

Video Compression: What Future with this Past ?

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Video compression has been steadily evolving in the past 20 years with significant developments in the technology, major compression gains, impressive deployment of services and applications, and an amazing overall impact on our society. Until recently, the ‘video compression adventure’ has been providing around 50% compression gains every 5 years which led to the set of video coding standards nowadays available. This set of standards resulted from a rather smooth technological evolution, with the same predictive coding architecture being successively enriched with new tools to provide higher compression factors, typically also at the cost of a higher encoding complexity.

Following the identification of emerging applications and associated requirements, important standardization bodies like MPEG decided to launch a new project to develop the next generation of video compression solutions. As motivation, MPEG claims that the video bit rate using the current best video compression technology will increase at a rate faster than network infrastructures will be able to economically carry, both for wireless and wired networks, notably for the emerging ultra high resolutions.

In this context, this talk will discuss the past and future of video compression considering the emerging industry needs, notably in terms of 3D video and ultra high resolutions, promising technological novelties, and recent standardization initiatives.



Fernando Pereira is currently with the Electrical and Computers Engineering Department of Instituto Superior Técnico (IST) and with Instituto de Telecomunicações, both in Lisbon, Portugal. He is responsible for the participation of IST in many national and international research projects. He acts often as project evaluator and auditor for various organizations. He is an Area Editor of the Signal Processing: Image Communication Journal, a member of the Editorial Board of the Signal Processing Magazine, and is or has been an Associate Editor of IEEE Transactions of Circuits and Systems for Video Technology, IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, and IEEE Signal Processing Magazine. He is a member of the IEEE Signal Processing Society Technical Committees on Image, Video and Multidimensional Signal Processing, and

Multimedia Signal Processing, and of the IEEE Circuits and Systems Society Technical Committees on Visual Signal Processing and Communications, and Multimedia Systems and Applications. He was an IEEE Distinguished Lecturer in 2005 and an IEEE Fellow in 2008. He has been a member of the Scientific and Program Committees of many international conferences and has contributed more than 200 papers. He has been participating in the work of ISO/MPEG for many years, notably as the head of the Portuguese delegation, Chairman of the MPEG Requirements Group, and chairing many Ad Hoc Groups related to the MPEG-4 and MPEG-7 standards. His areas of interest are video analysis, processing, coding and description, and interactive multimedia services.