

H. Schwarz, D. Marpe, and T. Wiegand, "Overview of the Scalable Video Coding Extension of the H.264/AVC Standard," IEEE Transactions on Circuits and Systems for Video Technology, vol. 17, num. 9, September 2007.

This paper discusses an extension to the H.264/AVC standard. Though I believe this paper is fairly well written, it was quite difficult for me to follow. The paper gives a very detailed explanation of the extension and it is therefore very hard to understand for someone who does not have much previous knowledge of video compression.

I thought the paper did a good job discussing the benefits of adopting the extension. This was done in the second section which really helps the reader understand the possible contribution of the paper before diving into the technical details. I especially appreciated the bit about surveillance applications and the archival of what they record. Surveillance equipment is used in many different environments today and I never considered the ramifications of storing so much data in the event that one of the videos would need to be reviewed. The idea to delete "high-resolution/high-quality parts of a bit stream" is great and even though it seems like a simple idea by nature, its implementation is one that can have a huge impact on companies that need to maintain these kinds of applications.

The paper also helps the reader understand why the SVC extension was created for the H.264/AVC standard. I think that this significantly increases the contribution made by the paper. The fact that (according to the authors) this standard "provides significantly improved coding efficiency in comparison to all prior standards" and is being invested in by many companies in industry tells the reader why this standard was carefully selected to create the extension from and that it was not just a random standard chosen by the authors. It is also nice to know that the authors expect the development of the standard to continuously spread such that "in the near-term future H.264/AVC will be commonly used in most video applications."

Though the paper was mostly good, there were a few things I had issues with. First of all, I felt like the authors could have spent more time explaining both inter and intra picture predictive coding. Even though it could be expected that the reader already have knowledge of topic, it would have been nice had they reviewed it a bit especially because it was a concept that showed up multiple times throughout the paper. Also, when talking about hierarchical prediction structures, the authors mention "an improved selection of the quantization parameters" using a specific analysis method and then suggest that the "reconstructed video appears to be temporally smooth without annoying temporal "pumping" artifacts." I would have liked to know what they meant by "pumping" artifacts and thought they could have at least provided some sort of example to help the reader figure out what they mean by this even if they do not completely explain it.

Lastly, I felt like the authors should have done a better job explaining the images that were used. The captions for most of the images were very brief and the text did not help the reader understand what the various aspects of the diagram meant (e.g. what is the significance of the different shades in figure 2 or what the arrows signify in figure 8). Overall I thought the authors did do a good job getting their point across and explaining the details of the SVC extension.