An Overview of H.264/AVC Video Compression Standard

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Abstract

H.264/MPEG-4 Part 10 or AVC (Advanced Video Coding) is a standard for video compression, and is currently one of the most commonly used formats for the recording, compression, and distribution of high definition video. The standard was developed by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC Moving Picture Experts Group (MPEG). H.264/AVC has huge significance to the broadcast, internet, mobile industry and many others. H.264/AVC is the latest in a series of standards published by the ITU and ISO. It describes and defines a method of coding video that can give better performance than any of the preceding standards.

However, the benefits of H.264/AVC come at a price. The standard is complex and therefore challenging to the engineer or designer who has to develop, program or interface with an H.264 codec, also taking into account that the standard itself is a document over 550 pages long and filled with highly technical definitions and descriptions.

In this lecture an overview of the main techniques used in the standard will be given. However, for those not so much familiar with video coding, it will start with description of video formats and video coding concepts. The lecture will cover the questions of prediction, transform and coding, and will conclude with the discussion of the H.264/AVC performance and brief description of the H.264 extensions such as MVC and SVC.

Index Terms: Video compression, H.264/AVC, SVC, MVC.

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