

### 一种基于多图的综合直推分类方法

余国先<sup>①</sup> 张国基<sup>②</sup> 韦佳<sup>①</sup> 任亚洲<sup>①\*</sup>

<sup>①</sup>(华南理工大学计算机科学与工程学院 广州 510006) <sup>②</sup>(华南理工大学理学院 广州 510640)

## A Multi Graphs Based Transductive Ensemble Classification Method

Yu Guo-xian<sup>①</sup> Zhang Guo-ji<sup>②</sup> Wei Jia<sup>①</sup> Ren Ya-zhou<sup>①\*</sup>

<sup>①</sup>(School of Computer Science and Engineering, South China University of Technology, Guangzhou 510006, China)

<sup>②</sup>(School of Sciences, South China University of Technology, Guangzhou 510640, China)

摘要

参考文献

相关文章

Download: PDF (279KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

**摘要** 基于图的直推分类器依赖于图结构。高维数据通常具有冗余和噪声特征，在其上构造的图不能充分反映数据的分布信息，分类器性能因此下降。为此，该文提出一种多图构建方法并把它应用到直推分类中。该方法首先生成多个随机子空间并在每个子空间上进行半监督判别分析，其次在每个判别子空间上构造图并训练一个直推分类器，最后投票融合这些分类器为一个集成分类器。实验结果表明，对比其它直推分类器，该文的集成分类器具有分类正确率高、对参数鲁棒等特点。

**关键词：** 信息处理 直推分类器 图结构 随机子空间 投票

**Abstract:** Graph based transductive classifiers are dependent on graph structure. Because of redundant and noisy features in high dimensional data, a graph, constructed from these data, can not reflect their distribution information faithfully. Consequently, the performance of a transductive classifier is downgraded. To address this problem, a multiple graphs construction scheme is introduced and applied into transductive classification. The scheme generates firstly several random subspaces and applies semi-supervised discriminative analysis in each subspace. Next, it trains a transductive classifier in each discriminative subspace. And finally, by voting rule, it fuses these classifiers as an ensemble classifier. Empirical results show that, in comparison with other transductive classifiers, the proposed ensemble classifier is more precise and robust to parameters selection.

**Keywords:** Information processing Transductive classifier Graph structure Random subspace Voting rule

Received 2010-12-27;

**本文基金:**

国家自然科学基金(60973083, 61003174)和广东省自然科学基金(9451064101003233, 10451064101004233)资助课题

**通讯作者:** 余国先 Email: guoxian.yu@mail.scut.edu.cn

**引用本文:**

余国先, 张国基, 韦佳, 任亚洲. 一种基于多图的综合直推分类方法[J] 电子与信息学报, 2011, V33(8): 1883-1888

Yu Guo-Xian, Zhang Guo-Ji, Wei Jia, Ren Ya-Zhou. A Multi Graphs Based Transductive Ensemble Classification Method[J], 2011, V33(8): 1883-1888

**链接本文:**

http://jeit.ie.ac.cn/CN/10.3724/SP.J.1146.2010.01424 或 http://jeit.ie.ac.cn/CN/Y2011/V33/I8/1883

#### Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

#### 作者相关文章

- ▶ 余国先
- ▶ 张国基
- ▶ 韦佳
- ▶ 任亚洲