

Real-Time Face Detection on a Configurable Hardware Platform

by

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Abstract

Automated object detection is desirable because locating important structures in an image is a fundamental operation in machine vision. The biggest obstacle to realizing this goal is the inherent computational complexity of the problem. The focus of this research is to develop an object detection system that operates on real-time video data in hardware. Using human faces as the target object, we develop a detection method that is both accurate and efficient, and then implement it on a large programmable hardware system. Using a programmable system reduced the time and cost required to create a working hardware prototype. The implementation runs at 30 frames per second, which is approximately 1000 times faster than the same algorithm running in software and approximately 90 to 6000 times faster than the reported speed of other software algorithms.

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