

1. Title of the talk:

Screen Content Coding in Versatile Video Coding Standard

2. Presenters Names, affiliation, contact information, and a short bio.

Dr. Xiaozhong Xu, Tencent Media Lab,

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Bio: **Xiaozhong Xu** has been a Principal Researcher and Manager of Multimedia Standards at Tencent Media Lab, Palo Alto, CA, USA, since 2017. He was with MediaTek USA Inc., San Jose, CA, USA as a Senior Staff Engineer and Department Manager of Multimedia Technology Development, from 2013 to 2017. Prior to that, he worked for Zenverge (acquired by NXP in 2014), a semiconductor company focusing on multi-channel video transcoding ASIC design, from 2011 to 2013. He also held technical positions at Thomson Corporate Research (now Technicolor) and Mitsubishi Electric Research Laboratories. His research interest lies in the general area of multimedia, including video and image coding, processing and transmission. He has been an active participant in video coding standardization activities for over fifteen years. He has successfully contributed to various standards including H.264/AVC and its extensions, AVS1 and AVS3 (China), HEVC and its extensions, MPEG-5 EVC and the most recent H.266/VVC standard. He served as a core experiment (CE) coordinator and a key technical contributor for screen content coding developments in various video coding standards (HEVC, VVC, EVC and AVS3). Xiaozhong Xu received the B.S. and Ph.D. degrees from Tsinghua University, Beijing China in electronics engineering, and the MS degree from Polytechnic school of engineering, New York University, NY, USA, in electrical and computer engineering.

3. Abstract

The increasingly connected world changes consumer behaviour steadily away from traditional broadcast towards new applications such as on-demand video streaming via the internet. This transition comes with increased non-camera captured content such as computer screen captured moving pictures or animations created by computer rendering, referred to as screen content. The first Versatile Video Coding (VVC) version addresses that market change by the specification of low-level coding tools suitable for screen content. That is in contrast to its predecessor High Efficiency Video Coding (HEVC), where highly efficient screen content support is only available in extension profiles of version 4. This talk describes the screen content support and the five main low-level coding tools in VVC: Transform Skip Residual Coding (TSRC), Block-Differential Pulse Code Modulation (BDPCM), Intra Block Copy (IBC), Adaptive Colour Transform (ACT), and Palette Mode (PLT). It is reportedly that with the screen content coding (SCC) support, the VVC reference software implementation (VTM) can achieve an average ~41% – ~61% bit-rate savings relative to the HEVC reference software implementation (HM) using the Main 10 profile for 4:2:0 screen content test sequences.