

论文

基于帧的多描述视频编码及其错误隐藏

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摘要:

为了解决视频流在不可靠网络上的错误传播问题,使用基于帧的多描述视频编码,提出采用预测的预处理和后处理过程方案,实现了描述间的冗余插入|实现了几种不同复杂度,不同性能的错误掩盖算法以适应多样化的网络传输环境.仿真实验结果表明,这种编码系统能有效控制视频流的错误传播,并且编码后的数据流更能适应各种网络传输状况.

关键词: 视频流 多描述视频编码 多路径传输 错误隐藏

Frame-based Multiple Description Video Coding and Error Concealment

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Abstract:

To solve the error propagation of video transmission on unreliable networks,a new frame-based multiple description coding scheme with flexible redundancy insertion between descriptions via prediction is presented.To meet the varied environments of networks,several decode algorithms with various complexities and efficiency are also proposed.Simulation result shows that the presented method is demonstrated its adequate efficiency in preventing error propagation of video stream.And,the system is more robust in the case of packet-loss over different networks.

Keywords: Video stream Multiple description video coding Multi-path transmission Error concealment

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参考文献:

[1] KUNG Wei-ying,KIM Chang-su,KUO C C J.A spatial-domain error concealment method with edge recovery and selective directional interpolation [A] .Proceedings of IEEE International Conference on Acoustics,Speech,and Signal Processing [C] .Hong Kong,2003,5:6-10.

[2] ZHANG Rong-fu,ZHOU Yuan-hua.An error concealment method for video communications considering both frequency and spatial domains [J] .Journal of Shanghai Jiaotong University,2004,38(4):606-609.

张荣福,周源华.视频通信中频域和空域相结合的错误掩盖技术 [J] .上海交通大学学报,2004,38(4):606-609.

[3] CHEN Jian-le,LIU Ji-lin,CHEN Guo-bin,et al.An error concealment algorithm for whole frame loss [J] .Journal of Image and Graphics,2007,12(10):37-42.

陈建乐,刘济林,陈国斌,等.一种针对整帧图像丢失的错误隐藏算法 [J] .中国图象图形学报,2007,12(10):37-42.

[4] BELFIORE S,GRANGETTO M,MAGLI E,et al.Concealment of whole-frame losses for wireless low bit-rate video based on multiframe optical flow estimation [J] .IEEE Transactions on Multimedia,2005,7

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(2): 316-329.

[5] CAO Ning, HU Jian-rong, MA Yin-song. Error concealment algorithm for entire frame loss based on optical flow estimation [J]. Journal on Communications, 2007, 28(5): 127-140.

曹宁, 胡建荣, 马银松. 基于光流估计的整帧恢复算法 [J]. 通信学报, 2007, 28(5): 127-140.

[6] CHEN Yu, YU Kim, LI Jiang, et al. An error concealment algorithm for entire frame loss in video transmission [C]. Proceedings of Picture Coding Symposium, 2004: 15-17.

[7] YANG Ren-Er, CHEN Ken, HE Jia-Ming. Redundancy insertion of multiple description image coding based on prediction [J]. Opto-Electronic Engineering, 2007, 34(10): 108-113.

杨任尔, 陈恳, 何加铭. 基于预测的多描述图像编码冗余插入的研究 [J]. 光电工程, 2007, 34(10): 108-113.

[8] VAISHAMPAYAN V. Design of multiple description scalar quantizers [J]. IEEE Transactions on Information Theory, 1993, 3(39): 821-834.

[9] WANG Y, ORCHARD M, VAISHAMPAYAN V, et al. Multiple description coding using pairwise correlating transforms [J]. IEEE Transactions on Image Processing, 2001, 10(3): 351-366.

[10] ZHANG Wei, JIANG Gang-yi, WANG Zeng-fu, et al. Research on image multiple description coding [J]. Journal of Image and Graphics, 2004, 9(3): 257-264.

张炜, 蒋刚毅, 汪增福, 等. 图像位置的多描述编码方法 [J]. 中国图像图形学报, 2004, 9(3): 257-264.

[11] APOSTOLOPOULOS J. Reliable video communication over lossy packet networks using multiple state encoding and path diversity [C]. Proceedings of Visual Communications and Image Processing, 2001: 392-409.

[12] WANG Zheng-ning, PENG Qiang, ZHU Chang-qian. Implementation and analysis of fast search algorithms for block motion estimation in H.264 test model [J]. Journal of Computer Applications, 2004, 24(9): 91-93.

王正宁, 彭强, 诸昌铃. 几种快速运动搜索算法在H.264中的实现及分析 [J]. 计算机工程与应用, 2004, 24(9): 91-93.

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