

Temporal dependency based bit allocation for rate control in HEVC

Abstract: Rate control is an indispensable module in practical video coding systems, which ensures the coded bit stream can meet channel bandwidth or storage space requirements. Most of the existing rate control methods compromise the rate distortion (RD) performance of encoders due to inappropriate bit allocations and inaccurate rate models. Inspired by our previous work on temporal-dependent RD optimization, this work presents a temporal dependency based optimal bit allocation at frame and coding tree unit (CTU) levels in rate control. Experimental results demonstrate that, on the HEVC test model (HM-16.7), the proposed methods achieve considerable RD improvement with a smaller deviation from a target bitrate, compared against the state-of-the-art schemes.

Biography:



Ce Zhu is currently a Professor with the School of Information and Communication Engineering, University of Electronic Science and Technology of China, Chengdu, China. His research interests include image/video coding and communications, 3D video, visual analysis and understanding, visual perception and applications. He has served on the editorial boards of a few journals, including as an Associate Editor of *IEEE Transactions on Image Processing*, *IEEE Transactions on Circuits and Systems for Video Technology*, *IEEE Transactions on Broadcasting*, *IEEE Signal Processing Letters*, and *IEEE Communications Surveys and Tutorials*, as well as a Guest Editor of *IEEE Journal of Selected Topics in Signal Processing*. He is a Fellow of the IEEE, and an IEEE CASS Distinguished Lecturer (2019-2020).