, Australia, and the M.S. and Ph.D. degrees in 1992 and 1994 from the University of California at Berkeley. He has contributed extensively to the JPEG2000 standard for image compression and the JPIP standard for interactive image communication and continues to contribute to these technologies. He is author, with Michael Marcellin, of the book “JPEG2000: Image compression fundamentals, standards and practice” and author of the popular Kakadu software for JPEG2000 developers. He is recipient of two IEEE Best Paper awards: for the 1996 paper, "A Common Framework for Rate and Distortion Based Scaling of Highly Scalable Compressed Video;" and for the 2000 paper, "High Performance Scalable Image Compression with EBCOT". Amongst many featured speaking engagements, Professor Taubman was Plenary Speaker at ICIP2006 (the IEEE’s flagship Image Processing conference). He also gave a featured 1 hour research overview of Scalable Video Coding at ICME2012 (the second most significant IEEE conference in the area of Image and Multimedia Processing). His research interests include scalable image and video compression, robust communication of scalable media over unreliable channels, interactive multimedia communication, perceptual modelling of video and statistical inverse problems in imaging.

The Kakadu Software, developed by UNSW, is a comprehensive, heavily optimized, fully compliant software toolkit for JPEG2000 developers. Originally developed by Prof Taubman in 2001 the software now has licenced users all over the world. Licensees range from large multinationals and governments to small start-ups and academic institutions including Major libraries and universities. The software is used across a number of industries from military, medical imaging and satellites to web application development and digital cinema.

www.KakaduSoftware.com