

论文与报告

## 哈希图半监督学习方法及其在图像分割中的应用

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摘要

图半监督学习(Graph based semi-supervised learning, GSL)方法需要花费大量时间构造一个近邻图, 速度比较慢. 本文提出了一种哈希图半监督学习(Hash graph based semi-supervised learning, HGSL)方法, 该方法通过局部敏感的哈希函数进行近邻搜索, 可以有效降低图半监督学习方法所需的构图时间. 图像分割实验表明, 该方法一方面可以达到更好的分割效果, 使分割准确率提高0.47%左右; 另一方面可以大幅度减小分割时间, 以一幅大小为300像素×800像素的图像为例, 分割时间可减少为图半监督学习所需时间的28.5%左右.

关键词 [哈希图半监督学习](#) [图半监督学习](#) [局部敏感的哈希函数](#) [图像分割](#)

分类号

## Hash Graph Based Semi-supervised Learning Method and Its Application in Image Segmentation

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Abstract

Graph based semi-supervised learning (GSL) method runs slowly because of the need of much time to construct a neighbor graph. This paper presents a hash graph based semi-supervised learning (HGSL) method, which can search neighbors by locality sensitive hashing function and efficiently reduce the time for GSL to construct a neighbor graph. Image segmentation experiments show that HGSL has an improvement of 0.47% in average segmenting accuracy, and can greatly reduce the segmenting time, e.g., it takes about 28.5% of the time for GSL to segment an image with size of 300×800.

Key words [Hash graph based semi-supervised learning \(HGSL\)](#) [graph based semi-supervised learning \(GSL\)](#) [locality sensitive hashing function](#) [image segmentation](#)

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