Curriculum Vitae

Personal Profile

Name	Yabei Li
Sex	Female
Date of Birth	10 September 1993
Nationality	China
Education	Ph.D Candidate, Institute of Automation, Chinese Academy of Sciences
Address	Intelligent Building, No.95 Zhongguancun East Road, Beijing, China
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Education

Sep 2014-present **National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, Beijing, China**
M.D-Ph.D of Patter Recognition and Intelligent System, expected graduate in July 2019

Sep 2010-Jun 2014 **Department of Electrical Engineering, Hefei University of Technology, Anhui, Hefei, China**
Bachelor of Electrical Engineering

Research Interests

2D/3D Scene Understanding; Object Recognition; Multi-Modal Feature Extraction and Learning; Deep Learning.

Research Experience

Scene Specific Pedestrian Detection

The pedestrian detectors trained on popular datasets like Caltech, KITTI get excellent precision on these datasets' test set. However, it cannot be applied well in practical, for example in surveillant scenes. I propose a deep learning architecture to automatically adapt general pedestrian detector to specific surveillant scene. The proposed method can transfer the detector in unsupervised way and ease the domain shift problem by utilizing the temporal cues.

RGB-D Indoor Scene Segmentation

The RGB and Depth cues are complementary for semantic segmentation. The RGB modal gives color cues while the Depth modal provides geometric cues that are robust to lights and occlusion. Traditional methods usually apply two-stream convolutional neural networks (CNNs) to represent RGB and depth images respectively, and fuse the two streams on a specific layer. I find such a single-layer fusion method cannot exploit the complementary RGB and depth cues well for semantic segmentation. The low-level fusion suffers from semantic gap and the high-level fusion loses the spatial information. To address this problem, we propose a novel Semantics-guided Multi-level feature fusion architecture, which first learns deep feature representation from bottom to up, and then gradually fuses the RGB and depth features from high level to low level under the guidance of the semantic cues.

RGB-D Indoor Scene Classification

It is a very challenging task due to two folds. 1) Learning robust representation for indoor scene is difficult because of various objects and layouts. 2) Fusing the complementary cues in RGB and Depth is nontrivial since there are large semantic gaps between the two modalities. Most existing works learn representation for classification by training a deep network with softmax loss and fuse the two modalities by simply concatenating the features of them. However, these pipelines do not explicitly consider intra-class and inter-class similarity as well as inter-modal intrinsic relationships. To address these problems, we propose a Discriminative Feature Learning and Fusion Network (DF^{2}Net) with two-stage training. In the first stage, to better represent scene in each modality, a deep multi-task network is constructed to simultaneously minimize the structured loss and the softmax loss. In the second stage, we design a novel discriminative fusion network which is able to learn correlative features of multiple modalities and distinctive features of each modality.

Publication

1 **Semantics-guided Multi-level RGB-D Feature Fusion for Indoor Semantic Segmentation**
  Yabei Li, Junge Zhang, Yanhua Cheng, Kaiqi Huang, Tieniu Tan
  in Proceedings of IEEE International Conference on Image Processing(**ICIP**), **oral** presentation, 2017

2 **DF^{2}Net: A Discriminative Feature Learning and Fusion Network for RGB-D Indoor Scene Classification**
  Yabei Li, Junge Zhang, Yanhua Cheng, Kaiqi Huang, Tieniu Tan
  in Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence(**AAAI**), **oral** presentation, 2018

Skills

- **English**
  CET-4:607, CET-6:564, TOEFL: 97 (r:29,l:27,s:19,w:22), GRE: 324 (154+170) +3, good ability of listening, speaking, reading and writing papers in English

- **Computer Languages**
  python, Matlab, C, C++, LaTeX

- **Operating Systems**
  Windows, Linux, Apple OS X

Social & Academic Activities

2016.5-present   Member of Women in IEEE

2015.9-2016.9   Member of Student Union in CASIA

2010.9-2012.6   Member of Student Union in HFUT

Honors

2016   Merit Student of Chinese Academy of Sciences(**Top 5%**)

2016   Outstanding Student Leader of Chinese Academy of Sciences

2014   Excellent Bachelor Thesis Award

2013   Finalist of the Mathematical Contest in Modeling(MCM)(**Top 0.4%**)

2013   First Class Scholarship, Merit Student of HFUT(**Rank 4/281**)

2012   Scholarship of P.R. China(**Rank 1/281**)

2011   Scholarship of P.R. China(**Rank 1/135**)