Digital Video 2023: Video Coding Landscape and intersections with Deep learning

The video technology landscape is a lot more complex than before. It is no longer like the times when MPEG2 video in the early years of digital video, and MPEG-4 AVC in the subsequent years enjoyed unfragmented support of the industry. This talk helps understand the landscape of video technologies of 2023 - the latest coding technologies (e. g., VVC, AV1, EVC, LCEVC and technologies being developed currently) along with a high level view of their toolsets. Aspects pertaining to complexity, parallel processing possibilities, video quality, scalability, user experience aspects, adaptive streaming implications, and applicability in end-to-end forward looking use-cases (such as AR/VR/360) will be included.

The talk also will touch upon future trends including explorations in using deep learning (DL) technologies in this space as well.

The target audience for this half-day tutorial includes students, engineers and technologists who are interested in understanding the current digital video state of art techniques and intersection with DL.

About the speaker:

Shailesh Ramamurthy has been a key contributor to various digital video and signal processing technologies and standards for more than two and a half decades, with a long stint at Motorola, and currently with Ittiam Systems. He has a rich experience in participation in JPEG and MPEG Standards related activities, including recent MPEG/JVET physical meetings participations and the online editions. He has several filed and granted US patents, and also has some well-received publications to his credit. Shailesh has also delivered many tutorials at international conferences related to various digital video technologies, as well as many keynote addresses. He has also taught various full-semester masters' courses for a reputed engineering and technology institute.

Shailesh was awarded the prestigious "President Dr Shanker Dayal Sharma Gold Medal" at IIT Kharagpur awarded to the best postgraduate. He holds a Master of Technology Degree with specialization in "Computer Vision and Automation (ECE)" and has a BE (Hons) in Electronics Engineering from VJTI, Bombay.

Shailesh currently works as Senior Director at Ittiam Systems, heading its Competency Center. His focus is on being a source of video and multimedia technology guidance and support across the business units of his organization.

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About previous tutorials delivered by the speaker:

JPEG2000:
- IEEE International Symposium on Circuits and Systems 2002 at Phoenix Arizona, (JPEG2000)
- International Conference on Signal processing and Communications - SPCOM 2001 (JPEG2000), organized by IEEE Signal processing society Bangalore chapter, Indian Institute of Science

Themed on Scalability in image and video coding:
- IEE International Conference on Visual Information Engineering, 2006
- International Workshop on Emerging Technologies in Rich Media Communications 2009,
- IEEE Multimedia Workshop and International Conference on Signal Processing and Communications 2005
- RimCET 2009 (organized by IEEE Communications Society)

HEVC:
- Invited tutorial on **HEVC** at ICACCI, Sept 2014
  (International Conference on Advances in Computing, Communications and Informatics, ICACCI Delhi, India, September 24-27, 2014, IEEE)

Apart from these, there are various other invited talks Shailesh has delivered, upon invitation by technology companies at Bangalore and USA.