

Yunhao Ge

THIRD YEAR M. PHIL STUDENT

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Education

Shanghai Jiao Tong University

MASTER OF SCIENCE(MSC), ROBOTICS AND INTELLIGENCE GROUP, ROBOTICS INSTITUTE

Shanghai, China

Sep. 2016 - Jun. 2019(expected)

- Overall **Ranking 6th/210**
- Advisor: Prof. Weixin Yan & Prof. Yanzheng zhao

Shandong University

BACHELOR OF SCIENCE(BSC), MECHATRONICS

Jinan, China

Sep. 2012 - Jun. 2016

- GPA: Overall: 86.3/100 | Major: 94.4/100 | **Ranking 1th/66**
- Honor: Outstanding Undergraduate Thesis Award

Research Interests

My research interests broadly include Artificial Intelligence, Deep Learning, Machine learning. Currently, I am focusing on interdisciplinary researches at medical image analysis and artificial intelligence. I'm most excited about practical and fundamental improvements of machine learning.

Publication

Unpaired MR to CT synthesis with multi-view adversarial learning

YUNHAO GE, ZHONG XUE, YIQIANG ZHAN, XIANG ZHOU

SPIE-Image Processing

Aug. 2018(under review)

Automatic Detection and Segmentation of rectal cancer based on combination of Deep Neural Network and Machine learning methods

YUNHAO GE, BIN LI, WEIXIN YAN, TIANYE NIU

Medical Image Analysis (SCI)

Jun. 2018(under review)

A Real-time Gesture Prediction System Using Neural Networks and Multimodal Fusion based on data glove

YUNHAO GE, BIN LI, WEIXIN YAN, YANZHENG ZHAO [PAPER](#)

IEEE 10th International Conference on Advanced Computational Intelligence (ICACI'18)

Mar. 2018(Published)

Melanoma Segmentation and Classification in Clinical Images Using Deep Learning

YUNHAO GE, BIN LI, ENGUANG GUAN, WEIXIN YAN, YANZHENG ZHAO [PAPER](#)

ACM 10th International Conference on Machine Learning and Computing (ICMLC'18)

Jan. 2018(Published)

Benign and malignant mammographic image classification based on Convolutional Neural Networks

BIN LI, YUNHAO GE, ENGUANG GUAN, WEIXIN YAN, YANZHENG ZHAO [PAPER](#)

ACM 10th International Conference on Machine Learning and Computing (ICMLC'18)

Jan. 2018(Published)

Effect of Mechanical Error on Dual-Wedge Laser Scanning System and Error Correction

YUNHAO GE, JIHAO LIU, WEIXIN YAN, YANZHENG ZHAO [PAPER](#)

Applied Optics (SCI)

June. 2018(Published)

Interactive Experience across Modern Age and Tradition: Application of Arduino in Shadow Play

KUN YIN, YUNHAO GE, HESHAN LIU, YONGQUAN YIN [PAPER](#)

Advances in Mechatronics and Machinery

Jun. 2017(Published)

Dynamic Drive Performances of the Bionic Suction Cup Actuator Based on Shape Memory Alloy

YUNHAO GE, JIHAO LIU, HUIHUA MIAO, WEIXIN YAN, YANZHENG ZHAO [PAPER](#)

Intelligent Robotics and Applications

Aug. 2017(Published)

Research Projects

Unpaired Cross Modality (MRI TO CT) Mapping with (Unsupervised/ self-supervised) Adversarial Learning

The University of North Carolina at Chapel Hill, USA

ADVISOR: DINGGANG SHEN

June. 2018 - Oct. 2018

- Focus on the accuracy problem of whole-body(big variance) MR to CT synthesis with unpaired data
- Proposed a novel correlation coefficient loss to directly enforce the structural similarity between source image and synthesized target image based on Cycle-Gan
- Added a discriminator to distinguish the consistent feature from source and target modalities to make self-supervised constrain guaranteeing the consistency of source and synthesized image, to reduce MAE from 110 to 50.

Automatic Detection and Segmentation of Rectal Cancer based on Multimodality Fusion and deep neural network

Shanghai Jiao Tong University, China

ADVISOR: TIANYE NIU, WEIXIN YAN

Jan. 2018 - Jul. 2018

- Proposed a co-predicted neural network, which consists of two parallel prediction algorithms, to imitate the diagnostic process of doctors by fusing multimodality MRI (T1 weighted (T1-w), T2 weighted (T2-w) and diffusion-weighted imaging (DWI)) information
- Combined different detection algorithms (CNNs and machine learning methods)

Real-time Gesture Prediction on Medical Robotics

Shanghai Jiao Tong University, China

ADVISOR: WEIXIN YAN

Nov. 2017 - Mar. 2018

- Proposed a novel real-time gesture prediction system to judge the intention of hand motion and predict the exact final gesture before the end of hand movement
- Combined Position, velocity, acceleration and the adjacent finger-coupling feature information by feature engineering
- Combined neural network and multiclass support vector machine (SVM) algorithms are used as prediction model

Classification and Segmentation: Computer-Aided Diagnosis and Deep Learning

Shanghai Jiao Tong University, China

ADVISOR: WEIXIN YAN

Mar. 2017 - Dec. 2017

- Using convolutional neural networks (CNNs) to classify abnormalities, benign or malignant, in mammographic images
Build four CNN models to study the impact of depth and hidden layer structure on model performance
Achieved a balance of high sensitivity (90.63%) and high specificity (87.67%), and improved accuracy from 86.7% to 89.05%
- Proposed a deep learning computer aided diagnosis system (CADs) for automatic segmentation and classification of melanoma lesions
Used a fully convolutional neural network (FCN) to segment ROI first
Used a convolutional neural network (CNN) to combine high level features, the DLCCM 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
Languages	Chinese(Native), English(fluent in reading and writing academic papers)

Honors & Awards

SCHOLARSHIPS

Sep 2017	National Scholarship(Graduate) , highest honor for graduates, top 1% nationwide	Shanghai, China
Sep 2015	National Scholarship(UnderGraduate) , highest honor for undergraduates, top 2% nationwide	Jinan, China
Sep 2015	Presidential Scholarship , highest honor in Shan Dong University, 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 innovation and entrepreneurship contest	Beijing, China
Aug 2015	The Special prize(Top 1%) , 6th National University Students Process Equipment Practice and Innovation Competition	Nanchang, China
Aug 2015	The Silver prize , 8th national college students in energy saving social practice and science and technology competition	Harbin, China