

## Contextual thermal face detection for fever mass screening

*Sofiah, Siti<sup>1</sup>; Hawari, Kamarul<sup>1</sup>; Khatun, Sabira<sup>2</sup>*

<sup>1</sup> Faculty of Electrical and Electronics, Universiti Malaysia Pahang, Pekan, Pahang, Malaysia

<sup>2</sup> School of Computer and Communications, Universiti Malaysia Perlis, Ulu Pauh, Perlis, Malaysia

### **ABSTRACT**

In recent years, the global outbreak of severe acute respiratory syndrome detection and human tracking using infrared sensors get attention by many researchers. Machine vision plays an important role for successful conduction of above researchers. In most of the researches, focus is given on thermal spectrum, very less focus on the effectiveness of febrile mass detection and screening. For detection, usually the region of interest is the exposed area of head-to-shoulder. This is essential prior to measure the temperature of a febrile person by the thermal camera. Challenges to detect pedestrian in a crowd through thermal images include the image background and nature, quality of image in infrared spectrum as well as the real crowd situation in public area that cause occlusion. In this paper, a well-annotated pedestrian dataset is developed using thermal images taken during fever screening in Kuala Lumpur International Airport (KLIA). Then the statistical analysis on size and occlusion patterns in the streaming crowds has been performed. Finally, a local context detector is introduced, by taking into account the local context on head in thermal datasets for better detection performance. The performance proposed detector is evaluated on the developed thermal images dataset. Overall, it shows highest performance compared to existing pre-trained detectors.

### **KEYWORDS**

Crowd; Data set; Detection; Evaluation; Fever; HOG; Haar; KLIA; LBP; Mass screening; Thermal

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