一种基于改进 SURF 算子的印刷品图像匹配算法

张　培，郭　慧，刘芳辉，胡方尚，周邵萍

（华东理工大学 机械与动力工程学院，上海 200237）

摘　要：针对传统算法精度低、速度慢的问题，提出一种改进的 SURF 算法．算法采用一种全新的 Harr-like 特征描述符，增加有效特征点个数，提高描述子鉴别力，同时结合 BBF 搜索方法，提升匹配速度．实验表明，与原有 SURF 算法相比，改进算法的匹配点对数增加了 15% 以上，同时提高了速度．算法的改善为图像匹配技术在印刷行业的应用开拓了更广阔的前景．

关键词：　图像匹配；Harr-like；BBF；SURF 算法

A New Image Matching Algorithm Based on

Improved SURF Operator

ZHANG Pei，GUO Hui，LIU Fang-hui, HU Fang-shang, ZHOU Shao-ping

(School of Mechanical and Power Engineering,East China University of Science and Technology,Shanghai 200237, China)

Abstract：Aiming at the problem of low precision and slow speed of traditional algorithms, this paper proposes an improved SURF algorithm. The algorithm uses a brand new Harr-like feature descriptor to increase the number of valid feature points and improve the discriminant ability of the descriptors. At the same time we combined with BBF search method to enhance the matching speed. The experimental results show that the matching point of the improved algorithm is increased by more than 15% compared with the original SURF algorithm, and the speed is also improved. The improvement of the algorithm opens up a broader prospect for the application of image matching technology in the printing industry.

Key words: image matching; Harr-like; BBF; SURF algorithm

作者简介：

张　培　男，(1993-)，硕士研究生.研究方向为计算机图形学、图像匹配.

郭　慧(通讯作者)　女,(1964-),博士,副教授.研究方向为计算机图形学、逆向工程.E-mail：ghcad@163.com.

刘芳辉　男，(1991-)，硕士.研究方向图像检索及图像处理.

胡方尚　男，(1992-)，硕士.研究方向计算机图形学.

周绍萍　女，(1966-)，博士，教授.研究方向状态监测与故障诊断.