SUE MIN (JASMINE) CHO

+1 667-234-0281 ◇ scho72@jhu.edu ◇ Google Scholar

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 enhancing 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

- **Whiting School of Engineering Excellence in Research Trainee Award** 2024
  Johns Hopkins University, Whiting School of Engineering
  For "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, 2/0 conference papers, and 2/0 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." To appear in: *International Journal of Computer Assisted Radiology and Surgery.* * Joint first authors Special Issue: Information Processing in Computer-Assisted Interventions (IPCAI) 2025.

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, Inhwan 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-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-2 **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." Under-review: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2025.*

P-1 **Sue Min Cho**, Alexander Do, Russell Taylor, Mathias Unberath. "Explainable AI for Collaborative Assessment of 2D/3D Registration Quality." Under-review: *International Conference on Medical Image*

Computing and Computer-Assisted Intervention (MICCAI) 2025.

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
- **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
    - Winnie Wu, University of Waterloo — 12/2024 - now
    - Jennifer Ye, Johns Hopkins University — 8/2024 - now
    - Tushar Singh, Johns Hopkins University — 11/2023 - now
    - Pranathi Golla, Johns Hopkins University — 10/2022 - 12/2023
  - Undergraduate Students
    - 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
    - Jaden Cho, Glenbrook North High School — 07/2024 - now

INVITED TALKS & DEMOS

- 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
  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

- 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"