ZIJIAN WU

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EDUCATION

Johns Hopkins University   Sept. 2021 - present
M.S.E. in Robotics; GPA: 3.7/4.0   *Baltimore, MD, USA*

University of Electronic Science and Technology of China (UESTC)   Sept. 2016 - Jul. 2020
B.E. in Mechatronics Engineering; GPA: 3.76/4.0   *Chengdu, China*

RESEARCH PROJECTS

Strep AI - a Classification Framework for Streptococcus Infection   May. 2022 - present
Advisor: Prof. Mathias Unberath and Dr. Roger Soberanis, ARCADE Lab, JHU

- Investigated a Neural Radiance Field (NeRF) based rendering method for throat data augmentation;
- Developed an ad hoc classification framework with PyTorch for each type of specimen's data;
- Proposed an image generation workflow based on diffusion model for data standardization.

Photoacoustic Surgical Guidance System for da Vinci Robot   Jan. 2022 - Present
Advisor: Prof. Emad M. Boctor and Dr. Hamid Moradi, MUSiiC Lab, JHU

- Integrated the system with ROS and implemented the photoacoustic marker's tracking with Python;
- Developed a real-time automatic search module with MATLAB for photoacoustic marker's localization;
- Proposed a novel arc-line registration algorithm boosting time efficiency while maintaining accuracy.

WORK EXPERIENCE

School of Automation Engineering, UESTC   Aug. 2020 - Jul. 2021
Research Assistant, Vision Measuring and Learning Lab   *Chengdu, China*

- Developed a user-friendly software system for Surface Mounting Machine with Qt and OpenCV;
- Prototyped a desktop Surface Mounting Machine and optimized its lighting system.

PUBLICATIONS

1. Hamid Moradi*, **Zijian Wu***, Shoujue Yang, Hyunwoo Song, Emad M. Boctor, Septimiu E. Salcudean, "Real-time Automatic Search for Photoacoustic Marker Using Transrectal Ultrasound Actuator: an *ex vivo* Demonstration", *Biomedical Optical Express*. (Manuscript in Preparation)

2. Hyunwoo Song*, Shuojue Yang*, **Zijian Wu**, Hamid Moradi, Russell H. Taylor, Jin U. Kang, Septimiu E. Salcudean, Emad M. Boctor, "Arc-to-line Frame Registration Method for Ultrasound and Photoacoustic Image-guided Intraoperative Robot-assisted Laparoscopic Prostatectomy", *The 14th International Conference on Information Processing in Computer-Assisted Interventions (IPCAI)*. (Under Review)

3. Hamid Moradi, Hyunwoo Song, **Zijian Wu**, Keshuai Xu, Emad M. Boctor, Septimiu E. Salcudean. "Automatic Search for Photoacoustic Marker Using Transrectal Ultrasound Actuator", *2022 IEEE International Ultrasonics Symposium (IUS)*. (Abstract Accepted)

4. Yanli Gong, Hai Jiang, Yunfei Bai, **Zijian Wu**, Bei Peng, Xuan Weng. "Numerical Studies of Electrokinetically Controlled Concentration of Diluted DNA Molecules in a T-Shaped Microchannel", *IEEE Access*, vol. 8, pp. 5601-5610, 2020.

TECHNICAL SKILLS

Programming Languages: C++, Python, MATLAB, C$^{\#}$

Softwares and Tools: ROS, Git, PyTorch, Unity, OpenCV, Qt/PyQt