# Heng YU

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## EDUCATION

**Robotics Institute, School of Computer Science, Carnegie Mellon University** *Aug.2021 – **present***

- MS in Robotics, Major GPA: 4.25/4.33

**School of Information Science and Technology, Tsinghua University** *Aug.2014 – Jul.2018*

- BE in Automation Department, Major GPA: 3.8/4.0 (top 10%), class ranking: 1/24

## RESEARCH EXPERIENCES

**Computational Behavior Lab, Robotics Institute, Carnegie Mellon University** *Nov.2021 – **present***

Research Assistant, Advisor: Prof. Laszlo Jeni

- Research on neural implicit representations for 3D scenes and controllable neural rendering for avatar animation

**Institute of Medical Robotics, Shanghai Jiao Tong University** *Sep.2021 – Feb.2022*

Research Assistant, Advisor: Prof. Guangzhong Yang , Prof. Cheng Jin

- Research on graph neural networks for liver cancer digital pathology analysis

**Martinos Center for Biomedical Imaging, Harvard-MIT** *Feb.2020 – **present***

Research Assistant, Advisor: Prof. Berkin Bilgic, Prof. Kawin Setsompop

- Research on fast robust scan-specific MRI reconstruction

**Li Lab, Department of Radiation Oncology, Stanford University** *Nov.2018 – Jan.2020*

Research Assistant, Advisor: Prof. Ruijiang Li

- Research on clinical-level AI system for diagnosis and treatment evaluation of rectal cancer

**KLab, Robotics Institute, Carnegie Mellon University** *Jul.2017 – Sep.2017*

Summer Intern, Advisor: Prof. Kris Kitani

- Research on real-time robust pedestrian detection for body-worn smartphones

**Intelligent Vision Group, Department of Automation, Tsinghua University** *Sep.2016 – Feb.2018*

Research Assistant, Advisor: Prof. Jie Zhou, Prof. Jianjiang Feng

- Research on medical image segmentation and substance detection in left atrial appendage

## RESEARCH INTEREST

MRI Reconstruction and Medical Image Analysis / Computer Vision / AI for Healthcare

## WORK EXPERIENCES

**Fujitsu Research of America, Inc.** *May.2022 – Aug.2022*

Research Intern, Collaborator: Dr. Koichiro Niinuma

- Research on controllable neural radiance fields for face avatars

**Sangfor Technologies Inc., Shenzhen** *May.2021 – Aug.2021*

Machine Learning Engineer, Collaborator: Dr. Cheng Chi

- Research on evading web application firewalls with reinforcement learning

**Tsingh Technology Co., Ltd, Beijing** *Jul.2018 – Apr 2021*

Co-founder and Machine Learning Engineer, Collaborator: Dr. Baohua Chen, Dr. Lei Deng

- Work on AI algorithms for smart logistics

**Nebula Link Technology, Beijing,** *Feb.2018 – Jun 2018*

Research Intern, Collaborator: Dr. Yizhi Wang, Dr. Mengkai Shi

- Research on vehicle detection and traffic parameter calculation

## SELECTED PUBLICATIONS AND MANUSCRIPTS († REFERS TO CO-FIRST AUTHOR)

- **H. Yu**, J. Julin, Z. Milacski, K. Niinuma, L. Jeni. *DyLiN: Making Light Field Networks Dynamic.* Submitted to **CVPR** 2023
- **H. Yu**, Y. Arefeen, B. Bilgic. *SubZero: Subspace Zero-Shot MRI Reconstruction.* Submitted to **ISMRM** 2023

- **H. Yu**, K. Niinuma, L. Jeni. *CoNFies: Controllable Neural Face Avatars.* **FG** 2023
- **H. Yu**, D. Fan, W. Song. *GPU-Net: Lightweight U-Net with more diverse features.* **MIUA** 2022
- Y. Arefeen, O. Beker, J. Cho, **H. Yu**, E. Adalsteinsson, B. Bilgic. *Scan-specific artifact reduction in k-space (SPARK) neural networks synergize with physics-based reconstruction to accelerate MRI*. **Magnetic Resonance in Medicine**, 2022
- **H. Yu**, Z. Dong, Y. Arefeen, C. Liao, K. Setsompop, B. Bilgic. *eRAKI: Fast Robust Artificial neural networks for K-space Interpolation (RAKI) with Coil Combination and Joint Reconstruction.* **ISMRM** 2021 **Oral**
- C. Jin†, **H. Yu**†, J. Ke†, P. Ding†, Y. Yi, X. Jiang, X. Duan, J. Tang, D. Chang, X. Wu, F. Gao, R. Li. *Predicting Treatment Response from Longitudinal Images using Multi-task Deep Learning*. **Nature Communications**, 2021
- **H. Yu**, X. Feng, Z. Wang, H. Sun. *MixModule: Mixed CNN Kernel Module for Medical Image Segmentation*. **ISBI** 2020
- Y. Jiang†, C. Jin†, **H. Yu**†, J. Wu†, C. Chen, Q. Yuan, W. Huang, Y. Hu, Y. Xu, Z. Zhou, G. Fisher Jr, G. Li, R. Li. *Development and Validation of a Deep Learning CT Signature to Predict Survival and Chemotherapy Benefit in Gastric Cancer: A Multicenter, Retrospective Study*. **Annals of Surgery**, 2020
- C. Jin†, Y. Jiang†, **H. Yu**†, W. Wang, B. Li, C. Chen, Q. Yuan, Y. Hu, Y. Xu, Z. Zhou, G. Li, R. Li. *Deep Learning Analysis of the Primary Tumour and the Prediction of Lymph Node Metastases in Gastric Cancer.* **British Journal of Surgery**, 2020
- **H. Yu**, E. Ohn-Bar, D. Yoo, K. Kitani. *SmartPartNet: Part-Informed Person Detection for Body-Worn Smartphones.* **WACV** 2018
- C. Jin, J. Feng, L. Wang, **H. Yu**, J. Liu, J. Lu, J. Zhou. *Left Atrial Appendage Segmentation Using Cascaded Fully Convolutional Neural Networks and 3D Conditional Random Fields.* **IEEE Journal of Biomedical and Health Informatics**
- C. Jin, **H. Yu**, J. Feng, L. Wang, J. Lu, J. Zhou. *Detection of Substances in the Left Atrial Appendage by Spatiotemporal Motion Analysis Based on 4D-CT*. **MICCAI** workshop 2017 **Oral**
- C. Jin, **H. Yu**, J. Feng, L. Wang, J. Lu, J. Zhou. *Left Atrial Appendage Neck Modeling for Closure Surgery*. **MICCAI** workshop 2017

## US PATENTS

**Heng Yu**, Koichiro Niinuma, Laszlo A Jeni. Anatomically Correct Neural Avatars. (processing)

## AWARDS

Gold Medal at the 8th China International College Students' 'Internet+' Innovation and Entrepreneurship Competition 2022
Honorable Mention in Mathematical Contest in Modeling 2017
Academic Scholarship in Automation Department, Tsinghua University 2016, 2017 (30/150)
National Encouragement Scholarship 2015, 2016, 2017 (5/150)
The “HAGE” Scholarship in Automation Department, Tsinghua University 2015, 2016, 2017
Social Service Scholarship in Automation Department, Tsinghua University 2015 (8/150)
Outstanding Volunteers Award in Tsinghua University 2014
Tsinghua talented student program 2014 (1/13,000)
First Prize in Chinese Chemistry Olympiad (Provincial Competition Area) 2013
Second Prize in Chinese Mathematics Olympiad (Provincial Competition Area) 2012, 2013
Second Prize in Chinese Biology Olympiad (Provincial Competition Area) 2013

## SKILLS

Programming Languages: Python, Matlab, C/C++, and basic familiarity with R.
Operating System: Linux (Ubuntu, Fedora, CentOS), MacOS, Windows.
Frameworks and Tools: PyTorch Tensorflow, Keras, MXNet.

## RELEVANT COURSEWORK

Signals and System Analysis (98/100), Process Control (98/100), Fundamentals of Engineering Graphics (98/100), C++ Programming Language (93/100), Complex Analysis (97/100), Data Structures (94/100), Interdisciplinary Research and Practice (95/100), Probability and Statistics (94/100), Computer Networks and Applications (93/100), Machine Learning* (A+/A+), Computer Vision* (A+/A+), Learning for 3D Vision* (A+/A+), Math Fundamentals for Robotics* (A/A).

** indicates graduate courses*