Bangquan Liao

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EDUCATION

Master of Science, Bioengineering   2024
University of Pittsburgh, Pittsburgh, PA
   Core courses: Biology of Vision; Biomedical Optical Microscopy; Imaging Cell Biology in Living Systems, Radiofrequency Medical Devices and Applications of Electromagnetics in Medicine; Multi Modal Biomedical Imaging Technologies.

Bachelor of Science, Biomedical Engineering   2022
University of Iowa, Iowa City, IA
   Honors: International Distinction in Education Award; Dean's list (Spring 2022)
   Core courses: Kinetics of Musculoskeletal System; Cardiovascular Biomechanics; Biomaterials and Implant Design, Cardiovascular Tissue Mechanics.

Skills

Language: MATLAB(Proficient), C++, Python

Software: SPSS(Proficient), AVIZO, ImageJ (Proficient), Creo (Proficient), AutoCAD, LabView

WORK & RESEARCH EXPERIENCE

Graduate Student Researcher & Research Assistant   Fall 2022 – *2024*
University of Pittsburgh, Pittsburgh, PA
- Integrated polarized light microscopy and image processing skills to explore scleral biomechanics.
- Utilized detectron2 model to preprocess the sclera images for model training.
- Utilized ImageJ and Avizo to perform image registration and segmentation to identify fiber bundles in sclera.
- Integrated ultrasound to examine the feasibility of using microbubbles to visualize blood flow at optic nerve head.
- Attended an international conferences and presented a talk to share results. (SB3C and i2Eye)

Teaching Assistant   Fall 2023
University of Pittsburgh, Pittsburgh, PA
- Assisted undergraduate students in understanding artificial heart devices and heart physiology for artificial organs class.

PROJECT EXPERIENCE

Data analysis   Spring 2022
- Applied SPSS to perform statistical tests, power analysis, and data collection to determine whether there is a long-term influence of memory ability of for adults.

Deep Vein Thrombosis Simulation Modeling   Fall 2021 – 2022
- Using Creo designed and developed an anatomically correct upper thigh physical model to simulate deep vein thrombosis.
- Provided a solution based on device regulations and standards to impractical and costly training models for healthcare providers.

Knee Brace Modification   Fall 2021
- Conducted failure analysis and troubleshooting in Creo for a knee brace and provided a solution for defects inhibiting range of motion.

Electrocardiography Design   Spring 2021
- Designed and built an ECG circuit based on technical standards to analyze the signal of heart rate and determine the range of a patient's heart rate by using Arduino and LabView.

PUBLICATIONS

1. Bangquan Liao, et al. A systematic analysis confirmed that mechanical and structural anisotropies do not concur in 37% of equatorial sclera samples. *SB³C Conference*, Lake Geneva, Wisconsin, June 11 – June 14, 2024.

2. Bangquan Liao, Yi Hua, Fengting Ji, Frederick Sebastian, Rouzbeh Amini, Ian Sigal. Anisotropy of Sclera. (In Preparation