Yunhao Ge

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Education

Shanghai Jiao Tong University *Shanghai, China*

MASTER OF PHYLOSOPHY (MPhil), Robotics and Intelligence Group, Robotics Institute *Sep. 2016 - Jun. 2019(expected)*

- Overall **Ranking 6th/210** | GPA: Mechanical 3.43/4 | Computer science courses 3.80/4
- Advisor: Prof. Weixin Yan & Prof. Yanzheng zhao

Shandong University *Jinan, China*

BACHELOR OF SCIENCE(Bsc), Mechatronics *Sep. 2012 - Jun. 2016*

- Overall **Ranking 1st/66** | GPA: Overall: 86.08/100 | Major: 94.42/100
- Honor: Outstanding Undergraduate Thesis Award

Research Interests

My research interests broadly include Machine learning, Deep Learning, Medical image analysis and Robotics. Currently, I am focusing on interdisciplinary researches at Deep Learning and Medical Image Analysis.

Publications

[1] Unpaired Whole-body MR to CT Synthesis with Correlation Coefficient Constrained Adversarial Learning *SPIE-Medical Imaging (accepted oral)*

Yunhao Ge, Zhong Xue, Tuoyu Cao, Shu Liao PDF *Aug. 2018*

[2] Unpaired MR to CT Synthesis with Explicit Structural Constrained Adversarial Learning *IEEE International Symposium on Biomedical Imaging (ISBI) (under review)*

Yunhao Ge*,Dongming Wei*, Zhong Xue, Qian Wang, Shu Liao (*=equal contribution) PDF *Oct. 2018*

[3] Automatic Detection and Segmentation of rectal cancer based on combination of Deep Neural Network and Machine learning methods *Medical Image Analysis (under review)*

Yunhao Ge, Bin Li, Weixin Yan PDF *Jun. 2018*

[4] A Real-time Gesture Prediction System Using Neural Networks and Multimodal Fusion based on data glove *IEEE International Conference on Advanced Computational Intelligence (ICACI'18)*

Yunhao Ge, Bin Li, Weixin Yan, Yanzheng Zhao PDF Paper Link *Mar. 2018*

[5] Melanoma Segmentation and Classification in Clinical Images Using Deep Learning *ACM International Conference on Machine Learning and Computing (ICMLC'18)*

Yunhao Ge, Bin Li, Enguang Guan, Weixin Yan, Yanzheng Zhao PDF Paper Link *Jan. 2018*

[6] Benign and Malignant Mammographic Image Classification Based on Convolutional Neural Networks *ACM International Conference on Machine Learning and Computing (ICMLC'18)*

Bin Li, **Yunhao Ge**, Enguang Guan, Weixin Yan, Yanzheng Zhao PDF Paper Link *Jan. 2018*

[7] Effect of Mechanical Error on Dual-Wedge Laser Scanning System and Error Correction *Applied Optics*

Yunhao Ge, Jihao Liu, Fenfen Xue, Enguang Guan, Weixin Yan, Yanzheng Zhao PDF Paper Link *June. 2018*

[8] Dynamic Drive Performances of the Bionic Suction Cup Actuator Based on Shape Memory Alloy *Intelligent Robotics and Applications*

Yunhao Ge, Jihao Liu, Bin Li, Huihua Miao, Weixin Yan, Yanzheng Zhao PDF Paper Link *Aug. 2017*

Research Projects

Unpaired Cross modality Image Synthesis

Advisor: Dinggang Shen *June. 2018 - Nov. 2018*

- Proposed an explicit structural constrained adversarial learning method to address the mismatch of anatomical structures in the synthesized results which is unique in MR to CT image synthesis
- Designed a novel correlation coefficient loss and a shape discriminator incorporating the shape consistency to overcome the big variance in whole body image mapping and reduce the MAE from 107.03 to 78.34

Automatic Detection and Segmentation of Rectal Cancer

Advisor: Hongtao Lu, Weixin Yan *Jan. 2018 - Jul. 2018*

- Designed a Co-predicted neural network which using complementary decision algorithm imitating the diagnostic process of doctors to improve image-level detection accuracy
- Proposed an automatic detection and segmentation algorithm with multimodality medical image input and multialgorithm fusion, which achieved the rectal cancer detection accuracy improved from 88% to 92% as well as the segmentation AP from 0.4 to 0.7

Real-time Gesture Prediction on Medical Robotics

Advisor: Weixin Yan *Nov. 2017 - Mar. 2018*

- Proposed a real-time gesture prediction system achieving 99.9% accuracy in judging the intention of hand motion and predicting the exact final gesture before the end of hand movement
- Combined Position, velocity, acceleration and the adjacent finger-coupling feature information as well as fused neural network and multiclass support vector machine (SVM) to make multi-level decision which shorten the reaction time in 0.1ms

Classification and Segmentation: Computer-Aided Diagnosis and Deep Learning

Advisor: Weixin Yan *Mar. 2017 - Dec. 2017*

- Built four CNN models to study the impact of depth and hidden layer structure on model performance and achieved a balance of high sensitivity (90.63%) and high specificity (87.67%), and improved accuracy from 86.7% tp 89.05% in mammographic images diagnose
- Proposed a deep learning computer aided diagnosis system (CADs) for automatic segmentation and classification of melanoma lesions by combining high level features, the DLCM features, statistical and contrast location features

Skills

Programming Python (Numpy, Pytorch, Tensorflow, Caffe, Keras, Sklearn), OpenCV, PyQt, Matlab, C, C++, CUDA, Shell, LaTeX

Design Solidworks, CAD, UG, Ansys

Honors & Awards

SCHOLARSHIPS

Sep 2017	**National Scholarship(Graduate),** top 1% nationwide	*Shanghai, China*
Sep 2015	**National Scholarship(UnderGraduate),** top 2% nationwide	*Jinan, China*
Sep 2015	**Presidential Scholarship,** top 0.2% in Shan Dong University	*Jinan, China*
Sep 2015	**BaoGang Excellent student Scholarship,** Only 4 excellent students awarded in Shandong University	*Jinan, China*
May 2018	**KaiYuan Motivational Scholarship,** top 0.5% in Shanghai Jiao Tong University	*Shanghai, China*
2013-2015	**First Prize Scholarship,** three-year continuous	*Jinan, China*

CONTESTS

Aug 2017	**The first prize,** 2017 ROBOMASTER **The World's Leading Robotics Competition** (Responsible for the design of electronic control in robotics)	*Shenzhen, China*
Mar 2018	**Rank 1st (preliminary competition),** Tianchi: Precision medical competition-Artificial Intelligence Aided genetic risk prediction of diabetes **Pred-diabetes**	*Shanghai, China*
Oct 2015	**The first prize,** 9th international college students ican innovation and entrepreneurship contest	*Beijing, China*

Patent & software

Pulmonary Nodular Assisted Detection System Based on AI(V1.0) *Software*

Bin Li, **Yunhao GE** 2018SR037095 *Jan. 2018*

A two-layer barrier free parking robotics based on bionic manipulator *Patent for invention*

Yunhao GE, Shangze Yang, Zheng Zhang, Weixin Yan, Yanzheng Zhao CN201610712048 *Jan. 2017*