ABSTRACT

Face Detection is a detection of face which there is a feature that represents a face's shape in general. One of the methods is Viola Jones. This method has four main processes; there are haar-like feature, integral image, ada-boost, and cascade classifier. Haar-like feature are pack of specific features which represent a face and integral image is the fast way to calculate haar feature. While ada-boost is a statistic weightening feature values and filtered by cascade classifier. The result is the detections which pass the 25 stages of cascade classifier.

In this undergraduate thesis, Viola Jones method executed with GPU (Graphics Processing Unit) based on CUDA (Compute Unified Device Architecture). CUDA is a computation parallel platform on GPU made by NVIDIA Company. Image data that used is portable grayscale map (*.pgm). For the speedup comparison, also performed serial execution.

From the result, we can say that Viola Jones method on GPU have good accuracy. Obtained 1.38 speedup on image resolution smaller equal to 640x480, 1.82 speedup on image resolution around 640x480 until 1024x768, and 1.9 speedup on image resolution larger equal to 1024x768.

Keyword: *Face Detection, Viola Jones, GPU, CUDA*