Han Zhang



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Summary	My research focus on creating a digital twin environment for providing patient care, using methods in artificial intelligence, robotics, and mixed reality.			
Education	Ph.D. in Computer Science01/2024 – nowJohns Hopkins UniversityAffiliated with the Laboratory for Computational Sensing and Robotics.Primary advisor: Mathias Unberath			
	M.S. Biomedical Engineering Johns Hopkins University B.S. Biomedical Engineering with Honors, University of California, Davis		08/2022 - 12/2023 09/2018 - 06/2022	
Selected Awards	Personal Awards			
	2. LCSR Fellowship for Outstanding Incoming Ph.D. Students 2024 Johns Hopkins University			
	 Dean's Honor List, University of California, I Top 16% GPA in College of Engineering 	Davis	2022	
	Project Awards			
	3. Best Project Award, Computer Integrated Su Johns Hopkins University	urgery I	2023	
	2. Best Project Award, Haptic Interface Design 20 Johns Hopkins University		2023	
	1. Excellence in Manufacturing Award at Senio University of California, Davis	r Design	2021	
Service and	Societies			
Leadership	- Team Lead, Microfluidics BioInovation Group at University of Californ	ia, Davi	09/2021 - 06/2022 s	

Conference Reviewer

	 International Conference on Information Processing in Computer-A terventions (IPCAI) 	ssisted In- 2024		
Talks and	Invited Talks and Demos			
Press	4. End of Semester Social, Selected Posters and Demos 05/2024 Data Science and AI Institute, Johns Hopkins University, USA <i>"Interventional X-ray Imaging in Virtual Reality for Orthopedic Surgery"</i>			
	 3. IEEE World Haptics Conference 07/202 Delft, Netherlands "3D Hapkit: 3-degree-of-freedom (DOF) Haptic Device using a Delta Pa allel Mechanism" 			
	2. LCSR Industry Day 04/2023 Johns Hopkins University, USA "PelvisVR: Recreating Pelvic Trauma Surgery in Virtual Reality"			
	1. College of Engineering Design Showcase 06/2022 University of California, Davis, USA "THF:Radiolucent Hand and Wrist Fixation Device for Intraoperative Flu- oroscopy"			
	 Selected Press 1. Our work [C-1] presenting the first approach to surgical phase recognition in X-ray guided surgery with dynamic simulation was featured in the JHU Hub and Surgery International. 			
 Voted runner-up, Best Project Award. A Cannula Marker Body for Tracker-free Surgical Navigation during Wire Placement 	Kirschner 2024			
Haptic Interface Design EN 530.491/691, Teaching Assistant Department of Mechanical Engineering, Johns Hopkins University				
Later desting to Assessmented Deslite ENI COL 474/CF4 Course /	Fall 2023			
Department of Computer Science, Johns Hopkins University				
	Fall 2023			
PUBLICATIONS	I have (first/co)-authored 1/1 journal articles, 0/1 conference papers preprints, and I am an inventor on 2 patents or patent applications is My publication list is also available on Google Scholar.	s, and $0/1$ in process.		

Peer-reviewed Journal Articles

- [J-2]. B.D. Killeen*, H. Zhang*, L. Wang, Z. Liu, C. Kleinbeck, M. Rosen, R.H. Taylor, M. Unberath. "Stand in Surgeon's Shoes: Virtual Reality Cross-training to Enhance Teamwork in Surgery," *International Journal of Computer Assisted Radiology and Surgery*, 2024.
 Special Issue: Information Processing in Computer-Assisted Interventions (IPCAI) 2024
 Finalist, Best Paper Award at IPCAI'24.
- [J-1]. C. Kleinbeck, H. Zhang, B.D. Killeen, D. Roth, M. Unberath. "Neural Digital Twins: Reconstructing Complex Medical Environments for Spatial Planning in Virtual Reality," *International Journal of Computer Assisted Radiology and Surgery*, 2024.
 Special Issue: Information Processing in Computer-Assisted Interventions (IPCAI) 2024
 Bench-to-Bedside Award at IPCAI'24.

Peer-reviewed Conference Papers

[C-1]. B.D. Killeen, H. Zhang, J.E. Mangulabnan, M. Armand, R. Taylor, G. Osgood, M. Unberath. "Pelphix: Surgical Phase Recognition from X-ray Images in Percutaneous Pelvis Fixation," *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2023. Featured in the JHU Hub and Surgery International.

Preprints

[M-1]. B.D. Killeen, L.J. Wang, H. Zhang, M. Armand, R.H. Taylor, G. Osgood, M. Unberath. (2024). FluoroSAM: A Language-aligned Foundation Model for X-ray Image Segmentation. arXiv preprint, 2024, arXiv:2403.08059.