

图形图像处理

基于CCSDS建议的遥感图像传输系统性能研究

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摘要: 提出了一种新的遥感图像的传输方案。该方案通过将CCSDS AOS建议中的位流业务与回退n帧(GBN)重传方式相结合, 对图像进行分块传输, 解决了星地链路误码率高导致的遥感图像重构后质量下降的问题。分析了采用不同块长度时系统的归一化吞吐量性能, 提出了最优的数据块长度计算方法。仿真结果表明, 图像的恢复质量随着信道误码率的增大而下降, 但在满足一定的误码率 ($<10^{-4}$)条件下, 可以使恢复的图像达到较大的峰值信噪比 (PSNR), 满足图像信息重建要求。

关键词: 误码率 回退n帧 图像无线传输 峰值信噪比

Performance study of remote sensing image transmission system based on CCSDS

Abstract: A new remote sensing image transmission scheme was presented in this paper. Firstly, the scheme united the bitstream service in CCSDS AOS recommendation with Go-Back-N (GBN) ARQ scheme, and transmitted the image in part, in order to solve the problem that the quality of the restructured image goes down caused by the high Bit Error Rate (BER) of star-to-ground communications. Secondly, analyzing the throughput of image transmission system in different length of data unit, a calculation method of optimum data unit length was proposed. Simulation results show the quality of the restructured image would go down when the BER increases, but in the stated BER ($<10^{-4}$), the higher Peak Signal to Noise Ratio (PSNR) can be achieved, and the of restructured image is satisfactory.

Keywords: Bit Error Rate (BER) Go-Back-N (GBN) image wireless transmission Peak Signal to Noise Ratio (PSNR)

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