DinghaoYang

Curriculum Vitae

School of Electronic and Computer Engineering, Peking University
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EDUCATION

Peking University — **Shenzhen, China**
M.Phil in Computer Science — *Sep. 2020 - Present*

Tongji University — **Shanghai, China**
B.Eng. in Software Engineering — *Sep. 2016 - Jul. 2020*
GPA: 4.68/5.0 (91.8/100), rank: 8/179 (Top 4.5%)

Relevant Coursework: Calculus(A), Discrete Mathematics(A), Probability and Statistics(A), Combinatorics(A), Object-Oriented Programming(A), Data Structures(A), Algorithm Design And Analysis(A), Software Engineering(A), Human-Computer Interaction(A), Databases(A), Digital Image Processing(A), Computer Graphics(A) et al.

National University of Singapore — **Singapore**
AI Summer School — *Jul. 2019*

Relevant Coursework: Machine Learning, Deep Learning, Computer Vision et al.
Industry Hands-on: Nvidia Fundamentals of Deep Learning for Computer Vision (Certificated)

RESEARCH EXPERIENCE

iLab — **Tongji Univ, Shanghai**
Advisor: Prof.Jianwei Lu, School of Software Engineerning — *Aug. 2018 - Oct. 2019*

- Focus on computer vision and medical image processing
- Apply neural network and deep learning on medical image analysis, and I mainly take part in two projects: pulmonary nodule classification and prostatic cancer segmentation.

Graphic Image Research Center — **Tongji Univ, Shanghai**
Advisor: Prof.Jinyuan Jia, School of Software Engineerning — *Oct. 2018 - Jul. 2019*

- Focus on augmented reality and WebAR
- I do some exploratory develop on WebAR, mainly using AR.js, WebARonARCore, and solve some problems, e.g. multiple action control of gltf model with AR.js.

Peng Cheng Lab — **Shenzhen**
Advisor: Prof.Wei Gao, Peking University — *Oct. 2019 - Jul. 2020*

- Focus on 3D vision and point cloud
- I apply manifold learning and graph neural network on point cloud analysis, and I'm working on point cloud compression now.

HONORS & AWARDS

- 17' National Second Prize in China Mathematical Contest in Modeling, Ministry of Education **(Top 6.5%)**
- 17, 18' First-Class Scholarship, Tongji University **(Top 5%)**
- 17, 18' Social Activity Scholarship, Tongji University **(Top 5%)**
- 17, 18', 19' Excellent Undergraduate Student , Tongji University **(Top 5%)**
- 18' Tianchi Big Data Competetion ICPR MTWI 2018 Word Detection Top 7%, Alibaba Cloud
- 18' Excellent Leader of Microsoft Student Club, MSRA
- 18' Microsoft Practice Space Outstanding Winner, MSRA **(10 of 119)**

- 18' Shanghai First Prize in China Mathematical Contest in Modeling, Shanghai Education Committee (Top 10%)
- 19' National Undergraduate Innovation Programs, Tongji University **(Top 5%)**
- 19' Shanghai Scholarship, Shanghai Education Committee **(Top 1%)**
- 20' Excellent graduate of Shanghai, Shanghai Education Committee **(Top 5%)**

PROJECTS

OCR on Video *Dec. 2017 – Mar. 2018*

Advisor: Researcher Chao Chen, Researcher Alan Ip, MSRA

- Outstanding winner of Microsoft Student Practice Space, focusing on extracting video caption.
- Based on top-hat transform, and using perceptive hash algorithm for caption deduplication, our algorithm achieving more than 390 frames per second, and the F1 score is higher than 95%.

Prostatic Cancer Segmentation *Oct. 2018 – Oct. 2019*

Advisor: Prof.Jianwei Lu, Dr.Guokai Zhang, iLab, Tongji University

- A project about semantic segmentation of prostatic cancer, focusing on predicting the cancer region and predicting the best point for prostate puncture.
- we use U-net as the backbone network, and add Grad-CAM to generate the probability image.

Parking-slot Image Generator *May. 2019 – Jun. 2019*

Advisor: Prof.Lin Zhang, Tongji University

- Pixel-level domain adaptation: A study case on generating parking-slot image samples.
- I use Unity to generate virtual parking-slot images, and apply GAN based network to realize domain adaptation.
- Based on CycleGAN, I use resnet to extract features of generated images and target domain images, and add a new feature loss to reduce the difference of feature.

Learned Image Compression *Mar. 2020 – Apr. 2019*

Advisor: Prof. Wei Gao, Peking University

- One paper is accepted by CVPR workshop and challenge on learned image compression, low-rate compression track.
- Based on VAE autoencoder (Balle et.al.), we augment the model with compact/super-resolution pre-and-post-processing, phase congruency (edge information), and non-local attention modules.
- I am mainly responsible for the design and implementation of the non-local module and docker configuration. Moreover, I implement a GAN architecture for this task.

PUBLICATIONS

- Guokai Zhang, WeiGang Wang, **Dinghao Yang** et al. *A Bi-attention Adversarial Network for Prostate Cancer Segmentation*. IEEE Access 7, 131448-131458.
- Wei Gao, Lvfang Tao, Linjie Zhou, **Dinghao Yang** et al. *Low-Rate Image Compression With Super-Resolution Learning*. CVPRW 2020.
- **Dinghao Yang**, Wei Gao, *Manifold-Net: Using Manifold Learning on Point Cloud Classification*. AAAI 2021(Under review).

TECHNICAL STRENGTH

- Programming Languages: Python, C/C++, C#, Matlab, Java, HTML/CSS, Javascript, LaTeX
- Platforms: Linux, Windows, macOS, Android
- Packages & Tools: Tensorflow, Keras, PyTorch, OpenCV, Git

ADDITIONAL

- I receive a offer of computer vision research intern from **Megvii (Face++)** in Sep. 2019