Jingyi Xu

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RESEARCH INTERESTS

Generative Models, Transfer/Low-shot Learning, Representation Learning

EDUCATION

Stony Brook University, United States *Sep 2019 - Jun 2024*
Ph.D, Computer Science GPA : 4.0/4.0

Nankai University, China *July 2015 - June 2019*
B.S., Computer Science GPA : 90.3/100

PUBLICATIONS

Jingyi Xu, Hieu Le, Dimitris Samaras. **Zero-Shot Object Counting with Language-Vision Models.** Currently Under Review.

Jingyi Xu, Hieu Le, Dimitris Samaras. **Assessing Sample Quality via the Latent Space of Generative Models.** European Conference on Computer Vision **(ECCV) 2024**.

Jingyi Xu, Hieu Le, Vu Nguyen, Viresh Ranjan, Dimitris Samaras. **Zero-Shot Object Counting.** IEEE Conference on Computer Vision and Pattern Recognition **(CVPR) 2023**.

Jingyi Xu, Hieu Le, Dimitris Samaras. **Generating Features with Increased Crop-related Diversity for Few-shot Object Detection.** IEEE Conference on Computer Vision and Pattern Recognition **(CVPR) 2023**.

Jingyi Xu, Hieu Le. **Generating Representative Samples for Few-shot Classification.** IEEE Conference on Computer Vision and Pattern Recognition **(CVPR) 2022**.

Jingyi Xu, Hieu Le, Mingzhen Huang, ShahRukh Athar, Dimitris Samaras. **Variational Feature Disentangling for Fine-grained Few-shot Visual Recognition.** IEEE International Conference on Computer Vision **(ICCV) 2021**.

Kai Zhao, **Jingyi Xu**, Mingming Cheng. **RegularFace: Deep Face Recognition via Exclusive Regularization.** IEEE Conference on Computer Vision and Pattern Recognition **(CVPR) 2019**.

EXPERIENCE

Research Intern **at Amazon, Seattle, WA** Summer 2023

- Work on the task of subject-driven video editing that aims at synthesizing a video based on both the given text prompt and user-specified images.
- Propose to disentangle the shape and motion of the target subject during the editing process.
- Generate a new video in which the overall motion and layout of the input video are well preserved.

Research Intern **at NEC, San Jose, CA** Summer 2021

- Aim to reduce the number of hard samples for face anti-spoofing.
- Generate adversarial features close to the hard features via the Fast Gradient Signed Method (FGSM).
- Improve the robustness of the face anti-spoofing model by fine-tuning it using the generated samples.

Research Intern **at SenseTime, Beijing** Summer 2019

- Introduce a feature generator to generate hard features by maximizing cross-entropy loss

· Fine-tune the recognition model to classify both the original features and the hard features correctly.
· Obtain discriminative features for verification via the proposed adversarial training.

***Research Intern* at Panasonic R&D Center, Singapore** Winter 2018

· Aim to improve face recognition model's performance on frontal-profile face image pairs.
· Propose a module capable of modeling the transportation between frontal-profile faces in feature space.

***Research Assistant* at University of Notre Dame, US** Summer 2018

· Construct a graphic model of R packages based on their dependency relationship.
· Evaluate the popularity of the packages according to the frequency imported by other packages.

PROJECTS

Quality Assessment using Latent Density Aug 2023 - Nov 2023

· Propose a latent density-based score function to measure the quality of generated samples quantitatively.
· Apply the proposed score function to various generative models including VAEs, GANs and diffusion models.
· Validate the advantages of the proposed method over other quality assessment methods.

Zero-Shot Object Counting with Language-Vision Models June 2023 - Aug 2023

· Introduce a novel approach to generate image prototypes based on pre-trained diffusion models.
· Use the generated image prototypes to localize relevant object crops as counting exemplars.
· Present a complete methodology for language-based zero-shot object counting.

Few-shot Learning by Intra-class Variance Disentangling Dec 2019 - March 2020

· Propose a feature augmentation method for fine-grained few-shot classification.
· Disentangle the features into two parts, *i.e.*, class-specific features and intra-class variance features.
· Generate new features by augmenting the intra-class variance part only to preserve the class identity.
· Achieve state-of-the-art performance on three fine-grained few-shot datasets.

Face Recognition via Exclusive Regularization April 2018 - July 2018

· Propose a new regularization term to increase inter-class separability for face verification.
· Enlarge the cosine distance between an identity and its nearest neighbour in an embedding space.
· Achieve state-of-the-art performance on several face recognition benchmarks.

TECHNOLOGY SKILLS

Programming Languages	Python, C/C++, Java, MATLAB, LaTeX
Tools	Pytorch, Caffe

AWARDS

First Prize of Scholarship, Nankai University	2016, 2018
Second Prize of Scholarship, Nankai University	2017
First Prize, China Undergraduate Mathematical Contest in Modeling	2017
First Prize, China College Students Mathematics Competition	2016