

# In the Middle of the Patent War for the Next Generation of Video Coding Standard

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**Abstract** – Video coding and compression is not only very appealing area for researchers, but also a battlefield for high-tech companies, businesses, and lawyers. Till recently, the keynote speaker was mostly conducted research in this field; however in the last several years he has been involved in the patent war, financial battle, and other challenges relating to the new generation of video coding standards. This talk will present both technical innovations as well business issues. Today Internet bandwidth is used for at least 90% of video transfer. Thousands researcher and practitioners are working on 5G and soon 6G transmission networks, but also on new generation of video coding techniques to better compress digital video. Video coding standards have a long history, from MPEG in 1995 to AVC in 2003 and HEVC in 2013. Every new standard was able to compress video at least 50% better than the previous one with even better quality. Standards are not free, as many people think. For example only Netflix pays \$400 million per year to the standard committee to use the HEVC coding standard for its video transmissions. Who gets these revenues – the institutions that have so-called essential patents for the standard. For example, Samsung has hundreds of patents for HEVC and generates millions of dollars revenues every year. The new standard, which is in development, called VVC (Versatile Video Coding) is expected to be realized in 2020. Standard Committee meets every three months in order to evaluate new techniques and tools to be included in the standard. The keynote speaker is a member of the team developing the patents for the new VVC standard. In the last two years we submitted 38 patent applications, with the goal to have a number of essential patents in VVC and generate big revenues when the world start using the new standard. However, there is a battle between big companies including Google, Intel, Microsoft, Cisco, and others and small players like us. In this keynote we introduce technical elements of the new video coding standard, our contributions, and discuss all other business challenges.

## About author



Borko Furht is a professor in the Department of Electrical & Computer Engineering and Computer Science at Florida Atlantic University (FAU) in Boca Raton, Florida. He is also Director of the NSF-sponsored Industry/University Cooperative Research Center on Advanced Knowledge Enablement at FAU. He served as Chair of the Department of at FAU from 2002 to 2013. He is a member of the European Academy of Science and Special and Chief Technology Officer for UN Global Millennium Development Foundation in New

York, Before joining FAU, he was a vice president of research and a senior director of development at Modcomp (Ft. Lauderdale), a computer company of Daimler Benz, Germany, a professor at University of Miami in Coral Gables, Florida, and a senior researcher in the Institute Boris Kidric-Vinca, Yugoslavia. Professor Furht received Ph.D. degree in electrical and computer engineering from the University of Belgrade. His current research is in multimedia systems, video coding and compression, 3D video and image systems, wireless multimedia, medical applications, and cloud computing, and social networks. He is presently Principal Investigator and Co-PI of several multiyear, multimillion dollar projects. He is the author of numerous books and articles in the areas of multimedia, video and image processing, computer architecture, real-time computing, and operating systems. He is a founder and editor-in-chief of the Journal of Multimedia Tools and Applications (Springer) and he recently co-founded Journal of Big Data (Springer). He has received several technical and publishing awards, and has consulted for many high-tech companies including IBM, Hewlett-Packard, Xerox, General Electric, JPL, NASA, Honeywell, and RCA. He has also served as a consultant to various colleges and universities. He has given many invited talks, keynote lectures, seminars, and tutorials. He served as Chairman and Director on the Board of Directors of several

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