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, Netherlands**
Eindhoven University of Technology, NL   *Dec. 2016–Dec. 2020*

Master of Science, Signal Processing, Electrical Engineering   **Eindhoven, Netherlands**
Eindhoven University of Technology, NL   *Sep. 2014–Nov. 2016*

Bachelor of Engineering, Electrical Engineering   **Tianjin, China**
Tianjin University/Nankai University, CN   *Sep. 2010–Jul. 2014*

Software Skills

Python   MatLab   ROS
Image Processing libraries (Scikit-learn, Scikit-image, OpenCN...)
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 detectioon 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 submitted*
- **DQN-Driven Medical Instrument Segmentation in 3D US by Uncertainty-aware and Contextual Constrained Semi-supervised Learning:** *IEEE TMI 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