一个新的实时光学图像识别系统

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A NEW OPTICAL SYSTEM FOR REAL-TIME PATTERN RECOGNITION

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摘要 本文描述了一个新的实时光学图像识别系统。该系统主要是激光二极管、多换能器声光器件、电荷耦合器件以及光学透镜组成的。这个系统既不需要相干光输入图像，也不需要基准图像的付氏变换金息图。不同波段成像系统输出的实时视频图像信号和事先记录的或实时截获的基准图像均可施加给本系统。文中给出了理论分析以说明工作原理。实验结果证实这种非相干光相关器具有完成实时图像识别的能力。事实上,某些图像识别任务碰到的图像位移、尺寸、旋转不变性问题,本系统可容易地予以解决。

关键词：

Abstract： A new optical system for real-time pattern recognition is presented, which mainly consists of a laser diode, an acoustooptic device with multi-transducer, a charge-coupled device and optical lenses. Neither the coherent optical input image nor the Fourier transform hologram of the reference image is required by this system. Real-time video signals from imaging system operating in different spectrum and the reference images either pre-recorded or acquired in real-time can be applied to the present system. Theoretical analysis is given to describe the system operation. Experimental results have confirmed that this incoherent optical correlator system possesses the capability of performing real-time pattern recognition. In fact, the image shift, scale, rotation invariance problems encountered in some pattern recognition tasks can easily be solved in this system.

Keywords：

Service

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