

## 景象匹配预处理系统中基于FPGA的高速图像采集和快速直方图运算

作者: 徐婉莹 郑永斌 黄新生

单位: 国防科学技术大学机电工程与自动化学院

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摘要:

针对景象匹配末制导系统处理量大、实时性要求高的情况, 设计了基于FPGA的高速图像预处理系统。通过FPGA内部的灵活编程, 实现了视频图像的高速采集和输出, 并在采集图像的同时, 并行地实现了高效的图像预处理, 分担了后续处理机的工作, 极大地提高了系统的实时性。试验结果表明该系统处理效果好, 为后续处理系统提供了极大的方便。

关键词: 景象匹配 图像增强 图像采集 FPGA

## A FPGA-Based Implement of High-Speed Image Acquisition and Histogram Equalization in Scene-matching Preprocessing System

**Author's Name:** Xu Wanying Zheng Yongbin Huang Xinsheng

**Institution:** College of Mechatronics Engineering and Automation, National University of Defense Technology

**Abstract:**

A FPGA-based high-speed image pretreatment system is designed to share the burden of the core processor in scene-matching aided navigation system. Several functions like high-speed image acquisition, storage and display are implemented through FPGA, and image pre-processing is accomplished in parallel with image acquisition, which shares the computing burden of the latter processing centre and highly improves the speediness of the whole system. The experiments have good results and show that system can offer great convenience to the following-up unit.

**Keywords:** scene matching, image enhancement, image acquisition, FPGA

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