

Hongxu Yang | Curriculum Vitae

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Research Interests

Machine Learning, Deep Learning, Signal/Image Processing

Research Experience

Medical instrument detection in 3D US images

Eindhoven University of Technology/Philips Research, NL

Dec. 2016–Dec. 2020

Wearable Device and EEG-based authentication keys

Eindhoven University of Technology/IMEC, NL

Nov. 2015–Sep. 2016

Education

Doctor of Philosophy, Artificial Intelligence, Computer Science

Eindhoven University of Technology, NL

Eindhoven, Netherlands

Dec. 2016–Dec. 2020

Master of Science, Signal Processing, Electrical Engineering

Eindhoven University of Technology, NL

Eindhoven, Netherlands

Sep. 2014–Nov. 2016

Bachelor of Engineering, Electrical Engineering

Tianjin University/Nankai University, CN

Tianjin, China

Sep. 2010–Jul. 2014

Software Skills

Python MatLab ROS

Image Processing libraries (Scikit-learn, Scikit-image, OpenCV...)

AI Frameworks (TensorFlow, PyTorch,...)

Ph.D. Project topics

A real-time catheter segmentation method in 3D US

A Demo based on ROS

Nov. 2018–Jun. 2020

DNQ-driven semi-supervised learning-based instrument segmentation

MICCAI 2020 paper & IEEE TMI (submitted)

Nov. 2019–Jun. 2020

Efficient multi-dimensional CNN for fast instrument detection

IEEE T-BME & A Patent

Apr. 2019–Nov. 2019

A faster supervised learning-based medical instrument segmentation

ICIP 2019 & ISBI 2019 & MICCAI 2019 & MedIA (revised)

Nov. 2018–Apr. 2019

A fast voxel-of-interest-based catheter segmentation in 3D US

ICIP 2018 & IJCARS & A Patent

April. 2018–Nov. 2018

Machine learning-based medical instrument detection & model-fitting

SPIE MI 2018 & JMI

Dec. 2016–April. 2018

Patent Applications

- **Object detection ultrasound system by dimension-hybrid method:** Hongxu Yang, Alexander F Kolen, Caifeng Shan, Peter H.N. de With (filed in 2019)
- **Identifying an interventional device in medical images:** Hongxu Yang, Alexander F Kolen, Caifeng Shan, Peter H.N. de With (filed in 2018, published in 2020)

Selected Publication (first author)

- **Medical Instrument Detection in Ultrasound-Guided Interventions: A Review:** *IEEE JBHI*, to be submitted
- **DQN-Driven Medical Instrument Segmentation in 3D US by Uncertainty-aware and Contextual Constrained Semi-supervised Learning:** *IEEE TMI*, to be submitted
- **Deep Q-Network-Driven Catheter Segmentation in 3D US by Hybrid Constrained Semi-Supervised Learning and Dual-UNet:** *MICCAI 2020*
- **Efficient Medical Instrument Detection in 3D Volumetric Ultrasound Data:** *IEEE TBME 2020*
- **Efficient and Robust Instrument Segmentation in 3D Ultrasound Using Patch-of-Interest-FuseNet with Hybrid Loss:** *MedIA revised*
- **Transferring from ex-vivo to in-vivo: Instrument Localization in 3D Cardiac Ultrasound Using Pyramid-UNet with Hybrid Loss:** *MICCAI 2019*
- **Catheter localization in 3D ultrasound using voxel-of-interest-based ConvNets for cardiac intervention:** *International Journal of Computer Assisted Radiology and Surgery 2019*
- **Catheter segmentation in three-dimensional ultrasound images by feature fusion and model fitting:** *Journal of Medical Imaging 2019*

Services

Reviewer

International Conference on Medical Image Computing and Computer Assisted Intervention Apr. 2020–

Reviewer

IEEE Journal of Biomedical and Health Informatics

Mar. 2019–

Reviewer

Augmented Environments for Computer Assisted Interventions

Apr. 2019–

Language

English (fluent) Chinese (native)

Reference

Available upon a request