Shi Tang

Email : ts21@mails.tsinghua.edu.cn
Mobile : +86-139-8005-5122

EDUCATION

- **Tsinghua University** — Beijing, China
  School of Software; GPA: 3.73/4 — *Sept. 2021 – Present*

- **Dalian University of Technology** — Dalian, China
  International School of Information Science & Engineering; GPA: 4.15/5 — *Sept. 2017 – June. 2021*

PAPERS

- **Cross Modality Depth Estimation via Unsupervised Stereo RGB-to-Infrared Translation**
  First author, 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
    - 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: Unbiased Features and Adaptive Metric for Few-Shot Learning** *First author, 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