

SUE MIN (JASMINE) CHO

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EDUCATION

Johns Hopkins University, Baltimore, MD, USA August 2021 - Present
Ph.D. student in Computer Science, advised by Dr. Mathias Unberath and Dr. Russell H. Taylor

Johns Hopkins University, Baltimore, MD, USA August 2021 - May 2023
M.S.E. in Computer Science

Johns Hopkins University, Baltimore, MD, USA August 2020 - May 2021
M.S.E. in Biomedical Engineering

Johns Hopkins University, Baltimore, MD, USA August 2015 - May 2020
B.S. in Biomedical Engineering
Dean's list - Spring 2018, Fall 2019

RESEARCH INTERESTS

My research focuses on advancing human-machine synergy in healthcare. By leveraging cognitive psychology, computer vision, and human-machine interaction, I create solutions grounded in human-centered design and assurance principles. My work builds the foundation for the reliable and safe integration of advanced technology into real-world applications in the socio-technical system of healthcare.

HONORS AND AWARDS

- **Rising Star Award** 2025
First Workshop on Evolving Landscape of Surgical Robotics, ICRA 2025
For research on "Enhancing Human-Machine Synergy in Surgery"
- **Whiting School of Engineering Excellence in Research Trainee Award** 2024
Johns Hopkins University, Whiting School of Engineering
For research on "Human-centered assurance in technology-assisted surgery"
- **Finalist, Best Paper Award** 2023
Information Processing in Computer-Assisted Interventions (IPCAI) 2023
For paper [J-3]
- **Laboratory for Computational Sensing and Robotics (LCSR) Fellowship** 2021
Johns Hopkins University, Whiting School of Engineering
For Outstanding Incoming Ph.D. Students
- **Michael J. Muuss Research Award** 2020
Johns Hopkins University, Whiting School of Engineering
For best application of computer science research to practice

PUBLICATIONS

I have (first/co)-authored 4/4 journal articles, 3/0 conference papers, and 0/0 preprints & under-review papers. My publication list is also available on [Google Scholar](#).

Peer-reviewed Journal Articles

- J-8 **Sue Min Cho***, Alexander Do*, Robert Grupp, Mehran Armand, Russell Taylor, Mathias Unberath.
"Uncertainty Quantification in Image-based 2D/3D Registration and Its Relationship with Accuracy."
International Journal of Computer Assisted Radiology and Surgery (2025): 1-9. * Joint first authors
[Special Issue: Information Processing in Computer-Assisted Interventions \(IPCAI\) 2025.](#)
[Audience vote for long oral presentation at IPCAI'25.](#)

- J-7 Catalina Gomez, **Sue Min Cho**, Shichang Ke, Chien-Ming Huang, Mathias Unberath. “Human-AI collaboration is not very collaborative yet: A taxonomy of interaction patterns in AI-assisted decision making from a systematic review.” *Frontiers in Computer Science*.
- J-6 Hao Ding, Lalithkumar Seenivasan, Benjamin D. Killeen, **Sue Min Cho**, and Mathias Unberath. “Digital Twins as a Unifying Framework for Surgical Data Science: The Enabling Role of Geometric Scene Understanding.” *Artificial Intelligence in Surgery*.
[Invited submission to the Special Issue on Surgical Data Science - The Art of Data.](#)
- J-5 **Sue Min Cho***, Henry H. Joo*, Pranathi Golla, Manish Sahu, Ahjeetha Shankar, Danielle R. Trakimas, Francis Creighton, Lee Akst, Russell H. Taylor, and Deepa Galaiya. “Tremor Assessment in Robot-Assisted Microlaryngeal Surgery Using Computer Vision-Based Tool Tracking.” *Otolaryngology-Head and Neck Surgery* (2024). * Joint first authors
[Selected for oral presentation.](#)
- J-4 Benjamin D. Killeen, **Sue Min Cho**, Mehran Armand, Russell H. Taylor, and Mathias Unberath. “In silico simulation: a key enabling technology for next-generation intelligent surgical systems.” *Progress in Biomedical Engineering* 5, no. 3 (2023): 032001.
[Invited submission to the Special Issue on In Silico Trials.](#)
- J-3 **Sue Min Cho**, Robert Grupp, Catalina Gomez, Mehran Armand, Greg Osgood, Russell Taylor, Mathias Unberath. “Visualization in 2d/3d registration matters for assuring technology-assisted image-guided surgery.” *International Journal of Computer Assisted Radiology and Surgery* 18.6 (2023): 1017-1024.
[Special Issue: Information Processing in Computer-Assisted Interventions \(IPCAI\) 2023.](#)
[Audience vote for long oral presentation at IPCAI’23.](#)
[Finalist, Best Paper Award at IPCAI’23.](#)
- J-2 Wenhao Gu, Alejandro Martin-Gomez, **Sue Min Cho**, Greg Osgood, Bert Bracke, Chad Josewski, Jonathan Knopf, and Mathias Unberath. “The impact of visualization paradigms on the detectability of spatial misalignment in mixed reality surgical guidance.” *International Journal of Computer Assisted Radiology and Surgery* 17, no. 5 (2022): 921-927.
[Special Issue: Information Processing in Computer-Assisted Interventions \(IPCAI\) 2022.](#)
- J-1 **Sue Min Cho**, Young-Gon Kim, Jinhoon Jeong, Inhwon Kim, Ho-jin Lee, and Namkug Kim. “Automatic tip detection of surgical instruments in biportal endoscopic spine surgery.” *Computers in Biology and Medicine* 133 (2021): 104384.

Peer-reviewed Conference Papers

- C-3 **Sue Min Cho**, Winnie Wu, Ethan Kilmer, Russell Taylor, Mathias Unberath. “Feeling the Stakes: Realism and Ecological Validity in User Research for Computer-Assisted Interventions.” To appear in: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2025*.
- C-2 **Sue Min Cho**, Russell Taylor, Mathias Unberath. “Misjudging the Machine: Gaze May Forecast Human-Machine Team Performance in Surgery.” *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*. Cham: Springer Nature Switzerland, 2024.
- C-1 Victor Nikhil Antony*, **Sue Min Cho***, Chien-Ming Huang. “Co-designing with older adults, for older adults: Robots to promote physical activity.” *Proceedings of the 2023 ACM/IEEE International Conference on Human-Robot Interaction*. 2023. * Joint first authors

Preprints & Under-review Papers

- P-1 **Sue Min Cho**, Alexander Do, Russell Taylor, Mathias Unberath. “Explainable AI for Collaborative Assessment of 2D/3D Registration Quality.” *arXiv preprint*, 2025, arXiv:2507.17597

TEACHING AND MENTORING

- **Teaching Assistant**, Johns Hopkins University, Baltimore, MD
 - Computer Integrated Surgery I (EN.601.455/655) Fall 2022
 - Computer Integrated Surgery II (EN.601.456/656) Spring 2024 & 2025
- **Course Assistant**, Johns Hopkins University, Baltimore, MD
 - Computer Integrated Surgery I (EN.601.455/655) Fall 2020, 2021, 2023 & 2024
 - Computer Integrated Surgery II (EN.601.456/656) Spring 2022 & 2023
- **Research Mentor**
 - Graduate Students
 - * Sungwoo Kim, Johns Hopkins University 5/2025 - now
 - * Winnie Wu, University of Waterloo 12/2024 - now
 - * Jennifer Ye, Johns Hopkins University 8/2024 - 8/2025
 - * Tushar Singh, Johns Hopkins University 11/2023 - 5/2024
 - * Pranathi Golla, Johns Hopkins University 10/2022 - 12/2023
 - Undergraduate Students
 - * Manuel Panora, Johns Hopkins University 07/2025 - now
 - * Alexander Do, Johns Hopkins University 06/2024 - now
 - * Lizzie Suber, Johns Hopkins University 12/2023 - now
 - * Iris Gupta, Johns Hopkins University 6/2022 - 4/2023
 - Highschool Students
 - * Travis Pennington, Baltimore City College 07/2025 - now
 - * Yudelkis Castellanos, Forest Park Senior High School 07/2025 - now
 - * Jaden Cho, Glenbrook North High School 07/2024 - 12/2024

INVITED TALKS & DEMOS

- Data Science and AI Institute (DSAI) End of Semester Social 2025
Johns Hopkins University, Baltimore, MD
“Feeling the Stakes: Contextual Realism in Human-Machine Studies for Surgery”
Audience Choice Award 1st Place
- Applications of Medical AI (AMAI) Workshop at MICCAI 2024
Marrakech, Morocco
“Human-Centered Research in Medical Imaging AI”
- FDA REALYSM Seminar 2023
Food and Drug Administration, Silver Spring, MD
“Humans and Machines – The Future of Work in the OR”
- Telemedicine and Advanced Technology Research Center (TATRC) Visit 2023
Johns Hopkins University, Baltimore, MD

- Frankfurt School of Finance & Management Visit 2023
Johns Hopkins University, Baltimore, MD
- Robotics and Industry Day 2023
Johns Hopkins University, Baltimore, MD
- Siemens Healthineers Visit 2022
Johns Hopkins University, Baltimore, MD
“Advancing Image-guided Therapy – Data, Systems, Human Factors”

LEADERSHIP & SERVICES

Organizer

- JHU ARCADE Lab Retreat 2024, 2025
- MICCAI Tutorial 2023
Vancouver, Canada
[“MIC and CAI with Humans in the Loop”](#)

Professional Society Services

- [MICCAI Student Board](#) 2025–Present
Social Events Officer

Journal Reviewer

- npj Digital Medicine
- ACM Computing Survey
- Scientific Reports
- Therapeutic Advances in Gastroenterology
- BMC Digital Health
- Journal of Clinical Monitoring and Computing
- IJHCI

Conference Reviewer

- IPCAI
- MICCAI
- CHI

Community Outreach

- Johns Hopkins University Alumni Weekend Showcase 2025
Johns Hopkins University, Baltimore, MD
- Baltimore Polytechnic Institute High School Visit 2023
Johns Hopkins University, Baltimore, MD
[“The future of surgery: Local high schoolers visit Hopkins robotics lab”](#)
- JHU Early Learning Center Visit 2022
Johns Hopkins University, Baltimore, MD
[“Future Engineers Visit Mock Operating Room”](#)