Junguang Jiang

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Education Background

Tsinghua University, M.S., Software Engineering   2020.8 - 2023.7
- Advised by Professor *Mingsheng Long*
- Comprehensive Excellence Award (Huawei Scholarship)
- Focuses on transfer learning and multi-task learning and has served as a reviewer for NIPS and ICML

Tsinghua University, B.S., Software Engineering   2015.8 - 2020.7
- **GPA 3.9/4.0, Rank 2nd/83**
- **National Scholarship**, Comprehensive Excellence Award (Huawei Scholarship), etc

Research

Transferability in Deep Learning: A Survey, First Author   2022
- Describes how to obtain, exploit and evaluate transferability in the full life cycle of deep learning (pre-training, adaptation, evaluation)
- Accepted by *Foundations and Trends in Machine Learning*

Debiased Self-Training for Semi-supervised Learning, Co-first Author   NIPS 2022
- Systematically analyzes the bias in SSL and divides them into data bias (the bias inherent in the SSL tasks) and training bias (the bias increment brought by self-training with incorrect pseudo labels)
- Decouples the generation and utilization of pseudo labels to reduce the training bias and estimates the worst case of training bias to implicitly reflect the data bias and thereby reduce it
- Conducts extensive experiments and validates that *DST* achieves an average improvement of 6.3% against state-of-the-art methods on standard SSL benchmarks datasets.

Decoupled Adaptation for Cross-Domain Object Detection, First Author   ICLR 2022
- Proposes a general D-adapt framework to alleviate the influence of domain shift on the object detector, which has three steps: (1) decouple the original cross-domain detection problem into several subproblems (2) design adaptors to solve each sub-problem (3) coordinate the relationships between different adaptors and the detector.
- Conducts extensive experiments and validates that D-adapt achieves state-of-the-art performance on four object detection tasks, and bring performance gains by 10% in terms of mAP on two of them.

Regressive Domain Adaptation for Unsupervised Keypoint Detection, First Author   CVPR 2021
- Analyzes the essential differences between cross-domain regression and cross-domain classification problems from both theoretical and experimental perspectives
- Proposes the first domain adaptation algorithm for keypoint detection problems based on the learning theory of *Disparity Discrepancy*. Measures the task-specific distribution distance by introducing an adversarial regressor and reduces the hypothesis space size by estimating the density of the output space.
- Conducts experiments on various keypoint detection tasks and proves that the proposed method can bring performance gains by 8% to 11% in terms of PCK.

Resource Efficient Domain Adaptation, First Author   ACMMM 2020，Oral
- Explores the relationship between transferability and model architecture in deep learning. After pre-training, the allowed hypothesis space of the deep model is smaller than that of the shallow model, and a tighter generalization error bound, i.e. better transferability is obtained both theoretically and experimentally
- Proposes an unsupervised domain adaptation method for shallow models, i.e., performing domain adaptation first on deep models and then distilling the transferability into the shallow models.

Experiences

TEG-Social Ad Group, Tencent   2022.6-2022.12
- **Selected into Tencent Rhino-Bird Elite Talent Program**. The research topic is multi-task learning and multi-domain learning. In recommendation systems, it is often necessary to model multiple user feedback (multitasking) and user feedback behaviors in different scenarios, such as information flow, news flow, and video flow (multi-domain)

Data-Douyin, Byte Dance   2022.4-2022.6

- Explores users' long-term interests from their search history and uses them to improve the performance of recall and ranking in short-video recommender systems.
- Uses Spark/SQL to clean Douyin's user search data, use *node2vec* to learn graph embeddings from the "user-search" graph, and uses these embeddings to improve the recall in recommender systems
- Analyzes the results and validates that the obtained representations can well measure the user's fine-grained interests from data automatically.

Y-tech, Kuaishou Technology   2020.8-2021.4

- Research transfer learning methods for both 3D and 2D keypoint detection, which is then applied to the Augmented Reality (AR) applications.
- Propose regressive domain adaptation methods for unsupervised keypoint detection to decrease the labeling cost for 3D and 2D keypoints of hand gestures.
- Related work is published at CVPR2020.

PROJECTS

Transfer-Learning-Library   2020.4 until now

- An open-source and well-documented library for Transfer Learning, Domain Adaptation, Task Adaptation, and Domain Generalization.
- First Author and contributes more than 20k lines of code.
- Receives more than **1.8k** stars on the Github

SKILLS

- Familiar with English reading and writing，GRE: 325/340，TOFEL: 106/120
- Familiar with Python, PyTorch, Linux, etc