

# Abstract

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## **VHDL-Based Simulation of a Parallel Implementation of a Phase-Based Algorithm for Optical Flow**

The computation of optical flow can be an important part in a diverse number of applications. However, optical flow algorithms can be categorized as either very accurate &#97;&#110;&#100; slow &#97;&#110;&#100; fast &#97;&#110;&#100; highly inaccurate. None of the optical flow algorithms combined both accuracy &#97;&#110;&#100; efficiency. Among these algorithms was the phase-based fleet &#97;&#110;&#100; Jepson algorithm. Although this algorithm has proved to produce relatively accurate results, it can not be exploited in many real-life applications due to its relatively long run-time. The goal of this paper is to combine the accuracy of the phase-based optical flow algorithm by Fleet &#97;&#110;&#100; Jepson &#97;&#110;&#100; exploit the parallelism &#97;&#110;&#100; high performance capabilities of the FPGAs to provide an accurate &#97;&#110;&#100; efficient optical flow algorithm for FPGA-based applications.