ZIJIAN WU

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EDUCATION

Johns Hopkins University Sept. 2021 - present
M.S.E. in Robotics; GPA: 3.72/4.0 *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 (Rank: 21/210) *Chengdu, China*

RESEARCH PROJECTS

Augmented Mirror for Medical Applications in Orthopedics Oct. 2022 - Dec. 2022
Advisor: Prof. Alejandro Martin-Gomez, Augmented Reality Course Project, JHU

- Implemented an *Augmented Mirror* to help surgeons to align surgical instruments with the target pose by rendering images from non-egocentric perspectives; Developed **Unity** package and deployed it to both PC (via webcam) and **HoloLens 2**.

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

- Developed an ad hoc classification framework with **PyTorch** for each type of specimen's data;
- Introduced Embedding Manifolds to enhance the network generalization. This work will be submitted to MICCAI 2023.

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.

PUBLICATIONS

1. Roger D. Soberanis Mukul, **Zijian Wu**, Keith Kleinman, Cody Cross, Brittany-Lee Smith, Mathias Unberath, Therese Canares,"A Novel Method to Screen for Urinary Tract Infections with Artificial Intelligence and Smartphone Images", Pediatric Academic Societies (PAS) Meeting 2023. (Abstract Accepted)
2. 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 Optics Express.* (Under Review)
3. 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)
4. 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)
5. 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.

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 Machines with **C++**, **Qt** and **OpenCV**;
- Prototyped a desktop Surface Mounting Machine and optimized its lighting system.

TECHNICAL SKILLS

Programming Languages: C++, Python, MATLAB, C#
Software and Tools: ROS, Git, PyTorch, Unity, OpenCV, Qt/PyQt