DinghaoYang

Curriculum Vitae

School of Electronic and Computer Engineering, Peking University
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EDUCATION

Tongji University — **Shanghai, China**
B.Eng. in Software Engineering — *Expected Graduation: Jun. 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.

Peking University — **Shenzhen, China**
M.Phil in Computer Science — *Expected Start: Sep. 2020*

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, introduced in Project part.

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 lead a team to do some exploratory develop on WebAR, mainly using AR.js, WebARonARCore. And solved 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 - Present*

- 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' Ali Tianchi Big Data Competetion ICPR MTWI 2018 Word Detection 101/1424, ICPR2018 (TOP 7%)
- 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 certified as eligible, 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

- A project of Microsoft Student Club Practice Space, focusing on extracting video caption.
- Got Outstanding winner prize(10 of 119 teams)
- 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%.

Pulmonary Nodule Classification *Aug. 2018 – May. 2019*

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

- A project about automatic pulmonary nodule classification, using neural network and attention mechanism.
- Proposed two attention mechanism operations, the first attention operation extracts the varied contextual and salient spatial features with our designed spatial pyramid attention block (SPAB). The second attention operation utilizes the semantic attributes as additional information cues to weight the malignancy features which is called the attribute attention block (AAB).
- Achieved competitive performance compared with state-of-the-art methods, on the LIDC dataset. And a paper has been submitted.

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

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

- A project about semantic segmentation of prostatic cancer, focusing on predicting the cancer region and predicting the best point for prostate puncture.
- Used Mask-RCNN and U-net as the backbone network, and added Grad-CAM to generate the probability image.
- Basked on the MRI prostate cancer dataset, used 3D network architecture, could predict the volume of cancer region. And a paper has been submitted.

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

Advisor: Prof.Lin Zhang, Tongji Univ

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

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.

ACTIVITIES

Microsoft Student Summer Camp **Microsoft Research Asia, Beijing**
Participant *Aug. 2018*

- I was a participant of Microsoft Student Summer Camp 2018 at MSRA, and developed a wildlife identification application during this summer camp.

Microsoft Student Club **Tongji Univ,Shanghai**
Leader *Jun. 2018 - Jun. 2019*

- Responsible for organizing club,managing every aspect of the club.

TECHNICAL STRENGTH

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

ADDITIONAL

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