SHUHAN TAN

Tel: (+86)18275213691, Email: tanshh@mail2.sysu.edu.cn, Website: https://ariostgx.github.io/website

EDUCATION

Sun Yat-Sen University   Aug. 2016 - Jun. 2021
B.E. in Computer Science and Technology
Overall GPA: 91.7/100, Major GPA: 93.1/100, Overall Ranking: 2/189 (Top 1.06%)

RESEARCH INTEREST

My research interests lie in Machine Learning, Computer Vision, and Robotic Learning. I am very interested in tackling problems with real-world scale and variance. Currently, my focus is on learning transferable and generalizable models with data simulation and transfer learning.

PUBLICATIONS

1. Weakly Supervised Open-set Domain Adaptation by Dual-domain Collaboration. [Link]
   Shuhan Tan, Jiening Jiao, Wei-Shi Zheng.
   International Conference on Computer Vision and Pattern Recognition (**CVPR**), **2019**.

2. Biomarker Localization by Combining CNN Classifier and Generative Adversarial Network. [Link]
   Rong Zhang, **Shuhan Tan**, Ruixuan Wang, Siyamalan Manivannan, Wei-Shi Zheng.
   Medical Image Computing and Computer Assisted Interventions (**MICCAI**), **2019**.

3. LidarSIM: Realistic LiDAR Simulation by Leveraging the Real World. [Link]
   Sivabalan Manivasagam, Shenlong Wang, Kelvin Wong, Wenyuan Zeng, Mikita Sazanovich,
   Shuhan Tan, Bin Yang, Wei-Chiu Ma, Raquel Urtasun.
   International Conference on Computer Vision and Pattern Recognition (**CVPR**), **2020**, **Oral**.

4. Class-imbalanced Domain Adaptation: An Empirical Odyssey. [Link]
   Shuhan Tan, Xingchao Peng, Kate Saenko.
   European Conference on Computer Vision (**ECCV**), TASK-CV Workshop, **2020**.

MANUSCRIPTS

1. Anonymous submission to **CVPR 2021**.
   Shuhan Tan*, Kelvin Wong*, Shenlong Wang, Sivabalan Manivasagam, Mengye Ren,
   Raquel Urtasun.
   Topic: Traffic Scene Generation.

2. Anonymous submission to **CVPR 2021**.
   Shuhan Tan, Yujun Shen, Bolei Zhou.
   Topic: Fairness of Deep Generative Models.

RESEARCH EXPERIENCE

Fairness of Deep Generative Models   Sep. 2020 - Current
Research Assistant (Remote)   **The Chinese Unniversity of Hong Kong**
· Advisor: Prof. **Bolei Zhou**

➢ Aims to offset the biases of a pre-trained GAN model without retraining.

➢ Proposed a post-processing method with GAN interpretation, which supports the sampling of latent codes that produce images with fairer attribute distributions. Experiments show that our approach can substantially improve the fairness of image generation.

➢ Manuscript: *Submitted* to **CVPR**, 2021.

Simulation for Autonomous Driving   Oct. 2019 - Aug. 2020
Research Intern   **Uber ATG Toronto**
· Advisors: Prof. **Raquel Urtasun**, Prof. **Shenlong Wang**

- **Topic 1: Realistic Traffic Scene Generation**.
  - ➢ Aims to generate realistic traffic scenes that can be used to train or test of self-driving tasks.
  - ➢ Proposed a data-driven approach to sequentially generate traffic actors to form realistic traffic scenes given map layout. Our method is able to automatically generate realistic traffic scenes across at large scale, and used to train 3D perception model that generalize to the real world.
  - ➢ Manuscript: *Submitted* to **CVPR**, 2021.
- **Topic 2: Realistic LiDAR Simulation**.
  - ➢ Aims to build realistic LiDAR simulator and its testing methods for self-driving simulation.
  - ➢ Designed a method to simulate realistic and rare driving scenes using LiDAR Simulator and 3D assets. Created scenes are useful for efficient edge-case testing for autonomous driving.
  - ➢ Publication: **CVPR**, 2020. [Link]

Class-Imbalanced Domain Adaptation   July. 2019 - Sep. 2019
Visiting Researcher   **Boston University**

- Advisors: Prof. **Kate Saenko**, Dr. **Xingchao Peng**
  - ➢ Aims to remove impractical assumptions to achieve a more practical domain adaptation method.
  - ➢ Proposed the Class-imbalanced domain adaptation problem: how to conduct domain adaptation under both feature and label distribution gaps. Built a large benchmark for this problem with 22 cross-domain tasks. Experiments on state-of-the-art methods revel that most existing methods fail to handle this problem. Proposed a new method that consistently outperforms current methods.
  - ➢ Publication: **ECCVW**, 2020. [Link]

Domain Adaptation and Medical Imaging   Jan. 2018 - June. 2019
Undergraduate Researcher   **Sun Yat-Sen University**

- Advisor: Prof. **Wei-Shi Zheng**
- **Topic 1: Weakly Supervised Domain Adaptation**.
  - ➢ Aims to utilize domain adaptation for problems where we have partially-labeled data domains.
  - ➢ Proposed the weakly-supervised open-set domain adaptation setting, where we relax the conventional assumption that there exists a fully-labeled source domain. Designed a novel algorithm to transfer knowledge bilaterally between two partly-labeled domains, which was state-of-the-art on both standard datasets and a real-world Person Re-identification.
  - ➢ Publication: **CVPR** 2019. [Link]
- **Topic 2: Weakly Supervised Biomarker Localization**
  - ➢ Aims to predict pixel-level biomarkers locations in medical images with only image-level labels.
  - ➢ Proposed to combine a CNN classifier and a GAN such that CNN classifier and the GAN's discriminator can effectively help the encoder-decoder in the GAN to remove biomarkers.
  - ➢ Publication: **MICCAI**, 2019. [Link]

AWARDS

SenseTime Scholarship (21 out of all AI-focus undergraduate students in China)	Dec. 2020
Meritorious Award, COMAP Mathematical Contest in Modeling (top %7)	Feb. 2018
Excellent Student Scholarship, SYSU (top %5, Twice)	Aug. 2016 - Jul. 2018