



Siqi YANG

Shenzhen, China | +86 13247660756
siqi.yang@uq.net.au | siqi.vision

SUMMARY

- Three years of work experience in computer vision at ByteDance and Tencent. Work on game-character auto-creation, conditional human motion generation, and human pose estimation for virtual humans
- Five years of doctoral research experience at the University of Queensland (UQ) Australia. Research interests include robustness, domain adaptation, adversarial attack, unsupervised/weakly supervised learning, generative adversarial training (GAN), diffusion model, object detection, face detection, and medical image processing
- Published papers in tier-1 conferences, including CVPR, ECCV, AAAI
- Three CN and two HK patents are granted. Six CN patents are published
- Excellent communication and presentation skills in both Mandarin and English. Won 1st place presentation award at school level, UQ

EDUCATION

The University of Queensland (UQ), Brisbane, Australia 2016.01-2020.08

Doctor of Philosophy, Computer Science

- Supervisors: Prof. Brian C. Lovell, Dr. Arnold Wiliem
- Thesis: On the robustness of object and face detection: false positives, adversarial attacks and domain adaptability

South China University of Technology (SCUT), Guangzhou, China 2011.09-2015.07

Bachelor of Engineering, Electrical & Information Engineering

INDUSTRIAL EXPERIENCE

Tencent, Interactive Entertainment Group 2022.04-now / Shenzhen, China

Research Scientist

- Devised a robust dance-motion-graph-based algorithm to facilitate the deployment of conditional motion generation in real-world applications due to its stability
- Innovated a cutting-edge conditional diffusion-model-based auto-regressive method for music-driven long-term dance generation
- Developed diffusion-model-based text-to-motion methods, aimed at enhancing the intelligence and responsiveness of Non-Player Characters (NPCs) in video games

ByteDance, Game AI Lab 2020.11-2022.03 / Shenzhen, China

Research Scientist

- Innovated a self-supervised and domain adaptation algorithm that could automatically create a 3D avatar face according to the user's input photo
- Developed algorithms for avatar attribute manipulation, face parsing on avatars via domain adaptation, avatar postcard creation via face-swapping

Tencent, Technology Engineering Group, AI Healthcare Center 2020.05-2020.10 / Shenzhen, China

Research Intern

- Innovated an unsupervised and weakly supervised domain adaptation algorithm to adapt the segmentation and classification models from one cancer type to 18 other cancer types

RESEARCH PROJECTS

Long-term Dance Generation via Conditional Diffusion Model 2022.11-2023.07

- Proposed a conditional diffusion model for the sequence-to-sequence long-term dance generation, where the partial noising strategy learns the dependencies among music and past motions
- Proposed a novel mutual information minimization regularizer to reduce the over-dependency on past motions and thus enhance the diversity of motions
- Proposed a global-trajectory modulation layer to mitigate the foot sliding problem and motion perpetual losses to improve the quality of dance motions

Regressive Domain Adaptation for 3D Game Character Creation using Synthetic Data 2021

- We are the first to address this cross-domain game character auto-creation by utilizing low-cost game character images and parameters randomly generated from the game engine
- Proposed a game character creation framework that integrates unsupervised domain adaptation and self-supervised learning. The integration introduces domain-invariance and encourages domain-specific learning

Unsupervised Domain Adaptation for Tumour Nucleus Instance Segmentation and Classification

2020.05-2020.10

- Segmenting and classifying nuclei in histopathological images are important. However, expert annotations are expensive and labor-intensive
- Proposed an unsupervised and weakly supervised domain adaptation algorithm to adapt the segmentation and classification models from one cancer type to 18 other cancer types

Unsupervised Domain Adaptation Method for Object Detection

2018.09-2019.09

- Proposed an unsupervised domain adaptation method for Faster R-CNN to reduce the expensive annotation cost
- Proposed a cyclic adaptation method with meta-learning and pseudo labels for instance-level adaptation and adversarial training for image-level alignment
- Evaluated the method on different scenarios: natural images to cartoon/watercolor images, synthetic to real images, and different weather conditions

Adversarial Attacks for Object and Face Detection

2017.08-2018.07

- By adding imperceptible perturbations to images, the objects would not be detected by the object detectors
- Analyzed and provided theoretical explanations for why the existing attack methods failed

Reducing False Positive of Face Detection

2016.07-2017.07

- False positives are annoying and affect the accuracy of the subsequent tasks
- Proposed to cascade the off-the-shelf face detectors

PUBLICATIONS

- **LongDanceDiff: Long-term Dance Generation via Conditional Diffusion Model**
Siqi Yang, Zejun Yang and Zhisheng Wang
Preprint, 2023
- **Regressive Domain Adaptation for 3D Game Character Auto-Creation using Synthetic Data**
Siqi Yang, Feng Xiong, Yongqiang Gao, Yongqiang Mou and Hongliang Li
Preprint, 2022
- **Minimizing Labeling Cost for Cross-domain Nucleus Instance Segmentation and Classification**
Siqi Yang, Jun Zhang, Junzhou Huang, Brian Lovell and Xiao Han
AAAI Conference on Artificial Intelligence (AAAI), 2021
- **Unsupervised Domain Adaptive Detection using Forward-Backward Cyclic Adaptation**
Siqi Yang, Lin Wu, Arnold Wiliem and Brian C. Lovell
Asian Conference on Computer Vision (ACCV), 2020
- **Using LIP to Gloss Over Faces in Single-Stage Face Detection Networks**
Siqi Yang, Arnold Wiliem, ShaoKang Chen and Brian C. Lovell
European Conference on Computer Vision (ECCV), 2018
- **It Takes Two to Tango: Cascading Off-the-shelf Face Detectors**
Siqi Yang, Arnold Wiliem and Brian C. Lovell
Computer Vision and Pattern Recognition (CVPR) Workshop on Biometrics, 2018
- **TV-GAN: Generative Adversarial Network Based Thermal to Visible Face Recognition**
Teng Zhang, Arnold Wiliem, Siqi Yang and Brian C. Lovell
International Conference on Biometrics (ICB), 2018
- **The GIST of Aligning Faces**
Siqi Yang, Arnold Wiliem and Brian C. Lovell
International Conference on Pattern Recognition (ICPR), 2016
- **To face or not to face: Towards Reducing False Positive of Face Detection**
Siqi Yang, Arnold Wiliem and Brian C. Lovell
Image and Vision Computing New Zealand (IVCNZ), 2016
- **Landmark Manifold: Revisiting the Riemannian Manifold Approach for Facial Emotion Recognition**
Kun Zhao, Siqi Yang, Arnold Wiliem and Brian C. Lovell
International Conference on Pattern Recognition (ICPR), 2016

PATENTS

- **Granted:** CN112215212B, CN112215212B, CN113409437B, HK40037354, HK40053219
- **Published:** CN114693876A, CN114092712A, CN114049417A, CN114863214A, CN115253303A, CN115311127A

HONORS & AWARDS

- **Rank 3rd** in Visual Domain Adaptation (VisDA2018) detection challenge at ECCV 2018 2018
- **1st Place Presentation** in research theme: Information Engineering, EAIT Postgraduate Conference, UQ 2017
- Successful Participant Prize (approximately 40% of teams), Mathematical Contest in Modeling (MCM), USA 2014
- Third Prize, University Level, Mathematical Contest in Modeling of SCUT 2013
- Second and Third Class Scholarship of SCUT 2011, 2013
- Excellent Student, Excellent Student Leader of SCUT 2012, 2013

TEACHING & LEADERSHIP EXPERIENCE

- Teaching Assistant**, *The University of Queensland* 2017
- Computer Vision & Image Processing (ELEC4630) and Digital Signal Processing (ELEC4620).
- Student Advisor**, *School of ITEE, The University of Queensland* 2017-2019
- Lead of Social Event Team**, *Student Union of School of Electronic & Information Engineering, SCUT* 2011-2013
- Short-term Voluntary Teaching in Rural China** 2012.07-2012.08

SKILLS

PROGRAMMING LANGUAGES *Experienced:* Python | Matlab *Familiar:* C++ | Java | Bash | VHDL

FRAMEWORKS & LIBRARIES Tensorflow | PyTorch | Keras | Caffe | OpenCV | Matplotlib | Numpy | Pandas | Scikit-learn

TOOL Visual Studio | Eclipse | Xilinx ISE | Xilinx Vivado | Adobe Photoshop | Adobe Illustrator

LANGUAGES *Native:* Mandarin, Cantonese *Fluent:* English (IELTS 7.0)