

# NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

## C S S E M I N A R

**Title:**           **Surfing and Diving into The Digital Ocean of Scalable Video Coding, Delivery and Applications**

**Speaker:**       Dr Tham Jo Yew  
                  Institute for Infocomm Research, A\*Star

**Date/Time:**   4 November 2015, Wednesday, 06:30 PM to 08:30 PM

**Venue:**           SR3, COM1-02-12

**Chaired by:**   Dr Zimmermann, Roger, Associate Professor, School of Computing  
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### Abstract:

By 2019, Cisco forecasts that the global Internet traffic will surpass a new milestone figure of 2.0 zettabytes per year (or 168.0 exabytes per month). Consumer internet video (live TV, VoD, OTT, and P2P) will consume 80 - 90% of the global consumer traffic, of which 72% of this video traffic will be carried across content delivery networks. In addition, non-PC devices (such as Wi-Fi and mobile devices) will account for 66% of IP traffic. In short, IP video traffic will dominate the global Internet data pipes, be delivered across diverse networks via CDNs, and be consumed by heterogeneous client devices ranging from TV and PC to tablet and smartphone.

This short talk hopes to bring the audience in an excursion to explore the vast and amazing world of digital video processing, coding, streaming, as well as related video platforms, standards, applications and services. We will surf across broad oceans to have an appreciation of the many facets of the digital video landscapes and markets, while we take occasional deep dives into some fascinating waters to gain deeper insights of the dynamics and intricate workings of the video compression engines and adaptive delivery mechanisms. In particular, we will visit a number of checkpoints to enjoy the beauty of scalable video coding, delivery and its various application use-case scenarios.

### Biodata:

THAM Jo Yew graduated with his B.Eng. and Ph.D. in Electrical and Computer Engineering, NUS, in 1995 and 2002, respectively. He received the IEEE Region-10 Best Student Paper, and NUS Engineering Innovation Award for his work on wavelet-based

image compression. He was a recipient of the ASEAN scholarship and is a member of MENSA.

Jo Yew is a Senior Scientist at the A\*STAR's Institute for Infocomm Research (I2R). He is Head of the Scalable Multimedia Platform (SMP) Department, and the Principal Investigator of multiple R&D and commercialization projects on video processing, coding and delivery. He leads research and development teams to develop a game-changing SMP suite of technologies that empower next-generation video solutions, ranging from multi-camera live webcast to scalable video surveillance.

Concurrently, Jo Yew was also a Deputy Director of the Strategic Planning Office of I2R. He assisted the Executive Director of I2R (with 600 research scientists and engineers) in high-level strategic thinking at the Institute's level; mapping out Whole-of-Institute and Whole-of-Government engagement plans for Singapore's Smart Nation initiatives; and formulating internal processes and policies to synergize all Departments and Programmes in achieving the Institute's overarching visions.

He co-authored several high impact journal publications (with over 1,500 Google citations) and was granted a number of US, PCT and Singapore patents. His research works on Diamond Search for video block-motion matching, multi-wavelets application framework, and scalable video codec are still being actively cited, with new derivative works generated by researchers around the world.

As an Adjunct Staff of the National University of Singapore (NUS), he introduced and co-lectured the very first 'Image and Video Processing' course, as well as supervised and mentored more than 80 undergraduate and postgraduate students.

Prior to joining A\*STAR in 2006, Jo Yew co-founded his own high-tech start-up company in Singapore after an exciting 3-year stint with two technology start-ups in the Silicon Valley, USA. As the Chief Streaming Architect/Chief Technology Officer there, he designed innovative video messaging and streaming media content management platforms that were ahead of their times back in 1999-2002. These driver-seat hands-on experiences were carefully leveraged in realizing the current SMP system in A\*STAR, which he is actively promoting and creating industry and social impacts.

At the national level, he serves as a Council Member of the SPRING-IDA's Information Technology Standards Committee (ITSC), and Chairman of Working Group 3 (Multimedia, DTT, ITV) of IDA's Telecommunication Standards Advisory Committee (TSAC) to help formulate Singapore's Standards. Internationally, he is a Senior Member of the IEEE and served as the Chairman of the IEEE Computer Society Singapore Section, Co-Chair of the IEEE Computer Society's Member Visit Program, and the Technical Program Co-Chair of the IEEE International Conference on Networks. He is also an Associate Editor of IEEE Access (the IEEE's first open access mega journal).