Taotao Jing

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EDUCATION

School of Science & Engineering | Tulane University — New Orleans, USA
Ph.D. candidate in Computer Science — Jan. 2021 - Present
Purdue School of Engineering & Technology | Purdue University — Indianapolis, USA
Ph.D. student in Electrical and Computer Engineering (transferred out) — Jan. 2019 - Dec. 2020
Department of Electrical & Computer Engineering | Northeastern University — Boston, USA
M.S. in Computer System Engineering — Sep. 2016 - May 2018
Department of Electronic and Information Engineering | Xi'an Jiaotong University — Xi'an, China
B.S. in Electronic Science and Technology — Sep. 2012 - Jul. 2016

RESEARCH PROJECTS

Pedestrian Situated Intent Dataset and Interpretable Decision Estimation — Aug. 2021 – May. 2022
Research Assistant | Tulane University, New Orleans, USA — Supervisor: *Prof.* Zhengming Allan Ding

- Built up a novel pedestrian behavior dataset for socially intelligent autonomous vehicle
- Proposed a novel interpretable driving decision prediction framework achieving SOTA performance
- Proposed a pedestrian crossing intention prediction model with a spatial-temporal graph based on relevant traffic agents

Augmented Multi-Modality Fusion for Generalized Zero-Shot Sketch-based Visual Retrieval — Mar. 2021 - June. 2021
Research Assistant | Tulane University, New Orleans, USA — Supervisor: *Prof.* Zhengming Allan Ding

- Proposed an augmented multi-modality fusion framework to discover novel knowledge unseen in the training data in both visual and semantic space for generalized zero-shot sketch-based image retrieval (GZS-SBIR) problem
- Achieved superior performance on existing GZS-SBIR benchmarks and a new evaluation protocol over SOTA

Towards Novel Target Discovery Through Open-Set Domain Adaptation — Nov. 2020 - Mar. 2021
Research Assistant | Tulane University, New Orleans, USA — Supervisor: *Prof.* Zhengming Allan Ding

- Proposed a challenging but practical task as understanding the unknown categories in the open-set tasks
- Designed an effective framework to identify seeing categories and recover semantic attributes for unseen categories
- Constructed two cross-domain open-set recognition and semantic recovery benchmarks to evaluate the framework

Adversarial Dual Distinct Classifier for Unsupervised Domain Adaptation — Mar. 2019 - Jun. 2019
Research Assistant | Purdue University, Indianapolis, USA — Supervisor: *Prof.* Zhengming Allan Ding

- Exploited dual task-specific classifiers architecture to align cross-domain distribution and decision boundaries
- Proposed a novel discriminative cross-domain alignment loss and importance guided optimization strategy to mitigate the cross-domain mismatching and learn the domain-invariant embedding features across domains
- Created new state-of-the-art on several cross-domain visual unsupervised domain adaptation benchmarks

EV-Action: Electromyography-Vision Multi-Modal Action Dataset — Jan. 2018 - Jul. 2018
Research Assistant | SMILE Lab, NEU, Boston, USA — Supervisor: *Prof.* Yun Raymond Fu

- Collected and introduced the first, large-scale EV-Action dataset consisting of RGB, depth, electromyography, and two skeleton modalities for human action recognition tasks including over 7,000 samples from 70 human subjects
- Proposed an effective framework for EMG-based action recognition and reported the state-of-the-art performance

PUBLICATIONS & PREPRINTS

- **Jing, Taotao,** Haifeng Xia, Jihun Hamm, and Zhengming Ding. "Augmented Multi-Modality Fusion for Generalized Zero-Shot Sketch-based Visual Retrieval." *IEEE Transactions on* Image Processing **(TIP)**, 2022.
- **Jing, Taotao,** Bingrong Xu, Jingjing Li, and Zhengming Ding. "Towards Fair Knowledge Transfer for Imbalanced Domain Adaptation." *IEEE Transactions on* Image Processing **(TIP)**, 2021.
- **Jing, Taotao,** Hongfu Liu, and Zhengming Ding. "Towards Novel Target Discovery Through Open-Set Domain Adaptation." *Proceedings of the IEEE/CVF International Conference on Computer Vision* **(ICCV) (Oral)**, 2021
- Xia, Haifeng, **Taotao Jing**, and Zhengming Ding. "Semi-supervised Domain Adaptation Retrieval via Discriminative Hashing Learning." *Proceedings of the ACM International Conference on Multimedia* **(MM)**, 2021.
- **Jing, Taotao,** and Zhengming Ding. "Adversarial Dual Distinct Classifiers for Unsupervised Domain Adaptation." *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision* **(WACV)**, 2020.
- **Jing, Taotao,** Haifen Xia, and Zhengming Ding, "Adaptively-Accumulated Knowledge Transfer for Partial Domain Adaptation." *Proceedings of the ACM International Conference on Multimedia* **(MM)**, 2020.
- Wang, Lichen, Bin Sun, Joseph Robinson, **Taotao Jing**, and Yun Fu. "EV-Action: Electromyography-Vision Multi-Modal Action Dataset." *IEEE International Conference on Automatic Face and Gesture Recognition* **(FG)**, 2020.

TECHNICAL SKILLS

Machine Learning: PyTorch, TensorFlow, Python, MATLAB, Keras
Programming: Java, MySQL, MongoDB, JavaScript, Shell, Spring MVC, HTML, AngularJS, CSS, Git, LaTeX, Linux