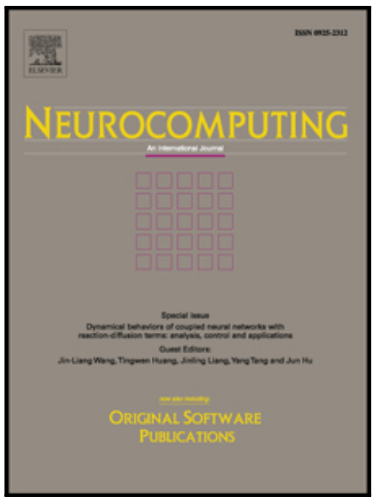

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PII: S0925-2312(17)30435-6
DOI: 10.1016/j.neucom.2016.08.137
Reference: NEUCOM 18185

To appear in: *Neurocomputing*

Received date: 2 May 2016
Revised date: 22 July 2016
Accepted date: 26 August 2016

Please cite this article as: Yasemin Poyraz Kocak, Selcuk Sevgen, Detecting and Counting People Using Real-Time Directional Algorithms Implemented by Compute Unified Device Architecture, *Neurocomputing* (2017), doi: 10.1016/j.neucom.2016.08.137

Detecting and Counting People Using Real-Time Directional Algorithms Implemented by Compute Unified Device Architecture

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Abstract

This paper implements a real-time and directional counting algorithm using the Graphic Processing Unit (GPU) Programming for the purpose of detecting and counting people. We use the Compute Unified Device Architecture (CUDA) as the environment of the GPU programming. The proposed algorithm is implemented for detecting and counting people employing the single virtual line and two virtual lines, respectively, using three video streams and two GPU graphic cards GeForce GT 630 and GeForce GTX 550Ti. We first test the video streams on the algorithm by using GeForce GT 630 together with applying the single virtual line and two virtual lines, respectively. Then, we repeat the same procedures for the GPU graphic card GeForce GTX 550Ti. The obtained experimental results show that our proposed algorithm running on GPU can be successfully programmed and implemented for people detecting and counting problems.

Keywords:
Graphic Processing Unit, Compute Unified Device Architecture, Image Processing, People Counting

1. Introduction

In recent years, image processing has found many applications areas such as medicine, security, military, meteorology, etc.