

JINGYANG LIN

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EDUCATION

University of Rochester

Rochester, NY

- PhD Student in Computer Science
- Advisor: Prof. Jiebo Luo

Aug. 2022 - Present

Sun Yat-sen University

Guangzhou, China

- MCs in Computational Mathematics
- Advisor: Prof. Hongyang Chao

Aug. 2019 - Jun. 2022

Sun Yat-sen University

Guangzhou, China

- BEng in Software Engineering

Aug. 2015 - Jun. 2019

RESEARCH INTERESTS

- **Computer Vision:** image recognition, object detection, semantic/instance segmentation.
- **Machine Learning:** self-supervised learning, out-of-distribution detection, transfer learning.

PUBLICATIONS

- **Jingyang Lin**, Yu Wang, Qi Cai, Yingwei Pan, Ting Yao, Hongyang Chao, Tao Mei. “Out-of-Distribution Detection with Hilbert-Schmidt Independence Optimization”, *submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2022, Under Review.
- Yu Wang, Jingjing Zou, **Jingyang Lin**, Qing Ling, Yingwei Pan, Ting Yao, Tao Mei. “Out-of-Distribution Detection via Conditional Kernel Independence Model”, *in Neural Information Processing Systems (NeurIPS)*, 2022, **Spotlight**. [\[pdf\]](#) [\[code\]](#)
- Yu Wang, **Jingyang Lin**, Qi Cai, Yingwei Pan, Ting Yao, Hongyang Chao, Tao Mei. “A Low Rank Promoting Prior for Contrastive Learning”, *in IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2022. [\[pdf\]](#) [\[code\]](#)
- Yu Wang, **Jingyang Lin**, Jingjing Zou, Yingwei Pan, Ting Yao, Tao Mei. “Improving Self-supervised Learning with Automated Unsupervised Outlier Arbitration”, *in Neural Information Processing Systems (NeurIPS)*, 2021. [\[pdf\]](#) [\[code\]](#)
- **Jingyang Lin**, Yingwei Pan, Rongfeng Lai, Xuehang Yang, Hongyang Chao, Ting Yao. “CORE-Text: Improving Scene Text Detection with Contrastive Relational Reasoning”, *in International Conference on Multimedia and Expo (ICME)*, 2021, **Oral**. [\[pdf\]](#) [\[code\]](#)
- Jiafeng Xie, Bing Shuai, Jian-Fang Hu, **Jingyang Lin**, Wei-Shi Zheng. “Improving Fast Segmentation Network with Teacher-Student Learning”, *in British Machine Vision Conference (BMVC)*, 2018. [\[pdf\]](#)

RESEARCH EXPERIENCE

JD AI Research, Research Intern

Beijing, China

Advisors: Yu Wang, Ting Yao, Tao Mei, Hongyang Chao

Aug. 2020 - Jul. 2022

- **Out-of-Distribution Detection via Conditional Kernel Independence Model**
 - Probed an alternative hypothesis on OOD detection by constructing a novel latent variable model based on independent component analysis (ICA) techniques.
 - Proposed a new OOD detection framework, which encoded the class condition into the probabilistic dependence model.
- **Out-of-Distribution Detection with Hilbert-Schmidt Independence Optimization**
 - Reformulated the OOD detection problem from purely a statistical independence perspective, which allowed us to model the training by resorting to a practically accessible independence measurement: HSIC metric.

- Developed a novel and simple statistical test method during inference time, which was suitable to associate with our proposed training objective.
- **A Low Rank Promoting Prior for Contrastive Learning**
 - Incorporated the low rank promoting prior into the framework of contrastive learning, and the prior is based on the hypothesis that all the samples belonging to the same instance class lie on the same subspace with a small dimension.
 - Verified the advantages of low rank hypothesis in producing robust pre-training features on multiple benchmarks with different downstream tasks.
 - Paper accepted by T-PAMI'22.
- **Improving Self-supervised Learning with Automated Unsupervised Outlier Arbitration**
 - Presented the first formal analysis of OOD issue under the currently prevailing self-supervised learning framework.
 - Proposed a lightweight latent variable model UOTA that is able to differentiate noise from original instance's semantics.
 - Paper accepted by NeurIPS'21 (poster presentation).
- **CORE-Text: Improving Scene Text Detection with Contrastive Relational Reasoning**
 - Quantitatively analyzed the sub-text problem that only localizes the fragments of text instance.
 - Designed the COntrastive RElation (CORE) module enhancing instance-aware relational reasoning in a contrastive manner, to pursue instance-level sub-text discrimination.
 - Paper accepted by ICME'21 (**oral presentation**).

JD AI Research, *Research Intern*

Advisors: Rongfeng Lai, Ting Yao, Tao Mei, Hongyang Chao

Beijing, China

Jul. 2018 - Aug. 2019

- **Local Contour Regression-based Scene Text Detection Network**
 - Proposed a local contour regression mechanism with a set of precise local regression predictions to mitigate the issue of inaccurate text boundary location.
 - Paper awarded as Best Bachelor Thesis of Sun Yat-sen University (**Top 2%**).

Sun Yat-sen University, *Research Assistant*

Advisors: Bing Shuai, Jian-Fang Hu

Beijing, China

Oct. 2017 - Jun. 2018

- **Fast Semantic Segmentation with Teacher-Student Framework**
 - Proposed a novel teacher-student learning framework for improving fast segmentation models and utilized both fine annotated data and extra unlabeled data predicted by teacher network.
 - Paper accepted by BMVC'18 (poster presentation).

SELECTED AWARDS

- **Rank #1** in open-set image classification of **Open World Vision Challenge** at CVPR 2021 *2021*
- **First Class Scholarship** of Sun Yat-sen University *2021*
- **Best Bachelor Thesis Award** of Sun Yat-sen University (**Top 2%**) *2019*

ACADEMIC SERVICES

- Conference Reviewer for NeurIPS 2022.

ADDITIONAL INFORMATION

- Deep Learning Software: Pytorch, Tensorflow
- Programming Language: Python, Matlab, C/C++