Shi Tang

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Education

- **Tsinghua University** — Beijing, China
  School of Software; GPA: 3.73 — *Sept. 2021 – Present*
- **Dalian University of Technology** — Dalian, China
  International School of Information Science & Engineering; GPA: 3.81 — *Sept. 2017 – June. 2021*

Papers

- **Cross Modality Depth Estimation via Unsupervised Stereo RGB-to-Infrared Translation**
  Shi Tang, Xinchen Ye, Fei Xue, Rui Xu. In IEEE ICASSP, 2023.
  - Propose to estimate depth in a cross-modal way to improve robustness to reflections, brightness changes and help recover object contours.
  - Propose a Fourier domain adaptation strategy and a multi-space warping regularization for synthesizing stereo IR images.
  - Error reduction of **6.13%**, **5.10%** and **20.04%** on D1-all against GWCNet, Monodepth and Monodepth2, respectively, and **31.13%** on Total 3-px error against PSMNet.
- **Unleash the Power of Local Representations: Feature Calibration and Adaptive Metric for Few-Shot Learning** *Shi Tang, Chaoqun Chu, Guiming Luo, Xinchen Ye, Zhiyi Xia, Haojie Li. Under review.*
  - Investigate unbiased features and an adaptive metric to unleash the power of local representations in improving novel-class generalization for few-shot image classification.
  - Define a Smoothed KL-Divergence more suitable for distilling networks for few-shot classification based on an analysis of the classical KL-Divergence.
  - Propose a novel pretraining paradigm for few-shot image classification and design a metric that is capable of handling various local feature sets.
  - The proposed method **achieves new state-of-the-art on three popular benchmarks**, and in the fine-grained scenario it even **outperforms state-of-the-art transductive and cross-modal methods**.

Projects

- **Task-Specific Few-Shot Image Classification by Balancing Sample- and Class-Level Generalization** — *Jun. 2022*
  - Targeting at few-shot classification tasks in real-world scenarios where new tasks may contain both base and novel classes.
  - Propose to fuse features of normal and episodic pretraining weighted by a proposed Cross-Attention Module to balance sample- and class-level generalization task-specifically.
  - Improvements of **16.30%**, **6.91%** and **1.46%** against normal pretraining, episodic pretraining and Meta-Baseline, respectively for accuracy on reconstructed miniImageNet under 1-shot setting.
- **Vehicle Mounted Multi Band Stereo Vision Perception System** — *2018 – 2019*
  - Responsible for improving the sub-pixel corner detection algorithm based on the checkerboard pattern, as well as the calibration and rectification of infrared cameras.
  - Propose a novel infrared calibration board design scheme.
  - **Won the bid** in July 2019.
- **Scene Depth Perception based on Binocular Infrared Camera** — *2019 – 2020*
  - Extend the binocular depth estimation task from visible band to infrared band.
  - Propose a novel domain adaption strategy and a feedback learning strategy to reduce the domain gap between different datasets.

Awards

2017 – 2018 Scholarship for Academic Excellence
2018 – 2019 Scholarship for Academic Excellence
2019 – 2020 Scholarship for Academic Excellence
2021 – 2022 Guoshuang Scholarship
2017 – 2018 Lingshui Scholarship
Provincial third prize in CUMCM 2019
2021 Outstanding Graduate of DUT