Haochen Wei

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Education:

Johns Hopkins University, Baltimore, Maryland Sep 2021 - May 2023

Master of Science and Engineering in Robotics, GPA 3.80/4.00

Rensselaer Polytechnic Institute, Troy, NY Sep 2017 - May 2021

Bachelor of Science in Mechanical Engineering, GPA 3.73/4.00

Research Experience:

Sensing, Manipulation, and Real-Time Systems (SMARTS) Lab, Johns Hopkins University Feb 2022 - Now

Research Assistant, **Advisor**: Prof. Peter, Kazanzides

Project 1:

- Building an abdominal phantom with instrument tracking for laparoscopic training.
- Dock the abdominal phantom with the Asynchronous Multi-Body Framework (AMBF) and visualize both the handheld instruments and dVRK console side instruments together within the AMBF, facilitating co-training with the MTM side surgeon.
- Conduct a user study to demonstrate the effectiveness of augmented assistance in first assistant training. The results of this study were presented at the 2023 IEEE International Symposium on Medical Robotics (ISMR).

Project 2:

- Collaborated with Dr. Chen to utilize gaze tracking devices for real-time point-of-interest visualization during the training process.

Project 3:

- Collaborated with Dr. Green to design and develop an augmented reality (AR) based platform for acute vertigo tele-assessment, automating the Head Impulse test, Nystagmus test, and Test of Skew (HINTS).
- This project is currently under review for IEEE Virtual Reality 2024 (IEEE VR 2024).

Laboratory of Biomechanical and Image Guided Surgical Systems, Johns Hopkins University Sep 2022 - May 2023

Research Assistant, **Advisor**: Prof. Alejandro Martin-Gomez

- Designed an augmented reality (AR) interaction method for path planning and distance measurement within 3D Slicer.
- Utilized HoloLens 2 to create a label map, transmitted it to a desktop, and visualized it using the desktop version of 3D Slicer software.

Mechanical Aerospace and Nuclear Engineering Department, Rensselaer Polytechnic Institute Jan 2020 - May 2020

Research Assistant, **Advisor**: Assistant Prof. Mamadou Diagne

- Participated in the project to establish a math model of Sedimentation in the river.
- Designed a CAD model of a gate to control the fluid rate of a small-scale river model.

Mechanical Aerospace and Nuclear Engineering Department, Rensselaer Polytechnic Institute Aug 2020 - Dec 2020

Research Assistant, **Advisor**: Prof. Theo Borca-Tasciuc

- Assist to build a prototype of energy saving building.
- Analyzed the thermal efficiency of existing design by using NX Flow.
- Created a simple tutorial for how to use the NX Flow.

Publications:

- **Wei, H.**, Chen, C., & Kazanzides, P. (2023). An abdominal phantom with instrument tracking for laparoscopic training. In 2023 IEEE International Symposium on Medical Robotics (ISMR).
- **Wei, H.**, Bolsey, J., Kuwera, E., Kazanzides, P., & Green,K. (2023). TeleAutoHINTS: A Virtual or Augmented Reality (VR/AR) System for Automated Tele-Neurologic Evaluation of Acute Vertigo. In 2024 IEEE Virtual Reality (IEEE VR).***(Under Review)***

Work Experience:

Beijing Automotive Industry Holding Co., Ltd. Beijing, China Sep 2019 - Dec 2019

Intern of Powertrain Calibration

- Assisted in the powertrain calibration. Focused on transmission control unit calibration.
- Analyzed drivability based on IMU data.
- Preliminary research on engine emission estimation model.

Skills:

- **Programming Language:** Python, MATLAB, C++, C#
- **OS, Program & Library:** Linux, OpenCV, Unity, ROS, MRTK, PyTorch, Git, LaTeX, UGNX, SolidWorks, ZeroMQ, 3DSlicer, Blender
- **Language:** Mandarin (native speaker), English (fluently)

Honors:

- Magna Cum Laude
- Dean's Honor List on Fall 2018; Spring 2019; Summer 2019; Spring 2020