

## **Flame Detection Based on SIFT Algorithm and One Class Classifier with Undetermined Environment**

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**Abstract:** Under undetermined and sophisticated environment, it is an unresolved puzzle for early flame detection based on image. Therefore, for the improvement in detection efficiency, it is brought in the SIFT algorithm to image process of identifying flame extreme point as well as feature matching; it is introduced the theory of histogram equalization to this field. Regard fractal dimension as one of flame features. Since flame is the anomalous value mostly, one class classifier is being used to identify the flame. The experiment proves that there is high rate of flame detection and low rate of false alarm in this research.

**Keywords:** SIFT algorithm, one class classifier, fractal, histogram equalization, flame detection