

Xiaoxiao SUN

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I am a Ph.D. student at the Australian National University (ANU), under the supervision of Dr. Liang Zheng, Prof. Hongdong Li and Dr. Vivek Sharma. I received my M.Sc from the College of Computer and Control Engineering, Nankai University (NKU) in 2018, supervised by Prof. Jufeng Yang.

RESEARCH INTERESTS

I have interest in exploring cutting-edge advancements in computer vision and machine learning. Specifically, I am deeply intrigued by **Model and Data Vulnerability Assessment**, **Learning from Synthetic Data**, and **Dataset Representation strategies**. Currently, my focus is on Data-centric computer vision, involving the creation of evaluation protocols for computer vision tasks and uncovering underlying dataset distribution patterns.

EDUCATION

09/2019- Present	Ph.D. , in College of Engineering and Computer Science, Australian National University
09/2015- 07/2018	M.Sc. , Computer Science and Technology, Nankai University
09/2011- 07/2015	B.Sc. , Information and Computing Science, Hebei University of Technology

PROFESSIONAL EXPERIENCE

07/2018- 07/2019	Visiting Fellow , in Centre for Smart System (CS2), Singapore University of Technology and Design. I worked on domain adaptation for person re-identification.
12/2022- 04/2023	Intern , in SonyAI, Tokyo, Japan. I focused on privacy assessment concerning the risk of privacy leakage under reconstruction attacks. Supervised by Dr. Lingjuan Lyu.

PUBLICATION

- Xiaoxiao Sun, Yue Yao, Shengjin Wang, Hongdong Li, Liang Zheng. "Alice Benchmarks : Connecting Real World Object Re-Identification with the Synthetic", **ICLR** 2024
- Xiaoxiao Sun*, Xingjian Leng*, Zijian Wang*, Yang Yang*, Zi Huang, Liang Zheng. "CIFAR-10-Warehouse : Towards Broad and More Realistic Testbeds in Model Generalization Analysis", **ICLR** 2024
- Xiaoxiao Sun, Nidham Gazagnadou, Vivek Sharma, Lingjuan Lyu, Hongdong Li, Liang Zheng. "Privacy Assessment on Re-constructed Images : Are Existing Evaluation Metrics Faithful to Human Perception?", (Spotlight) **NeurIPS** 2023
- Xiaoxiao Sun, Yunzhong Hou, Weijian Deng, Hongdong Li, Liang Zheng. "Ranking Models in Unlabeled New Environments", **ICCV** 2021
- Xiaoxiao Sun, Liang Zheng. "Dissecting Person Re-identification from the Viewpoint of Viewpoint", **CVPR** 2019
- Xiaoxiao Sun, Liyi Chen, Jufeng Yang. "Learning from Web Data using Adversarial Discriminative Neural Networks for Fine-Grained Classification", **AAAI** 2019
- Xiaoxiao Sun, Jufeng Yang, Ming Sun, Kai Wang. "A Benchmark for Automatic Visual Classification of Clinical Skin Disease Images", **ECCV** 2016
- Jufeng Yang, Xiaoxiao Sun, Yu-Kun Lai, Liang Zheng, Ming-Ming Cheng. "Recognition from Web Data : A Progressive Filtering Approach", **TIP** 2018
- Jufeng Yang, Xiaoxiao Sun, Jie Liang, Paul Rosin. "Clinical Skin Lesion Diagnosis using Representations Inspired by Dermatologist Criteria", **CVPR** 2018
- Jufeng Yang, Xiaoping Wu, Jie Liang, Xiaoxiao Sun, Ming-Ming Cheng, Paul L. Rosin and Liang Wang. "Self-Paced Balance Learning for Clinical Skin Disease Recognition", **TNNLS** 2019
- Jufeng Yang, Liyi Chen, Le Zhang, Xiaoxiao Sun, Dongyu She, Shao-Ping Lu, Ming-Ming Cheng. "Historical Context-based Style Classification of Painting Images via Label Distribution Learning", **ACM TMM** 2018
- Jufeng Yang, Ming Sun, Xiaoxiao Sun. "Learning Visual Sentiment Distributions via Augmented Conditional Probability Neural Network", **AAAI** 2017

PAPERS UNDER REVIEW

- Xiaoxiao Sun, Yunzhong Hou, Hongdong Li, Liang Zheng. "Label-free model evaluation with semi-structured dataset representations"

RESEARCH PROJECTS

Now November 2022	Privacy Assessment on Reconstructed Images, SonyAI/ANU, Japan/Australia <ul style="list-style-type: none">> Studying the faithfulness of existing hand-crafted metrics to human perception of privacy information from the reconstructed image comprehensively> Proposing SemSim, a learning-based and generalizable metric to assess model vulnerability to reconstruction attack <div>Supervisor : Dr. Lingjuan Lyu (SonyAI) Prof. Hongdong Li (ANU) Dr. Liang Zheng (ANU)</div>
October 2022 April 2021	Dataset Representing and Testbeds Collecting, ANU, Australia <ul style="list-style-type: none">> Proposing a new semi-structured dataset representation from image features. Integrating distribution shape, clusters, and representative samples, the proposed representation encodes abundant information for accuracy prediction tasks> Building CIFAR-10-Warehouse: collecting 180 + 25 real-world evaluation datasets from websites (cleaned) for a more comprehensive evaluation <div>Supervisor : Prof. Hongdong Li (ANU) Dr. Liang Zheng (ANU)</div>
March 2021 July 2020	Ranking Models in Unlabeled New Environments, ANU, Australia <ul style="list-style-type: none">> Studying a new problem : ranking source model performance on an unlabeled target domain> Proposing to use a labeled proxy that can give us a good estimation of model ranking. It is constructed via a search process such that the proxy data distribution is close to the target <div>Supervisor : Prof. Hongdong Li (ANU) Dr. Liang Zheng (ANU)</div>
Now July 2018	Learning from Synthetic Data, ANU, Australia <ul style="list-style-type: none">> Building a 3D data synthesis system to create high-fidelity, realistic synthetic datasets> Evaluating the influence of visual factor changes on machine vision systems based on the controllable synthetic data and design real-world models of machine vision that effectively leverage the scientific discoveries and learn better from synthetic data <div>Supervisor : Dr. Liang Zheng (ANU)</div>
June 2018 September 2015	Automatic Visual Classification of Clinical Skin Disease Images, NKU, China <ul style="list-style-type: none">> Collect a clinical skin disease images dataset SD-198 and evaluate the performance of different kinds of visual features on clinical skin diseases> Design medical representation for skin lesion recognition based on the dermatologist criteria to make the representation consistent with the observation of doctor and to improve the recognition results <div>Supervisor : Prof. Jufeng Yang (NKU) Prof. Paul Rosin (Cardiff University)</div>
December 2018 September 2016	Learning from Web Data for Object Recognition, NKU, China <ul style="list-style-type: none">> Propose a progressive filtering approach and multi-label correction strategy> Design a framework to undo the dataset bias between web and standard datasets based on domain adaption (feature-level) and unsupervised object detection (image-level) <div>Supervisor : Prof. Jufeng Yang (NKU) Prof. Mingming Cheng (NKU) Yu-Kun Lai (Cardiff University) Dr. Liang Zheng (ANU)</div>

LANGUAGES

Chinese ● ● ● ● ●
English ● ● ● ○ ○

SKILLS

- > Python, Matlab, C++, Linux
- > PyTorch
- > LaTeX, Photoshop, Unity

PROFESSIONAL SERVICE

Reviewer	CVPR, ECCV, ICCV, NeurIPS, ICLR, ICML, AAAI, IJCAI, TPAMI, TIP and PR
Organizer	2nd Workshop on Vision Datasets Understanding, CVPR 2023
language	