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**Abstract**

A computer vision technology that has been developed until now is people counting system. This system counts people based on the human feature. A part of the human body that can be the feature is head or face. This research developed people counting system in a room based on head detection using feature extracton method PHOG (Pyramid Histogram of Oriented Gradient) and the feature been classified using SVM (Support Vector Machine). The result is the system has a good performance in PHOG second level and Polynomial SVM with average F1 Score 83.1% and has better performance than single-level HOG in PHOG second level until fourth level.

**Keywords:** PHOG, SVM, *Head Detection, People Counting*

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