**Paper Title**

Author One, Author Two, and Author Three

Affiliation:

Email:

**Abstract:** Template matching is the process of determining the presence and the location of a reference image or an object inside a scene image under analysis by a spatial cross-correlation process. Conventional cross-correlation type algorithms are computationally expensive. In this paper, an algorithm for a robust template matching method based on the combination of the wavelet transform method and SIFT is proposed. Discrete wavelet transform is done firstly on a reference image and a template image, and low frequency parts of them is extracted, then we use harris corner detection to detect the interesting point in low frequency parts of them to determined the matching candidate region of template image in reference image, extracting SIFT features on the matching candidate region and template image, The extracted SIFT features are matched by k-d tree and bidirectional matching strategy. Experiment show that, the algorithm can improve the accuracy of matching and at the same time to reduce the computation load.

**Keywords:** Template matching, SIFT, harris corner, k-d tree, bidirectional matching, wavelet transform.