ZIJIAN WU

(667) 770 - 9251 wuzijian1231@gmail.com https://wuzijian1997.github.io/about/

EDUCATION

University of British Columbia — Defer to Next Year
Ph.D. in Electrical and Computer Engineering Advisor: Prof. Tim Salcudean — Vancouver, BC, Canada

Johns Hopkins University — Sept. 2021 - May 2023
M.S.E. in Robotics — Baltimore, MD, USA

University of Electronic Science and Technology of China (UESTC) — Sept. 2016 - Jul. 2020
B.E. in Mechatronics Engineering — Chengdu, China

WORK EXPERIENCE

Moon Surgical — June. 2023 - Present
Machine Learning Intern — San Carlos, CA, USA

- Implemented state-of-the-art machine learning models for surgical video semantic segmentation, using **PyTorch**; Designed and carried out experiments to compare the segmentation accuracy and inference speed.
- Deployed deep learning algorithms into the real-time surgical robotic system with **C++**, **CUDA**, and **TensorRT**.
- Developed the visual servoing module of the robotic arm to achieve organ centering based on real-time visual information.

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

- Implemented image processing algorithms and developed multi-process integrated software system with **C++** and **Qt**; troubleshooting of embedded software and hardware-in-the-loop system.
- Prototyped a computer vision-based desktop Surface Mounting Machine and optimized its lighting system.

SELECTED PROJECTS

Open Source Contributor for PyHealth: a Deep Learning Toolkit for Healthcare Applications
A Deep Learning Toolkit For Healthcare Applications, Advisor: Prof. Jimeng Sun, UIUC — Jun. 2023 - Present

- Integrated torchvision classification models and pretrained weights into Pyhealth;
- Implemented a prompt-based zero-shot medical image classification pipeline based on MedCLIP;
- Developed new datasets, CheXpert and MIMIC-CXR, which provide Radiology Images and associated Sentence-level Semantic Labels.

Augmented Mirror for Medical Applications in Orthopedics
Best Demo Runner-up, CS 601.654 Augmented Reality, JHU — Oct. 2022 - Dec. 2022

- 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**.

PUBLICATIONS

1. **Zijian Wu***, Hamid Moradi*, Shoujue Yang, Hyunwoo Song, Emad M. Boctor, Septimiu E. Salcudean, "Automatic Search for Photoacoustic Marker Using Automated Transrectal Ultrasound", Biomed. Opt. Express. (submitted) [Link]
2. Vincent Vousten*, Hamid Moradi*, **Zijian Wu**, Emad M. Boctor, Septimiu E. Salcudean, "Laser Diode Photoacoustic Point Source Detection: Machine learning-based Denoising and Reconstruction", Optics Express. [Link]
3. Roger Soberanis, **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. (Poster)
4. 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", IPCAI 2023, **Best Paper Runner-up Award** [Link]

* Equal Authorship Contribution

TECHNICAL SKILLS

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