

# Jeremy D. Brown

(updated: August 28, 2025)

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## POSITIONS HELD

**John C. Malone Assistant Professor**, Johns Hopkins University January 2017–Present  
Department of Mechanical Engineering

**John C. Malone Assistant Professor**, Johns Hopkins Medicine January 2025–Present  
Department of Neuroscience (secondary)

**Assistant Research Professor**, Johns Hopkins University May 2016–December 2016  
Department of Mechanical Engineering

**Postdoctoral Research Fellow**, University of Pennsylvania July 2014–December 2016  
Department of Mechanical Engineering and Applied Mechanics, GRASP Laboratory (Haptics Group)  
Advisor: Katherine J. Kuchenbecker, Ph.D

## EDUCATION

**University of Michigan**, Ann Arbor, Michigan  
Ph.D., Mechanical Engineering, August 2014  
Dissertation Topic: Haptic Sensory Feedback for Improved Interface to Smart Prosthetics  
Advisor: R. Brent Gillespie

M.S.E., Mechanical Engineering: April 2012

B.S.E., Mechanical Engineering: Dual-Degree Engineering Program, December 2008 (Cum Laude)

**Morehouse College**, Atlanta, Georgia  
B.S., Applied Physics: Dual-Degree Engineering Program, December 2008 (Magna Cum Laude)

## HONORS AND AWARDS

Johns Hopkins University (JHU) Center for Engineering Outreach STEM Outreach Empowerment Faculty Award	2025
Ingenuity Project Mentoring Award	2025
IEEE Senior Member	2024
IEEE Technical Committee on Haptics (TCH) Early Career Award	2023
JHU Diversity Leadership Award	2023
Sloan Foundation Research Fellow (Neuroscience)	2022–2024
National Science Foundation (NSF) CAREER Award	2022
JHU Whiting School of Engineering/Department of Medicine Research Retreat Lab Excellence Award	2022
JHU Whiting School of Engineering (WSE) Williams H. Huggins Excellence in Teaching Award	2021
Cell Mentor’s list of “1000 Inspiring Black Scientists in America”	2021
Interdisciplinary Rehabilitation Engineering Research Career Development Program Scholar	2020–2022
University of Pennsylvania Postdoctoral Fellowship for Academic Diversity	2014–2016
Edward Alexander Bouchet National Honor Society	2013

## HONORS AND AWARDS (CONTINUED)

Best Student Paper Award, IEEE Haptics Symposium	2012
Michigan Alliance for Graduate Education and the Professoriate Imade M. Asemoto First Year Student Award	2010
National Science Foundation (NSF) Graduate Research Fellowship	2010–2013
University of Michigan Rackham Merit Fellowship	2009–2014
University of Michigan Department of Mechanical Engineering Transfer Student Award	2008
Atlanta University Center Dual-Degree Engineering Program Most Outstanding Fifth Year Student Award	2008
Pi Tau Sigma National Mechanical Engineering Honor Society	2007
Beta Kappa Chi National Scientific Honor Society	2006
University of Michigan College of Engineering Scholarship	2006–2008
NASA Ronald E. McNair Scholarship	2003–2008
Morehouse College Academic Scholarship	2003–2006

## PAPERS UNDER REVIEW

research advisees, senior author, † doctoral advisor, ‡ post-doctoral advisor

- U1 Kam, M., Ge, J., Riaziat, N. D., Opfermann, J. D., Mady, L. J., **Brown, J. D.**, Krieger, A. Autonomous Closed-Loop Control for Robotic Soft-Tissue Electro-Surgery Using RGBD Image Guidance. *IEEE Transactions on Medical Robotics and Bionics* (resubmitted following revisions December 2024)
- U2 Velsquez, L., & **Brown, J. D.** Understanding the Utility of State-Based Haptic Feedback in Tendon-driven Anthropomorphic Prostheses. *IEEE Transactions on Neural Systems and Rehabilitation Engineering* (submitted September 2024)
- U3 Velsquez, L., & **Brown, J. D.** Human-Inspired Design of Tendon-Driven Prosthetic Hands: A User-Centered Comparative Study. *IEEE Transactions on Neural Systems and Rehabilitation Engineering* (submitted May 2025)

## JOURNAL PUBLICATIONS

— At JHU —

Journal publications with advisees: Doctoral (10), Masters (5), Bachelors (1)

- J1 Lidstone, D., Singhala, M., Wang, L., **Brown, J. D.**, Mostofsky, S. H. (2025) HaptiKart: An Engaging Videogame Reveals Elevated Proprioceptive vs. Visual Bias in Individuals with Autism Spectrum Disorder. *PLOS Digital Health* (accepted)
- J2 Carducci, J., Cowan, N. J., & **Brown, J. D.** (2025) Tool compensation and user strategy during human-robot teleoperation are impacted by system dynamics and kinesthetic feedback. *IEEE Transactions on Haptics* 18, 20-31. <https://doi.org/10.1109/TOH.2025.3546522>
- J3 Cansev, M. E., Miller, A. J., **Brown, J. D.**, & Beckerle, P. (2024) Implementing social and affective touch to enhance user experience in human-robot interaction. *Frontiers in Robotics and AI* 11, 1-8. <https://doi.org/10.3389/frobt.2024.1403679>
- J4 Riaziat, N. D., Erin, O., Krieger, A., & **Brown, J. D.** (2024). Investigating Haptic Feedback in Vision-Deficient Millirobot Telemanipulation. *IEEE Robotics and Automation Letters*, 9(7), 6178-6185. <https://doi.org/10.1109/LRA.2024.3397529>

- J5 [Caccianiga, G.](#), Mooney, R. A., Celnik, P. A., Cantarero, G. L., & [Brown, J. D.](#) (2023). Anodal cerebellar t-DCS impacts skill learning and transfer on a robotic surgery training task. *Scientific Reports*, 13(1). <https://doi.org/10.1038/s41598-023-47404-1>
- J6 [Li, K.](#), & [Brown, J. D.](#) (2023). Dual-modality haptic feedback improves dexterous task execution with virtual EMG-controlled gripper. *IEEE Transactions on Haptics*, 16(4), 816-825. <https://doi.org/10.1109/TOH.2023.3328256>
- J7 Xu, J., Ma, T., Kumar, S., Olds, K., [Brown, J.](#), [Carducci, J.](#), Forrence A., & [Krakauer, J.](#) (2023). Loss of finger control complexity and intrusion of flexor biases are dissociable in finger individuation impairment after stroke. *eLife*, 12. <https://doi.org/10.7554/ELIFE.91495>
- J8 \*Invited Focus Article by editor to J.D. Brown for special issue on assistive and rehabilitative robotics: [Brown, J. D.](#), Battaglia, E., Engdahl, S., Levay, G., Parks, A. C., Skinner, E., & O'Malley, M. K. (2023). Touching reality: Bridging the user-researcher divide in upper-limb prosthetics. *Science Robotics*, 8(83), eadk9421. <https://doi.org/10.1126/scirobotics.adk9421>
- J9 [Barnes, N.](#), Young, O., Colton, A., Liu, X., Janowski, M., Gandhi, D., Sochol, R., [Brown, J.](#), & [Krieger, A.](#) (2023). Toward a novel soft robotic system for minimally invasive interventions. *International Journal of Computer Assisted Radiology and Surgery*, 18(9), 1547-1557. <https://doi.org/10.1007/s11548-023-02997-w>
- J10 [Singhala, M.](#), & [Brown, J. D.](#) (2023). Mirror-brush illusion: Creating phantom tactile percepts on intact limbs. *IEEE Transactions on Haptics*, 16(4), 665-671. <https://doi.org/10.1109/TOH.2023.3279012>
- J11 [Thomas, N.](#), [Miller, A. J.](#), Ayaz, H., & [Brown, J. D.](#) (2023). Haptic shared control improves neural efficiency during myoelectric prosthesis use. *Scientific Reports*, 13(1), 484. <https://doi.org/10.1038/s41598-022-26673-2>
- J12 [Brown, J. D.](#), & [Kuchenbecker, K. J.](#) (2023). Effects of automated skill assessment on robotic surgery training. *International Journal of Medical Robotics and Computer Assisted Surgery*, 19(2). <https://doi.org/10.1002/rcs.2492>
- J13 [Thomas, N.](#), Fazlollahi, F., [Kuchenbecker, K. J.](#), & [Brown, J. D.](#) (2023). The utility of synthetic reflexes and haptic feedback for upper-limb prostheses in a dexterous task without direct vision. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 31, 169-179. <https://doi.org/10.1109/TNSRE.2022.3217452>
- J14 [Carducci, J.](#), Olds, K., Krakauer, J. W., Xu, J., & [Brown, J. D.](#) (2022). Novel planar strain sensor design for capturing 3-dimensional fingertip forces from patients affected by hand paralysis. *Sensors*, 22(19), 7441. <https://doi.org/10.3390/s22197441>
- J15 \*Invited article from special issue guest editor: Rose, C. G., [Deshpande, A. D.](#), [Carducci, J.](#), & [Brown, J. D.](#) (2021). The road forward for upper-extremity rehabilitation robotics. *Current Opinion in Biomedical Engineering*, 19, 100291. <https://doi.org/10.1016/j.cobme.2021.100291>
- J16 [Thomas, N.](#), [Ung, G.](#), Ayaz, H., & [Brown, J. D.](#) (2021). Neurophysiological evaluation of haptic feedback for myoelectric prostheses. *IEEE Transactions on Human-Machine Systems*, 51(3), 253-264. <https://doi.org/10.1109/THMS.2021.3066856>
- J17 [Machaca, S.](#), [Ung, G.](#), & [Brown, J. D.](#) (2020). Towards an understanding of the utility of dual-modality haptic feedback in teleoperated medical devices. *IEEE Transactions on Medical Robotics and Bionics*, 2(4), 574-577. <https://doi.org/10.1109/TMRB.2020.3034254>
- J18 [Caccianiga, G.](#), Mariani, A., De Momi, E., Cantarero, G., & [Brown, J. D.](#) (2020). An evaluation of inanimate and virtual reality training for psychomotor skill development in robot-assisted minimally invasive surgery. *IEEE Transactions on Medical Robotics and Bionics*, 2(2), 118-129. <https://doi.org/10.1109/TMRB.2020.2990692>

- J19 [Thomas, N.](#), [Ung, G.](#), [McGarvey, C.](#), & [Brown, J. D.](#) (2019). Comparison of vibrotactile and joint-torque feedback in a myoelectric upper-limb prosthesis. *Journal of NeuroEngineering and Rehabilitation*, 16(1), 70. <https://doi.org/10.1186/s12984-019-0545-5>

— Before JHU —

- J20 [Brown, J. D.](#), O'Brien, C. E., Leung, S. C., Dumon, K. R., Lee, D. I., & [Kuchenbecker, K. J.](#) (2017). Using contact forces and robot arm accelerations to automatically rate surgeon skill at peg transfer. *IEEE Transactions on Biomedical Engineering*, 64(9), 2263-2275. <https://doi.org/10.1109/TBME.2016.2634861>
- J21 [Brown, J. D.](#), Shelley, M. K., Gardner, D., Gansallo, E. A., & [Gillespie, R. B.](#) (2016). Non-colocated kinesthetic display limits compliance discrimination in the absence of terminal force cues. *IEEE Transactions on Haptics*, 9(3), 387-396. <https://doi.org/10.1109/TOH.2016.2554120>
- J22 [Brown, J. D.](#), Kunz, T. S., Gardner, D., Shelley, M. K., Davis, A. J., & [Gillespie, R. B.](#) (2017). An empirical evaluation of force feedback in body-powered prostheses. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 25(3), 215-226. <https://doi.org/10.1109/TNSRE.2016.2554061>
- J23 [Brown, J. D.](#), Paek, A., Syed, M., O'Malley, M. K., Shewokis, P. A., Contreras-Vidal, J. L., Davis, A. J., & [Gillespie, R. B.](#) (2015). An exploration of grip force regulation with a low-impedance myoelectric prosthesis featuring referred haptic feedback. *Journal of NeuroEngineering and Rehabilitation*, 12(1), 104. <https://doi.org/10.1186/s12984-015-0098-1>

#### PEER-REVIEWED CONFERENCE PUBLICATIONS

[research advisees](#), [senior author](#), † doctoral advisor, ‡ post-doctoral advisor

— At JHU —

Conference publications with advisees: Doctoral (12), Masters (1), Bachelors (3), High School (1)

- C1 [Pimpalkar, A.](#), [West, A.M.](#), Xu, J., & [Brown, J. D.](#) Optimizing Cross-Modal Matching for Multimodal Motor Rehabilitation. *IEEE International Conference on Rehabilitation Robotics (ICORR)* (accepted)
- C2 [Carducci, J.](#), Krakauer, J., & [Brown, J. D.](#) A novel wrist device for characterizing the components of proprioceptive acuity. *IEEE Engineering in Medicine and Biology Conference (EMBC)* (pp. 1-7). IEEE. <https://doi.org/10.1109/EMBC53108.2024.10782537> (oral presentation by Carducci)
- C3 [Barnes, N.](#), Jiang, S., Di, L., [Qu, H.](#), Janowski, M., Berul, C. I., Colton, A., Young, O., Sochol, R., [Brown, J. D.](#), & [Krieger, A.](#) Bedside admittance control of a dual-segment soft robot for catheter-based interventions. *IEEE Engineering in Medicine and Biology Conference (EMBC)* (pp. 1-7). <http://doi.org/10.1109/EMBC53108.2024.10781921> (oral presentation by Barnes)
- C4 Bailey, F., Young, O., Andreou, J., Portwood, N., Barvenik, K., [Barnes, N.](#), Weiss, C. R., Bailey, C., Ghandi, D., Janowski, M., [Brown, J. D.](#), Tubaldi, E., Fuge, M., Kriger, A., & [Sochol, R.](#) (2024) An approach for 3D microprinting soft robotic surgical tools at 1.5 french length scales for endovascular interventions. In *IEEE International Conference on Soft Robotics (RoboSoft)* (pp. 386-391). IEEE. <https://doi.org/10.1109/RoboSoft60065.2024.10521948> (poster presented by Bailey)
- C5 Colton, A., Fitzgerald, D., Sarker, S., [Barnes, N.](#), Ghandi, D., [Brown, J. D.](#), Kanter, J., Olivieri, L., Fuge, M., Krieger, A., & [Sochol, R.](#) (2024). Towards "S"-shaped 3D-printed soft robotic guidewires for pediatric patent ductus arteriosus endovascular interventions. In *IEEE International Conference on Soft Robotics (RoboSoft)* (pp. 965-970). IEEE. <https://doi.org/10.1109/RoboSoft60065.2024.10521960> (poster presented by Colton)
- C6 Jiang, S., Di, L., [Barnes, N.](#), [Qu, H.](#), Young, O., [Brown, J. D.](#), Sochol, R., & [Krieger, A.](#) (2024). One-piece 3D-printed pneumatic catheter: dual-channel design with integrated robotics control for endovascular interventions. In *IEEE International Conference on Soft Robotics (RoboSoft)*

- (pp. 832-838). IEEE. <https://doi.org/10.1109/RoboSoft60065.2024.10521922> (poster presentation by Jiang)
- C7 Osborn, L. E., Christie, B., Crego, A. C., D’Almeida, D., McMullen, D. P., Nickl, R. W., Pawar, A. S., **Brown, J. D.**, Wester, B. A., Firestone, C., Celnik, P. A., Fifer, M. S., & Tenore, F. V. (2023). Cortical response to expectation of tactile stimulation from external anthropomorphic and non-anthropomorphic systems. In *International IEEE/EMBS Conference on Neural Engineering NER* (pp. 1-4). IEEE. <https://doi.org/10.1109/NER52421.2023.10123891> (poster presentation by Osborn)
- C8 Singhala, M., & **Brown, J. D.** (2023). Telerobot operators can account for varying transmission dynamics in a visuo-haptic object tracking task. In *IEEE International Conference on Robotics and Automation (ICRA)* (pp. 9814-9820). IEEE. <https://doi.org/10.1109/ICRA48891.2023.10160509> (poster presentation by Singhala)
- C9 Machaca, S., Cao, E., Chi, A., Adrales, G., †Kuchenbecker, K. J., & **Brown, J. D.** (2022). Wrist-squeezing force feedback improves accuracy and speed in robotic surgery training. In *IEEE RAS/EMBS International Conference for Biomedical Robotics and Biomechatronics (BioRob)* (pp. 1-8). IEEE. <https://doi.org/10.1109/biorob52689.2022.9925306> (oral presentation by Machaca)
- C10 Machaca, S., Karachiwalla, Z., Riaziat, N. D., & **Brown, J. D.** (2022). Towards a ROS-based modular multi-modality haptic feedback system for robotic minimally invasive surgery training assessments. In *IEEE International Symposium on Medical Robotics (ISMR)* (pp. 1-7). IEEE. <https://doi.org/10.1109/ISMR48347.2022.9807479> (oral presentation by Machaca)
- C11 Singhala, M., & **Brown, J. D.** (2022). Investigating upper limb perceptual asymmetries for unconstrained active exploration of stiffness cues. In *IEEE Haptics Symposium* (pp. 1-6). IEEE. <https://doi.org/10.1109/HAPTICS52432.2022.9765617> (virtual oral presentation by Singhala due to COVID-19)
- C12 Singhala, M., & **Brown, J. D.** (2021). A novel testbed for investigating the impact of teleoperator dynamics on perceived environment dynamics. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (pp. 8358-8364). IEEE. <https://doi.org/10.1109/IROS51168.2021.9636829> (virtual oral presentation by Singhala due to COVID-19)
- C13 Thomas, N., Fazlollahi, F., **Brown, J. D.**, & †Kuchenbecker, K. J. (2021). Sensorimotor-inspired tactile feedback and control improve consistency of prosthesis manipulation in the absence of direct vision. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (pp. 6174-6181). IEEE. <https://doi.org/10.1109/IROS51168.2021.9635885> (virtual oral presentation by Thomas due to COVID-19)
- C14 Miller, A. J., Bettelani, G. C., Fani, S., Bianchi, M., & **Brown, J. D.** (2021). On the utility of affective feedback in prosthesis embodiment, In *IEEE World Haptics Conference* (pp. 874-874). IEEE. <https://doi.org/10.1109/WHC49131.2021.9517126> (Virtual poster presentation by Miller due to COVID-19)
- C15 \*Student project from Prof. Brown’s Haptics class: Miller, A. J., Riaziat, N. D., & **Brown, J. D.** (2021). An open-source ungrounded hapkit for educational applications. In *IEEE World Haptics Conference* (pp. 1155-1155). IEEE. <https://doi.org/10.1109/WHC49131.2021.9517254> (Virtual poster presentation by Riaziat due to COVID-19)
- C16 Singhala, M., & **Brown, J. D.** (2020). Prefatory study of the effects of exploration dynamics on stiffness perception. In *IEEE Haptics Symposium* (pp. 128-133). IEEE. <https://doi.org/10.1109/HAPTICS45997.2020.ras.HAP20.31.f7ecf8e2> (virtual oral presentation by Singhala due to COVID-19)
- C17 Miller, E., Amanze, I., & **Brown, J. D.** (2020). A wearable anthropomorphically driven prosthesis with a built-in haptic feedback system. In *IEEE International Symposium on Medical Robotics (ISMR)*(pp. 125-131). IEEE. <https://doi.org/10.1109/ISMR48331.2020.9312933> (virtual oral presentation by Miller due to COVID-19)

— Before JHU —

- C18 **Brown, J. D.**, Fernandez, J. N., Cohen, S. P., & †Kuchenbecker, K. J. (2017). A wrist-squeezing force-feedback system for robotic surgery training. In *IEEE World Haptics Conference* (pp. 107-112). IEEE. <https://doi.org/10.1109/WHC.2017.7989885> (oral presentation by Brown)
- C19 **Brown, J. D.**, Ibrahim, M., Chase, E. D. Z., Pacchierotti, C., & †Kuchenbecker, K. J. (2016). Data-driven comparison of four cutaneous displays for pinching palpation in robotic surgery. In *IEEE Haptics Symposium* (pp. 147-154). <https://doi.org/10.1109/HAPTICS.2016.7463169> (oral presentation by Brown)
- C20 †Gillespie, R. B., Kim, D., Suchoski, J. M., Yu, B., & **Brown, J. D.** (2014). Series elasticity for free free-space motion for free. In *IEEE Haptics Symposium*(pp. 609-615). IEEE. <https://doi.org/10.1109/HAPTICS.2014.6775525> (oral presentation by Brown)
- C21 Paek, A. Y., **Brown, J. D.**, †Gillespie, R. B., O'Malley, M. K., Shewokis, P. A., & Contreras-Vidal, J. L. (2013). Reconstructing surface EMG from scalp EEG during myoelectric control of a closed looped prosthetic device. In *International Conference of the IEEE Engineering in Medicine and Biology Society* (pp. 5602-5605). <https://doi.org/10.1109/EMBC.2013.6610820> (oral presentation by Paek)
- C22 **Brown, J. D.**, Paek, A., Syed, M., O'Malley, M. K., Shewokis, P. A., Contreras-Vidal, J. L., Davis, A., & †Gillespie, R. B. (2013). Understanding the role of haptic feedback in a teleoperated/prosthetic grasp and lift task. In *IEEE World Haptics Conference* (pp. 271-276). IEEE. <https://doi.org/10.1109/WHC.2013.6548420> (oral presentation by Gillespie)
- C23 **Brown, J. D.**, †Gillespie, R. B., Gardner, D., & Gansallo, E. A. (2012). Co-location of force and action improves identification of force-displacement features. In *IEEE Haptics Symposium* (pp. 187-193). <https://doi.org/10.1109/HAPTIC.2012.6183789> (oral presentation given by Brown, awarded Best Student Paper)
- C24 **Brown, J. D.**, & †Gillespie, R. B. (2011). The effect of force/motion coupling on motor and cognitive performance. In *IEEE World Haptics Conference* (pp. 197-202). IEEE. <https://doi.org/10.1109/WHC.2011.5945485> (poster presentation by Brown)
- C25 †Gillespie, R. B., Contreras-Vidal, J. L., Shewokis, P. A., O'Malley, M. K., **Brown, J. D.**, Agashe, H., Gentili, R., Davis, A. (2010). Toward improved sensorimotor integration and learning using upper-limb prosthetic devices. In International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC (pp. 5077-5080). <https://doi.org/10.1109/IEMBS.2010.5626206> (oral presentation by Contreras-Vidal)

#### CONFERENCE SHORT PAPERS, ABSTRACTS, AND DEMONSTRATIONS

research advisees, senior author, † doctoral advisor, ‡ post-doctoral advisor

— At JHU —

Conference papers with advisees: Doctoral (24), Masters (13), Bachelors (8), High School (1)

- S1 Machaca, S., & **Brown, J. D.** (2024, April 7-10). A multimodality haptic feedback device for visual-haptic acuity development in robotic minimally invasive surgery training. *IEEE Haptics Symposium Works In Progress Session*, Long Beach, CA, United States (poster presented by Brown)
- S2 Machaca, S., & **Brown, J. D.** (2024, April 7-10). Demonstration of MODAL: A wrist-squeezing and vibrotactile feedback device for robotic minimally invasive surgery training. *IEEE Haptics Symposium Demos and Exhibits Session*, Long Beach, CA, United States (due to illness student was unable to present demo)
- S3 \*Student project from Prof. Brown's Haptics class: Pimpalkar, A., Ameta, P., Dalia, A. K., & **Brown, J. D.** (2024, April 7-10). Pneumatactor arrays for high frequency vibrotactile feedback. *IEEE Haptics Symposium Works In Progress Session*, Long Beach, CA, United States (poster presented by Pimpalkar and Ameta)

- S4 \*Student project from Prof. Brown's Haptics class: [Pimpalkar, A.](#), Ameta, P., [Dalia, A. K.](#), & [Brown, J. D.](#) (2024, April 7-10). Pneumatactor arrays for high frequency vibrotactile feedback. *IEEE Haptics Symposium Demos and Exhibits Session*, Long Beach, CA, United States (demo presented by Pimpalkar and Ameta)
- S5 \*Student project from Prof. Brown's Haptics class: Jiang, S., Li, Q., Di, L., Wang, W., & [Brown, J. D.](#) (2024, April 7-10). Advancing hand rehabilitation: A novel 3D-printed soft pneumatic glove for enhanced mixed reality interaction. *IEEE Haptics Symposium Works In Progress Session*, Long Beach, CA, United States (poster presented by Jiang)
- S6 \*Student project from Prof. Brown's Haptics class: Gong, Z., Wei, Z., & [Brown, J. D.](#) (2024, April 7-10). HapKnob - A motorized shape-changing haptic knob interface. *IEEE Haptics Symposium Works In Progress Session*, Long Beach, CA, United States (poster presented by Gong)
- S7 \*Student project from Prof. Brown's Haptics class: Gong, Z., Wei, Z., & [Brown, J. D.](#) (2024, April 7-10). HapKnob - A motorized shape-changing haptic knob interface. *IEEE Haptics Symposium Demos and Exhibits Session*, Long Beach, CA, United States (demo presented by Gong)
- S8 \*Student project from Prof. Brown's Haptics class: [Kanashiro, Y.](#), & [Brown, J. D.](#) (2023, July 10-13). Enhanced embedded force sensing in sensorized prosthetic hands with multilayered piezoresistive arrays. *IEEE World Haptics Conference Works In Progress Session*, Delft, the Netherlands (poster presented by Kanashiro)
- S9 \*Student project from Prof. Brown's Haptics class: Zhang H., [Bartels, J. U.](#), & [Brown, J. D.](#) (2023, July 10-13). 3D Hapkit: A low-cost, open-source, 3-DOF haptic device based on the delta parallel mechanism. *IEEE World Haptics Conference Works in Progress Session*, Delft, the Netherlands (poster presented by Bartels)
- S10 \*Student project from Prof. Brown's Haptics class: Zhang, H., [Bartels, J. U.](#), & [Brown, J. D.](#) (2023, July 10-13). A demonstration of a low-cost, open-source, 3-DOF haptic device based on the delta parallel mechanism. *IEEE World Haptics Conference Demos and Exhibits Session*, Delft, the Netherlands (demo presented by Bartels)
- S11 \*Student project from Prof. Brown's Haptics class: Jiang, S., Li, Q., Di, L., Wang, W., & [Brown, J. D.](#) (2023, July 10-13). Pneumatic soft haptic glove for immersive mixed-reality interactions. *IEEE World Haptics Conference Demos and Exhibits Session*, Delft, the Netherlands (due to visa issues, students were unable to attend the conference)
- S12 [Singhala, M.](#), & [Brown, J. D.](#) (2023, July 10-13). Mirror-brush illusion: Creating phantom tactile percepts on intact limbs. *IEEE World Haptics Conference Demos and Exhibits Session*, Delft, the Netherlands (demo presented by Singhala)
- S13 [Velsquez, L.](#), [Bomhoff, K.](#), & [Brown, J. D.](#) (2023, July 10-13). Demonstration of embedded haptic feedback in an anthropomorphically-driven prosthesis. *IEEE World Haptics Conference Demos and Exhibits Session*, Delft, the Netherlands (demo presented by Velsquez)
- S14 [Machaca, S.](#), & [Brown, J. D.](#) (2023, June 26-29). Towards a robotic minimally invasive surgery assessment and augmentation platform for visual-haptic acuity development. *Hamlyn Symposium on Medical Robotics*, London, England (oral presentation by Brown)
- S15 [Carducci, J.](#), & [Brown, J. D.](#) Tool incorporation and user strategy during human-robot teleoperation is impacted by robot dynamics [poster presentation abstract]. Program No. PSTR485.09 2023 Neuroscience Meeting Planner. Washington D.C., United States: *Society for Neuroscience*, 2023, November 11-15. [Online](#) (poster presented by Carducci)
- S16 Casamento-Moran, A., Pawar, A. S., [George, T.](#), [Singhala, M.](#), Nickl, R. W., Osborn, L., Chib, V. S., [Brown, J. D.](#), Fifer, M. S., Tenore, F. V., Cantarero, G. L., & Celnik, P. A. Motor cortical control of sustained isometric contractions [poster presentation abstract]. Program No. PSTR474.21 2022 Neuroscience Meeting Planner. San Diego, CA, United States: *Society for Neuroscience*, 2022, November 12-16. [Online](#) (poster presented by Casamento-Moran)

- S17 [George, T.](#), [Singhala, M.](#), Casamento-Moran, A., Nickl, R., Pawar, A. S., McMullen, D., Cantarero, G., & [Brown, J.](#) Neural correlates of sensorimotor attenuation in a tetraplegic human [poster presentation abstract]. Program No. P415.09 2021 Neuroscience Meeting Planner. Virtual: *Society for Neuroscience*, 2021, November 8-11. [Online](#) (Virtual oral presentation by George due to COVID-19)
- S18 [Khan, M.](#), [George, T.](#), [Carducci, J.](#), Ma, T., Krakauer, J., Xu, J., & [Brown, J. D.](#) (2021, September 23-25). Exploring the efficacy of cutaneous haptic feedback in post-stroke rehabilitation [poster presentation]. *International Conference on Rehabilitation Robotics*, Virtual (virtual poster presentation by Khan due to COVID-19)
- S19 [Machaca, S.](#), [Haupt, R. M.](#), Malpani, A., & [Brown, J. D.](#) (2021, March 10). Kinematic and kinetic task performance data for holistic assessment of skill at robot-assisted minimally invasive surgery [poster presentation]. *ACS Surgeons and Engineers: A Dialogue on Surgical Simulation meeting*, Virtual. [Online](#) (virtual poster presentation by Machaca)
- S20 [Cao, E.](#), [Machaca, E.](#), [Chi, A.](#), Adrales, G. L., †Kuchenbecker, K. J., & [Brown, J. D.](#) (2021, March 10). Bimanual wrist-squeezing haptic feedback changes speed-force tradeoff in robotic surgery training [poster presentation]. *ACS Surgeons and Engineers: A Dialogue on Surgical Simulation meeting*, Virtual. [Online](#) (virtual poster presentation by Machaca)
- S21 \*(Student project from Prof. Brown's Haptics class) Shah, K., Ravichandar, S., & [Brown, J. D.](#) (2020, June 25). Proposing a framework for evaluating haptic feedback as a modality for velocity guidance. *IEEE Haptics Symposium Works in Progress Session* (poster session cancelled due to COVID-19)
- S22 [Singhala, M.](#), [Carducci, J.](#), & [Brown, J. D.](#) (2020, June 25). Towards an understanding of how humans perceive stiffness during bimanual exploration. *IEEE Haptics Symposium Works in Progress Session* (poster session cancelled due to COVID-19)
- S23 [Singhala, M.](#), & [Brown, J. D.](#) (2020, June 25). A novel teleoperator testbed to understand the effects of master-slave dynamics on embodiment and kinesthetic perception. *IEEE Haptics Symposium Works in Progress Session* (poster session cancelled due to COVID-19)
- S24 [Miller, E.](#), [Amanze, I.](#), & [Brown, J. D.](#) (2020, June 25). A demonstration of an anthropomorphically-driven prosthesis featuring embedded haptic feedback. *IEEE Haptics Symposium Demos and Exhibits Session* (session cancelled due to COVID-19)
- S25 [Machaca, S.](#), [Ung, G.](#), & [Brown, J. D.](#) (2020, June 25). Virtual grasp-and-hold task using continuous vibrotactile and squeezing cues. *IEEE Haptics Symposium Demos and Exhibits Session* (session cancelled due to COVID-19)
- S26 Xu, J., Kumar, S., Ma, T., Olds, K., [Brown, J. D.](#), [Carducci, J.](#), Forrence, A., & [Krakauer, J. K.](#) Assessing hand dexterity after stroke in 3D [poster presentation abstract]. Program No. 581.13 2019 Neuroscience Meeting Planner. Chicago, IL, United States: *Society for Neuroscience*, 2019, October 19-23. [Online](#) (presented by Xu)
- S27 [Thomas, N.](#), [Ung, G.](#), Ayaz, H., & [Brown, J. D.](#) (2019, July 9-12). Haptic feedback in a myoelectric prosthesis: Task performance and neurophysiological cognitive load assessment. In *IEEE World Haptics Conference Works in Progress Session*, Tokyo, Japan (Interactive poster presented by Thomas)
- S28 [Singhala, M.](#), & [Brown, J. D.](#) (2019, July 9-12). Investigating the effects of exploration dynamics on stiffness perception. In *IEEE World Haptics Conference Works in Progress Session*, Tokyo, Japan (Interactive poster presented by Singhala)
- S29 [Singhala, M.](#), [Chi, A.](#), Coleman, M., & [Brown, J. D.](#) (2019, July 9-12). Preliminary investigation into how limb choice affects kinesthetic perception. In *IEEE World Haptics Conference Works in Progress Session*, Tokyo, Japan (Interactive poster presented by Singhala)
- S30 [Caccianiga, G.](#), Mariani, A., De Momi, E., & [Brown, J. D.](#) (2019, June 23-26). Virtual reality training in robot-assisted surgery: A novel experimental setup for skill transfer evaluation. In

*Hamlyn Symposium on Medical Robotics*, London, England (Oral presentation given by Caccianiga)

- S31 [Cao, E.](#), [Machaca, S.](#), [Bernard, T.](#), [Wolfinger, B.](#), [Patterson, Z.](#), [Chi, A.](#), Adrales, G. L., †[Kuchenbecker, K. J.](#), & [Brown, J. D.](#) (2019, April 3-6), Bimanual wrist squeezing haptic feedback changes speed-force tradeoff in robotic surgery training. In *Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting*, Baltimore, MD (poster presentation given by Cao)
- S32 [Singhala, M.](#), & [Brown, J. D.](#) (2018, November 19). Towards an understanding of the role operator limb dynamics plays in haptic perception of stiffness [poster presentation]. *Johns Hopkins University Malone Center for Engineering in Healthcare Symposium*, Baltimore, MD (Poster presented by Singhala)
- S33 [Thomas, N.](#), [Ung, G.](#), [McGarvey, C.](#), [Carducci, J.](#), & [Brown, J. D.](#) (2018, November 19). Comparison of kinesthetic and cutaneous feedback in a myoelectric upper-limb prosthesis [poster presentation]. *Johns Hopkins University Malone Center for Engineering in Healthcare Symposium*, Baltimore, MD (poster presented by Brown)
- S34 [Cao, E.](#), [Machaca, S.](#), [Bernard, T.](#), [Wolfinger, B.](#), [Patterson, Z.](#), [Chi, A.](#), Adrales, G. L., †[Kuchenbecker, K. J.](#), & [Brown, J. D.](#) (2018, November 19). Bimanual wrist-squeezing haptic feedback changes speed-force tradeoff in robotic surgery training [poster presentation]. *Johns Hopkins University Malone Center for Engineering in Healthcare Symposium*, Baltimore, MD (poster presented by Machaca)
- S35 [Thomas, N.](#), [Carducci, J.](#), & [Brown, J. D.](#) (2018, March 25-28). Towards a generalized experimental framework for comparing haptic feedback modalities in myoelectric upper-limb prostheses. In *IEEE Haptics Symposium Works in Progress Session*, San Francisco, CA, United States (poster presentation given by Thomas)
- S36 [Singhala, M.](#), & [Brown, J. D.](#) (2018, March 25-28). Towards an understanding of the role operator limb dynamics plays in haptic perception of stiffness. In *IEEE Haptics Symposium Works in Progress Session*, San Francisco, CA, United States (poster presentation presented by Singhala)

— Before JHU —

- S37 [Brown, J. D.](#), Ibrahim, M., Chase, E. D. Z., Pacchierotti, C., & †[Kuchenbecker, K. J.](#), (2016). One sensor, three displays: A comparison of tactile rendering from a BioTac sensor. Hands-on demonstration presented at *IEEE Haptics Symposium*
- S38 [Brown, J. D.](#), O'Brien, C., Miyasaka, K. W., Dumon, K. R., & †[Kuchenbecker, K. J.](#) (2015). Analysis of instrument vibrations and contact forces caused by an expert robotic surgeon doing FRS tasks. In *Hamlyn Symposium on Medical Robotics* (poster presentation given by Brown)
- S39 Paek, A., [Brown, J. D.](#), †[Gillespie, B.](#), O'Malley, M., Shewokis, P., & [Contreras-Vidal, J.](#) (2013) Reconstructing electromyography from electroencephalography during myoelectric control of a closed looped prosthetic device [poster presentation]. *16th International Graphonomics Society Conference*, [Online Program](#) (oral presentation by Paek)

#### INVITED TALKS

1. Invited Keynote, IEEE International Conference on Robotics and Automation, “Embodied Intelligence in Prosthetics: A Retrospective on Haptic Feedback, Human-Machine Integration, and User-Centered Design,” Atlanta, GA, May 21, 2025
2. IEEE International Conference on Robotics and Automation Workshop: Shared Autonomy for Small-scale Robotic Systems (SASSR), “Haptic Feedback for Vision-Deficient Millirobot Telemanipulation,” Atlanta, GA, May 19, 2025
3. Invited Keynote, University of Michigan College of Engineering Graduate School Orientation, “Making Your Research Relevant,” Ann Arbor, MI, August 23, 2024

4. Hamlyn Symposium Workshop: From Virtual Palpation to Clinical Integration: Exploring the Role of Touch in Medicine and Surgery, “Understanding the Utility of Haptic Feedback in Prosthetic and Surgical Devices,” London, UK (virtual presentation), June 28, 2024
5. Carnegie Mellon University, Dept. of Mechanical Engineering, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Pittsburgh, PA, December 1, 2023
6. University of Washington, Dept. of Electrical Engineering, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Seattle, WA, October 24, 2023
7. Vanderbilt University, Dept. of Mechanical Engineering, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Nashville, TN, September 25, 2023
8. Invited Award Keynote (IEEE TCH Early Career Award), Delft, the Netherlands, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” July 13, 2023
9. Imperial College London, Robotics Forum, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” London, UK, June 29, 2023
10. Hamlyn Symposium Workshop: How to train the robotic surgeons of the future? The role of simulation, “Catalyzing Visual-Haptic Acuity in RMIS,” London, UK, June 26, 2023
11. Brain Computer Interface Meeting Workshop: Designing naturalistic sensory feedback for closed-loop brain-computer interfaces, “Haptic Feedback in Multi-sensory Context,” Brussels, Belgium, June 9, 2023
12. Rice University, Neuroengineering Initiative, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Houston, TX, March 22, 2023
13. Invited Keynote, NSF DARE Conference: Transformative Opportunities for Modeling in Neurorehabilitation, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” University of Southern California, Los Angeles, CA, March 4, 2023
14. University of Pennsylvania, GRASP Laboratory, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Philadelphia, PA, February 17, 2023
15. Stanford University, Dept. of Mechanical Engineering “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Stanford, CA, December 2, 2022
16. University of California San Diego, Contextual Robotics Institute, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” San Diego, CA, December 1, 2022
17. George Mason University, Dept. of Bioengineering, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Fairfax, VA, November 17, 2022
18. University of Michigan, Controls Group “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Ann Arbor, MI, November 4, 2022
19. University of the District of Columbia, Biomedical Engineering Program, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Washington, DC, October 18, 2022
20. Johns Hopkins Applied Physics Laboratory Technical Exchange, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” Laurel, MD, September 29, 2022
21. Cirrus Logic Tech Talk, “Haptic Interaction Design for Telerobotic Devices,” virtual, July 19, 2022
22. Google Robotics, “Haptic Interaction Design for Human in the Loop Telerobotic Systems,” virtual, April 23, 2022
23. Johns Hopkins Medicine, Limb Loss Symposium, “Haptic Feedback in Upper-Extremity Prostheses,” virtual, April 26, 2022
24. IEEE International Symposium on Medical Robotics Workshop - The Holistic Forum of Medical Robotic Junior Professors: From Rehabilitation to Surgical Robots, “Haptic Augmentation of Medical Telerobotic Systems,” Atlanta, GA April 13, 2022

25. IEEE International Symposium on Medical Robotics Workshop - Diversity in Surgical Robotics Training, “Technology Based Augmentation in Robotic Surgery Training,” Atlanta, GA, April 13, 2022
26. JHU WSE/SOM Research Retreat Lab Excellence Award Keynote, “Haptics and Medical Robotics Laboratory,” Baltimore, MD, March 18, 2022
27. IEEE International Symposium on Medical Robotics Workshop on Intelligent Human Augmentation in Medical Robotic Systems, “Haptic Feedback as a Means of Improving Dexterous Manipulation in Robot-Assisted Minimally Invasive Surgery and Upper-Limb Prosthetics,” Atlanta, GA, November 17, 2021
28. Quanser Inc. Youser Webinar, “Haptic Interaction Design for Telerobot Devices,” virtual, September 30, 2021
29. Invited Keynote, Penn State University Millennium Scholars Program Summer Bridge Research Symposium, virtual, July 15, 2021
30. Johns Hopkins Medicine, Department of Physical Medicine and Rehabilitation Grand Rounds, “Engineering Better Robotic Interfaces for Physical Medicine and Rehabilitation,” virtual, January 19, 2021
31. University of Pennsylvania, KodLab, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” virtual, November 24, 2020
32. Medtronic Corporation, “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” virtual, November 13, 2020
33. IEEE International Conference on Intelligent Robots and Systems Workshop on Introduction to Next Generation Haptics for XR, “Haptic Interaction Design for Human Robot Interaction,” virtual, October 29, 2020
34. University of Maryland, Maryland Robotics Center “Understanding the Utility of Haptic Feedback in Telerobotic Devices,” College Park, MD, February 7, 2020
35. University of Chicago, URobotics Symposium, “Getting a Feel for Robotic Surgery: The Role of Haptic Cues in Early Psychomotor Skill Development,” Chicago, IL, May 22, 2019
36. Invited Keynote, Johns Hopkins University Explore Hopkins (EHOP) Program, Baltimore, MD, October 5, 2018
37. Invited Alumni Speaker, University of Michigan Graduate School Visit Brunch, Ann Arbor, MI, March 10, 2018
38. Johns Hopkins University, Zanvyl Krieger Mind/Brain Institute, “Understanding the Utility of Haptic Feedback in Human Robot Interaction,” Baltimore, MD, March 12, 2018
39. GEM-ASEE Doctoral Showcase, “Understanding the Utility of Haptic Feedback in Human Robot Interaction,” Washington, DC, January 23, 2018
40. Clinical Robotic Surgery Association, “Getting a Feel for Robotic Surgery: The Role of Haptic Cues in Early Psychomotor Skill Development,” Chicago, IL, September 23, 2017
41. Johns Hopkins University LCSR Industry Day, “Improving Dexterous Manipulation with Telerobots,” Baltimore, MD, March 22, 2017
42. Johns Hopkins University, Dept. of Mechanical Engineering, “Smart Haptic Displays for Dexterous Manipulation of Telerobots,” Baltimore, MD, March 9, 2016
43. Georgia Institute of Technology, Dept. of Mechanical Engineering, “Smart Haptic Displays for Dexterous Manipulation of Telerobots,” Atlanta, GA, February 25, 2016
44. Carnegie Mellon University, Dept. of Mechanical Engineering, “Smart Haptic Displays for Dexterous Manipulation of Telerobots,” Pittsburgh, PA, February 23, 2016
45. Duke University, Dept. of Mechanical Engineering, “Smart Haptic Displays for Dexterous Manipulation of Telerobots,” Durham, NC, February 19, 2016

46. University of Pennsylvania, Dept. of Mechanical Engineering and Applied Mechanics, “Smart Haptic Displays for Dextrous Manipulation of Telerobots,” Philadelphia, PA, February 16, 2016
47. Intuitive Surgical, Sunnyvale, “Comparison of Cutaneous Feedback Methods for Pinching Palpation in Robotic Surgery,” CA, January 8, 2015
48. NSF Michigan Alliance for Graduate Education and Professoriate (AGEP) Symposium, “The Role of Haptic Feedback in a Teleoperated Grasp and Lift Task,” Ann Arbor, MI, April 6, 2013
49. Rehabilitation Institute of Chicago, Prothesis Design & Control Lab, “Development of Haptic Sensory Feedback System for an Upper-Limb Prosthetic Gripper,” April 13, 2012
50. University of Michigan Engineering Graduate Symposium, “Sensory Feedback for Neuroprosthetic Devices,” Ann Arbor, MI, November 12, 2010
51. NSF Michigan Alliance for Graduate Education and Professoriate (AGEP) Symposium, “Sensory Substitution and Neuroprosthetics,” Ann Arbor, MI, April 10, 2010
52. NSF Michigan Alliance for Graduate Education and Professoriate (AGEP) Symposium, “Sensory Feedback for Neuroprosthetic Devices,” Ann Arbor, MI, August 11, 2009

#### MEDIA HIGHLIGHTS

- June 2025: WMAR (Baltimore ABC Affiliate) published an online article on Prof. Brown’s collaborative research with the Kennedy Krieger Institute, which uses a haptic feedback video game to understand how children with autism learn: [Breakthrough video game unlocks new insights into how children with autism learn](https://tinyurl.com/yeu8434z), <https://tinyurl.com/yeu8434z>
- November 2024: Johns Hopkins HUB news outlet published an online article summarizing a presentation by Dr. Brown given as part of a virtual briefing series on AI titled “Robotic surgery: science fiction or medical reality” [AI Brings Autonomous Procedures Closer, but Surgeons Still Key](https://tinyurl.com/3mx27ede), <https://tinyurl.com/3mx27ede>
- May 2024: The American Society of Mechanical Engineers published an online article on Prof. Brown’s research published in Scientific Reports: [Electric Thinking Caps Aid Learning](https://tinyurl.com/34y6z5ak), <https://tinyurl.com/34y6z5ak>
- December 2023: Interesting Engineering published an online article on Prof. Brown’s research published in Scientific Reports: [Docs zapped in the head show sharpened robot surgery skills, says study](http://tinyurl.com/yc25uxt7), <http://tinyurl.com/yc25uxt7>
- December 2023: Forbes Magazine listed Prof. Brown’s research published in Scientific Reports in a story: [4 Noteworthy Medical Stories To Close 2023](http://tinyurl.com/nhd86tu3), <http://tinyurl.com/nhd86tu3>
- December 2023: Johns Hopkins HUB news outlet published an online article on Prof. Brown’s research published in Scientific Reports: [Could an Electric Nudge to the Head Help Your Doctor Operate a Surgical Robot](http://tinyurl.com/3jub4p5f), <http://tinyurl.com/3jub4p5f>
- October 2023: The Orthotics and Prosthetics Edge magazine published an online article of Prof. Brown’s research published in Science Robotics: [Bridging the User-Researcher Divide in Upper-limb Prosthetics](https://tinyurl.com/azxwk3sb), <https://tinyurl.com/azxwk3sb>
- November 2021: JoAnna Novak published a guest essay in the New York Times that mentioned Prof. Brown’s research on haptic feedback for prosthetics: [We’re Longing for the One Thing the Metaverse Can’t Give Us](https://tinyurl.com/5n7hu585), <https://tinyurl.com/5n7hu585>
- September 2021: Scripps news company wrote an online news story on Prof. Brown’s research on haptic feedback for prosthetics that was published on multiple news outlets including WMAR Baltimore (local ABC station): [Lab testing haptics device in prosthetic hands to help users with grip](https://tinyurl.com/v2rc95kx), <https://tinyurl.com/v2rc95kx>
- May 2021: The Orthotics and Prosthetics Almanac magazine published an article on Prof. Brown’s research published in the IEEE Transactions on Human Machine Systems: [Researchers Study Benefit of Prostheses Integrated with Haptic Sensory Feedback](https://tinyurl.com/ycyjdrdn), May 2021 Issue, Pg. 12, <https://tinyurl.com/ycyjdrdn>

- April 2021: Science News published an online article on the science of touch that featured an interview with Prof. Brown: [Capturing the sense of touch could upgrade prosthetics and our digital lives](https://tinyurl.com/2p8dtn94), <https://tinyurl.com/2p8dtn94>
- April 2021: Johns Hopkins HUB news outlet published an online article on Prof. Brown's research published in the IEEE Transactions on Human Machine Systems: [Get a grip: Adding haptics to prosthetic hands eases users' mental load](https://tinyurl.com/ycksc5p2), <https://tinyurl.com/ycksc5p2>
- April 2021: The Orthotics and Prosthetics Edge magazine published an online article on Prof. Brown's research published in the IEEE Transactions on Human Machine Systems: [Haptic Prosthesis Decreases Mental Load](https://tinyurl.com/mrwzscjx), <https://tinyurl.com/mrwzscjx>
- May 2021: NPR published an interview on the program All Things Considered that featured Prof. Brown providing insights and opinions on a manuscript published in the journal Science: [New Brain- Controlled Robotic Arm Gives Wearer The Sense Of Touch](https://tinyurl.com/yckn3ewb), <https://tinyurl.com/yckn3ewb>
- December 2020: Cell Mentor published an online article featuring Prof. Brown in the list: [1000 Inspiring Black Scientist in America](https://tinyurl.com/5ytxera7), <https://tinyurl.com/5ytxera7>

#### SCIENTIFIC WORKSHOP ORGANIZING

1. "Multi-Modal Sensing and Shared Control: The Future of Wearable Robotics?," IEEE International Conference on Robotics and Automation, May 19, 2025. Co-organizers: Nili Krausz, Ph.D., Cristina Piazza, Ph.D., Strahinja Došen, Ph.D.
2. "Is Open-Source Hardware the Road Forward for Upper Extremity Rehab and Neuroscience?," RehabWeek 2025, May 12, 2025. Co-Organizers: Chad Rose, Ph.D., A. Michael West, Ph.D.
3. "Improving the Utility of Haptic Feedback in Upper-Limb Prosthesis Control: establishing user-centric guidelines for engineering innovation," IEEE World Haptics Conference, July 10, 2023. Co-organizers: Edoardo Battaglia, Ph.D., Marcia K. O'Malley, Ph.D., Kristen Zhao, Ph.D. [Findings published in Science Robotics (see [J8](#))]
4. "Diversity in Surgical Training Research," International Symposium on Medical Robotics, April 13, 2022. Co-organizers: Ann Majewicz Fey, Ph.D., Edoardo Battaglia, Ph.D.

#### RESEARCH ADVISING AND MENTORSHIP

##### POST-DOCTORAL TRAINEES (CURRENT)

1. A. Michael West, Massachusetts Institute of Technology, 2024–Present)

##### DOCTORAL STUDENTS (CURRENT)

1. August Phelps, Ph.D. student, Johns Hopkins Mechanical Engineering, 2025–Present
2. Aaliyah Thompson-Mazzeo, Ph.D. student, Johns Hopkins Biomedical Engineering, 2025–Present
3. Lyndah Lovell, Ph.D. student, Johns Hopkins Neuroscience, 2024–Present  
GBO passed, 2025
4. Yensabro Kanashiro, Ph.D. student, Johns Hopkins Mechanical Engineering, 2024–Present
5. Noah Barnes, Ph.D. student (co-advised with Axel Krieger), Johns Hopkins Mechanical Engineering, 2022–Present  
DQE passed, 2023
6. Lorena Velasquez, Ph.D. student, Johns Hopkins Mechanical Engineering, 2021–Present  
DQE passed, 2022

#### DOCTORAL STUDENTS (COMPLETED)

- Alexandra Miller, Ph.D. student, Johns Hopkins Mechanical Engineering, 2020–2025  
Dissertation defended, July 2025.
- Sergio Machaca, Ph.D. student, Johns Hopkins Mechanical Engineering, 2018–2025  
Dissertation defended, July 2025.
- Naveed Riaziat, Ph.D. student, Johns Hopkins Mechanical Engineering, 2020–2025  
Dissertation defended, June 2025.
- Jacob Carducci, Ph.D. student, Johns Hopkins Mechanical Engineering, 2018–2023  
Dissertation defended, August 2023. [LinkedIn](#)
- Mohit Singhala, Ph.D. student, Johns Hopkins Mechanical Engineering, 2017–2022  
Dissertation defended, April 2022. Now Global Maternal Health Fellow, Stanford University,  
Stanford CA. [LinkedIn](#)
- Neha Thomas, Ph.D. student Johns Hopkins Biomedical Engineering, 2017–2022  
Dissertation defended, March 2022. Now Research Engineer, Johns Hopkins Applied Physics  
Laboratory, Laurel, MD. [LinkedIn](#)
- Barton Paulhamus, D.Eng. student (co-advised with Chien-Ming Huang), Johns Hopkins  
University, 2018–2021  
Dissertation defended, April 2021. Now at Johns Hopkins Applied Physics Laboratory, Laurel,  
MD. [LinkedIn](#)

#### MASTERS THESIS/RESEARCH STUDENTS

- Berk Kasimcan, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2025–Present
- Ariana Diaz, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2024–2025
- Delphine Tan, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2024–2025
- Hannah Qu, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2024–2025
- Anway Pimpalkar, M.S.E. in Biomedical Engineering, Johns Hopkins University, 2024–2025
- Ahan Dalia, M.S.E. in Robotics, Johns Hopkins University, 2024
- Yensabro Kanashiro, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2023–2024
- Chase Lahr, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2023–2024
- Jane Akintoye, M.S.E. in Robotics, Johns Hopkins University, 2022–2023
- Jan Uli Bartels, M.S.E. in Robotics, Johns Hopkins University, 2022–2023
- Kezi Li, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2020–2022
- Mohid Khan, M.S.E. in Robotics, Johns Hopkins University, 2021–2022
- Teresa George, M.S. in Biomedical Engineering (co-advised with Gabriela Cantarero), Johns  
Hopkins University, 2020–2021
- Garrett Ung, M.S.E. in Mechanical Engineering, Johns Hopkins University, 2019–2020
- Ethan Miller, M.S.E. Biomedical Engineering, Johns Hopkins University, 2019–2020
- Guido Caccianiga, M.S. in Mechanical Engineering, Politecnico de Milano, 2018–2019
- Darshini Balamurugan, M.S.E. in Robotics (co-advised with Nitish Thakor), Johns Hopkins  
University, 2019
- Jacob Carducci, M.S.E. in Robotics, Johns Hopkins University, 2017–2018

## UNDERGRADUATE STUDENTS

1. Oluwafolahan, B.S. Mechanical Engineering, University of Maryland, Summer 2025
2. Jason Childs, B.S. Electrical Engineering, Howard University, Summer 2025
3. Caly Ferguson, B.S. Mechanical Engineering, University of Maryland Baltimore County, Summer 2025
4. Ethan Brown, B.S. Neuroscience, Johns Hopkins University, 2025–Present
5. Taliyah Huang, B.S. Biomedical Engineering, Johns Hopkins University, 2025–Present
6. Joshua Pike, B.S. in Biomedical Engineering, Johns Hopkins University, 2024
7. Alexander Kim, B.S. in Mechanical Engineering, Johns Hopkins University, 2024–Present
8. Gabriella Goytizolo, B.S. in Mechanical Engineering, Johns Hopkins University, 2024–Present
9. Emmaleigh Shinno, B.S. in Biomedical Engineering, Pennsylvania State University, Summer 2024
10. Jose Policarpio, B.S. in Mechanical Engineering, Washington State University, Summer 2024
11. Chase Easley, B.S. in Mechanical Engineering, Howard University, Summer 2024
12. Hannah Qu, B.S. in Biomedical Engineering, Johns Hopkins University, 2023–2024
13. Elizabeth Polydefkis, B.S. in Biomedical Engineering, Brown University, Summer 2023
14. Delpine Tan, B.S. in Mechanical Engineering, Johns Hopkins University, 2022–2023
15. Katie Bomhoff, B.S. in Mechanical Engineering, Johns Hopkins University, 2022–2023
16. Rasheedat Okiyoyo, B.S. in Mechanical Engineering, Pennsylvania State University, Summer 2022
17. Sithmi Jayasundara, B.S. in Biomedical Engineering, Johns Hopkins University, 2022–2023
18. Chase Lahr, B.S. in Mechanical Engineering, Johns Hopkins University, 2021–2022
19. Anirejuoritse Egbe, B.S. in Electrical Engineering, Johns Hopkins University, 2021–2022
20. Zulekha Karachiwalla, B.S. in Computer Engineering, University of Maryland Baltimore County, 2021–2022
21. Harrison Menkes, B.S. in Mechanical Engineering, University of Michigan, Summer 2021
22. Mohid Kahn, B.S. in Mechanical Engineering, Johns Hopkins University, 2020–2021
23. Disha Mishra, B.S. in Biomedical Engineering, Johns Hopkins University, 2020
24. Maya Sitaram, B.S. in Mechanical Engineering, Johns Hopkins University, 2019–2022
25. Autumn Hughes, B.S. in Biomedical Engineering, Johns Hopkins University, 2019–2022
26. Willa Grinsfelder, B.S. in Mechanical Engineering, Johns Hopkins University, 2019–2020
27. Rachel Haupt, B.S. in Biomedical Engineering, University of South Carolina, Summer 2019
28. Joshua Burnell, B.S. in Mechanical Engineering, North Carolina A&T University, Summer 2019
29. Carlos Souffrain, B.S. in Computer Engineering, University of Maryland Baltimore County, Summer 2019
30. Aiden Devaney, B.S. in Physics, Goucher College, Summer 2019
31. Amy Chi, B.S. in Mechanical Engineering, Johns Hopkins University, 2018–2019
32. Eric Cao, B.S. in Biomedical Engineering, Johns Hopkins University, 2018–2019
33. Brett Wolfinger, B.S. in Biomedical Engineering, Johns Hopkins University, 2017–2018
34. Garrett Ung, B.S. in Mechanical Engineering, Johns Hopkins University, 2018–2019
35. Nathaniel Olsen, B.S. in Biomedical Engineering, University of Utah, Summer 2018

36. Colette McGarvey, B.S. in Biomedical Engineering, Tulane University, Summer 2018
37. Timothy Bernard, B.S. in Mechanical Engineering, University of Maryland Baltimore County, Summer 2018
38. Zachary Patterson, B.S. in Mechanical Engineering, University of Pittsburgh, Summer 2017
39. Christopher Scherz, B.S. in Mechanical Engineering, Johns Hopkins University, 2017

#### HIGH SCHOOL RESEARCH STUDENTS

1. Itzel Vargass, Stone Ridge School of the Sacred Heart, 2025
2. Rana Atwain, Western High School, 2025 (sponsored through JHU WISE Program)
3. Naomi Mason, Garrison Forest School, 2025 (sponsored through JHU WISE Program)
4. Braylon Anderson, Baltimore Polytechnic High School, 2024–Present (sponsored through the Baltimore Ingenuity Project)
5. Kayla Wilkins, Baltimore Polytechnic High School, Summer 2024 (sponsored through JHU WISE Program)
6. R’Reeyah Mabry Francis, Baltimore Polytechnic High School, 2021–2023 (sponsored through the Baltimore Ingenuity Project)
7. Ihemriorochi Amnanze, Baltimore Polytechnic High School, 2019–2020 (sponsored through the Baltimore Ingenuity Project)
8. Niya Grier, Garrison Forest School, 2018–2019 (sponsored through JHU WISE Program)
9. Catherine Robbins, The Park School, 2018
10. Eryk-Amon Goode, 2018

#### MENTORED STUDENTS HONORS AND AWARDS

Lorena Velásquez, Link Foundation Fellowship	2025
Naveed Riaziat, Link Foundation Fellowship	2024
Yensabro Kanashiro, Johns Hopkins University (JHU) Vivian Thomas Scholarship Initiative Fellowship	2024
A. Michael West, JHU Provost Postdoctoral Fellowship	2024
Alexandra Miller, Fulbright Fellowship	2023
Noah Barnes, NSF Graduate Research Fellowship	2022
Sergio Machaca, Link Foundation Fellowship	2022
Autumn Hughes, Fulbright Fellowship	2022
Naveed Riaziat, NSF Graduate Research Fellowship (Honorable Mention)	2022
Autumn Hughes, Achievement Rewards for College Scientists (ARCS) Scholarship	2021
Alexandra Miller, NSF Graduate Research Fellowship (Honorable Mention)	2021
Ihemriorocchi Amanze, Morgan State STEM Fair First Place (Engineering, Mathematics, and Computer Science Category)	2020
Autumn Hughes, JHU Provost Undergraduate Research Award (PURA)	2020

## MENTORED STUDENTS HONORS AND AWARDS (CONTINUED)

Mohit Singhala, JHU Whiting School of Engineering George M.L. Sommerman Engineering Graduate Teaching Award	2020
Amy Chi, JHU Department of Mechanical Engineering James Bell Convocation Award	2019
Sergio Machaca, NSF Graduate Research Fellowship	2019
Mohit Singhala, JHU Department of Mechanical Engineering Creel Family Teaching Assistant Award	2019
Maya Sitaram, JHU Summer Provost Undergraduate Research Award	2019
Neha Thomas, Fulbright Fellowship	2019
Neha Thomas, German Academic Exchange Service (DAAD) Scholarship	2019
Garrett Ung, JHU Department of Mechanical Engineering Charles A. Miller Convocation Award	2019
Neha Thomas, NSF Graduate Research Fellowship	2018

## GRANTS AND CONTRACTS

I have made a conscientious choice to recruit outstanding graduate students and mentor them to submit competitive national and international fellowships. In addition to their prestige, these fellowships provide financial support for these students during their tenure in my research group. Examples of these fellowships include the National Science Foundation Graduate Research Fellowship, the Fulbright Fellowship, and the Link Foundation Modeling, Simulation, and Training Fellowship.

## PENDING

### 1. **Catalyzing Visual-Haptic Acuity for Tissue Handling Mastery in Robotic Minimally Invasive Surgery, R21 Trailblazer**

Investigators: Jeremy D. Brown (PI), Gina Adrales (Co-I, Johns Hopkins Medicine), Swaroop Vedula (Co-I, Johns Hopkins University)

Agency: National Institutes of Health: National Institute of Biomedical Imaging and Bioengineering

Funding: \$642,246

Dates: July 1, 2025 – June 30, 2028

Objective: To develop and validate an innovative skill augmentation training tool that utilizes supplemental haptic feedback during simulation-based robotic minimally invasive surgery training to catalyze visual-haptic acuity development.

### 2. **Advancing Haptic Technologies for Assessing and Enhancing Skill Learning in Children with Autism, R01**

Investigators: Jeremy D. Brown (PI), Stewart H. Mostofsky (Co-I, Kennedy Krieger Institute), Daniel Lidstone (Co-I, Penn State University - Harrisburg)

Agency: National Institutes of Health: National Institute for Neurological Disorders and Stroke

Funding: \$3,578,709.00

Dates: December 1, 2025 – November 30, 2030

Objective: To establish the test-retest reliability of "HaptiKart," an innovative videogame designed to assess how children with autism spectrum disorder (ASD) process sensory and movement information, and explore the utility of Haptikart for improving skill performance for children with ASD.

**1. CAREER: Dexterous Prosthesis Manipulation through Context-Driven Amputee–Prosthesis Co-Adaptation, CMMI**

Investigators: Jeremy D. Brown (PI, Johns Hopkins University)

Agency: National Science Foundation: Mind, Motor, and Machine Nexus (M3X): Division of Civil, Mechanical and Manufacturing Innovation

Funding: \$730,255

Dates: July 1, 2022 – June 30, 2027

Objective: To discover fundamental insights into an prosthesis wearer’s dexterous manipulation capabilities as the prosthesis’s dynamic interactions with the environment and the wearer’s motor control strategy co-adapt according to context-driven modulations of the prosthesis’s mechanical impedance and haptic feedback schemes.

REU Supplements: 2023 (\$16,000)

**2. Dissecting Behavioral and Neural Mechanisms of Hand Dexterity after Stroke for Effective Rehabilitation, R01**

Investigators: Jing Xu (PI, University of Georgia), Jeremy D. Brown (Co-I, Johns Hopkins University), Michael Borich (Co-I, Emory University), Timothy Verstynen (Co-I, Carnegie Mellon University)

Agency: National Institutes of Health: National Institute for Neurological Disorders and Stroke

Funding: \$2,736,478 (\$400,122 to JHU)

Dates: September 26, 2023 – May 31, 2028

Objective: To investigate the behavioral mechanisms and neural descending pathways supporting hand dexterity post-stroke and build a neural mechanistic model of hand dexterity.

**3. Self-Paced Lectures With as-Needed Answers and Live Interactions, DUE**

Investigators: Kyle B. Reed (PI, University of South Florida), Jeremy D. Brown (Co-I, Johns Hopkins University)

Agency: National Science Foundation: Improving Undergraduate STEM Education: Division of Undergraduate Education

Funding: \$396,362 (\$36,000 to JHU)

Dates: October 15, 2023 – October 14, 2026

Objective: To evaluate an educational lecture delivery method that incorporates the benefits of synchronous delivery while using an asynchronous delivery method.

**4. Assessing Haptic + Proprioceptive Sensory Impairment and its Impact on Motor Control Post-Stroke, C-STAR Pilot Project**

Investigators: Jeremy D. Brown (PI, Johns Hopkins University)

Agency: Shirley Ryan Ability Lab: Center for Smart Use of Technologies to Assess Real-World Outcomes (C-STAR), funded by NIH P2C

Funding: \$25,000

Dates: January 1, 2024 – December 31, 2024

Objective: To develop and validate a robotics-based psychophysical threshold methodology for investigating all aspects of haptic and proprioceptive sensory impairment in the upper extremity post-stroke.

**5. Embedded Multilayered Tactile Sensors to Enhance Robotic Systems**

Investigators: Luke Osborn (PI, Johns Hopkins Applied Physics Lab), Korine Ohiri (Co-I, Johns Hopkins Applied Physics Lab), Jeremy D. Brown (Co-I, Johns Hopkins University)

Agency: Johns Hopkins University Discovery Award

Funding: \$100,000 (\$40,000 to Co-I Brown)

Dates: July 1, 2022 – December 31, 2024

Objective: To validate novel fabrication techniques, specifically additive manufacturing (AM) and flexible electronics, to directly print touch sensors on prosthetic hand fingertips.

**6. Understanding Environment Perception and Task Performance in Human-in-the-Loop Tele-robotic Systems (HiLTS), IIS**

Investigators: Jeremy D. Brown (PI, Johns Hopkins University)

Agency: National Science Foundation: Human Centered Computing (HCC): Division of Information and Intelligent Systems

Funding: \$496,739

Dates: October 1, 2019 – September 30, 2025

Objective: To establish an empirical understanding of the effect of a telerobot's closed-loop leader/follower dynamics on perception of the remote environment and performance in tasks requiring knowledge of that environment.

REU Supplements: 2023 (\$16,000), 2021 (\$16,000), 2020 (\$16,000)

COMPLETED

**1. Travel: Improving the Utility of Haptic Feedback in Upper-Limb Prosthesis Control: Establishing user-centric guidelines for engineering innovation, CBET**

Investigators: Jeremy D. Brown (PI, Johns Hopkins University)

Agency: National Science Foundation: Division of Chemical, Bioengineering, Environmental and Transport Systems

Funding: \$42,200

Dates: August 1, 2023 – March 30, 2024

Objective: To provide travel support for the presenters and organizers of the workshop entitled "Improving the Utility of Haptic Feedback in Upper-Limb Prosthesis Control: Establishing user-centric guidelines for engineering innovation," which took place on July 10, 2023 at the IEEE World Haptics Conference in Delft, The Netherlands.

**2. Sloan Foundation Fellowship**

Awardee: Jeremy D. Brown

Agency: Alfred P. Sloan Foundation

Funding: \$75,000

Dates: September 1, 2022 – August 31, 2024

Objective: To foster research into the neuroscience of touch through the utilization of robotic haptic interfaces.

**3. Skill Based Control Arbitration for Robot-Assisted Minimally Invasive Surgery, Seed Grant**

Investigators: Jeremy D. Brown (PI, Johns Hopkins University), Gina Adrales (Co-I, Johns Hopkins Medicine), and Axel Krieger (Co-I, Johns Hopkins University)

Agency: Johns Hopkins University: Malone Center for Engineering and Healthcare

Funding: \$50,000

Dates: October 1, 2021 – September 30, 2023

Objective: To test the hypothesis that a confidence-based shared-control framework for robot-assisted minimally invasive surgery (RAMIS) will improve surgical task performance while simultaneously supporting improvements in skill proficiency.

4. **Control Arbitration for Robot-Assisted Minimally Invasive Surgery Utilizing a Skill-Based Shared-Control Framework**, Technology Research Grant

Investigators: Jeremy D. Brown (PI, Johns Hopkins University), Axel Krieger (Co-I, Johns Hopkins University)

Agency: Intuitive Surgical, Inc.

Funding: \$50,000

Dates: January 1, 2022 – June 30, 2023

Objective: To develop a confidence-based shared-control framework that can appropriately arbitrate and blend control based on surgeon skill to ensure patient safety while simultaneously providing haptic guidance to support surgeon skill development.

5. **Assessing Proprioceptive Impairment and its Impact on Motor Control Post Stroke**

Scholar: Jeremy D. Brown (Johns Hopkins University)

Agency: Northwestern University: Interdisciplinary Rehabilitation Engineering Research Career Development Program, funded by NIH K12HD073945

Funding: \$100,000 (salary) + \$25,000 (research)

Dates: September 1, 2020 – August 31, 2022

Objective: To develop and validate a robotics-based psychophysical threshold methodology for investigating all aspects of proprioceptive impairment in the upper-extremity post-stroke.

6. **CRII: Improving Dexterous Manipulation with Telerobots Through Operator-Sensitive Haptic Display**, IIS

Investigators: Jeremy D. Brown (PI, Johns Hopkins University)

Agency: National Science Foundation: CISE Research Initiation Initiative Award: Division of Information and Intelligent Systems

Funding: \$174,991

Dates: August 1, 2017 – July 31, 2021

Objective: To test the hypothesis that modulation of a kinesthetic haptic devices's controlled and/or inherent impedance in accordance with the operator's impedance will improve the interface to and utility of human-in-the-loop telerobotic systems.

REU Supplements: 2020 (\$16,000), 2019 (\$16,000), 2018 (\$16,000)

7. **Comparison of Cutaneous Feedback Methods for Pinching Palpation in Robotic Surgery**, Technology Research Grant

Investigators: Katherine J. Kuchenbecker (PI, University of Pennsylvania), Jeremy D. Brown (Co-I, University of Pennsylvania)

Agency: Intuitive Surgical, Inc.

Funding: \$50,000

Dates: January 1, 2015 – December 31, 2015

Objective: To enable effective cutaneous haptic feedback in robotic minimally invasive surgical (RMIS) procedures that require the surgeon to pinch tissue to determine its mechanical properties.

INSTRUCTION AND CURRICULUM DEVELOPMENT

JOHNS HOPKINS UNIVERSITY 2017–PRESENT

**EN.530.421: Mechatronics** (redeveloped course)

Semesters taught (enrollment): Spring 2019 (34), 2020 (34), 2022 (39), 2023 (55), 2024 (54)

Course description: This course provides students of various engineering backgrounds with a hands-on practicum in mechatronic system design. Topics include passive/active circuits, sensors, actuators, state machines, and closed-loop feedback control. [Final project media](#)

## highlight

**EN.530.691: Haptic Interface Design for Human–Robot Interaction** (created course)  
Semesters taught (enrollment): Fall 2017 (14), 2018 (23), 2019 (34), 2020 (23), 2021 (34), 2022 (52), 2023 (64), 2024 (65)

Course description: This course provides an introduction to haptic interface design and analysis for human-robot interaction involving virtual environments, augmented reality, and teleoperation. Topics include human touch perception, haptic-focused mechatronic design, system modeling and analysis (kinematic and dynamic), human-in-the-loop feedback control, and haptic feedback evaluation.

Highlight: Eight course projects have been submitted to international haptics conferences in the Works in Progress Session (seven accepted, see [C15](#), [S3](#), [S5](#), [S6](#), [S8](#), [S9](#), [S21](#)) and four have been submitted to Demos and Exhibits Session (four accepted, see [S4](#), [S7](#), [S10](#), [S11](#)).

## EDUCATIONAL LECTURES AND OUTREACH ACTIVITIES

1. “Haptic Feedback in Human-Robot Interaction.” Invited presentation, National Student Leadership Conference, Johns Hopkins University, July 1, 2024; July 15, 2024
2. “Graduate School Workshop.” Presenter, workshop for summer students participating in the Laboratory for Computational Sensing and Robotics (LCSR) National Science Foundation (NSF) research experience for undergraduates (REU) Program, Johns Hopkins University, July 9, 2024; July 20, 2023; July 16, 2022; July 16, 2021; July 6, 2020; July 26, 2018; July 16, 2017
3. “Understanding the Utility of Haptic Feedback in Telerobotic Devices.” Invited presentation, Johns Hopkins University Hopkins Engineering Exploration Program (HEEP), June, 20, 2024
4. “Engineering the Sense of touch.” Invited presentation, Johns Hopkins University Hopkins At Home lecture series, virtual, June 28, 2022
5. “Haptics and Medical Robotics Laboratory.” Invited presentation, Johns Hopkins University Center for Educational Outreach SABES *Meet the Scientist* Session, virtual, June 9, 2020
6. “Haptic Technology: Engineering Your Sense of Touch.” Lecture and hands-on demonstration, Engineering Innovations Program, Johns Hopkins University, July 17, 2018

## PROFESSIONAL ACTIVITIES

### EDITORSHIPS

Associate Editor, IEEE World Haptics Conference (2023)

Associate Editor, IEEE Robotics and Automation Letters (2018–2023)

### ADVISORY COMMITTEES

[Defense Science Study Group](#) [DARPA-Sponsored National Security Program] (2024–2026)

Advisory Board, Future Leaders in Mechanical and Aerospace Engineering Seminar Series (2020–2022)

### JOURNAL REVIEWS

Science Robotics

IEEE Transactions on Haptics

IEEE/ASME Transactions on Mechatronics

IEEE Transactions on Human-Machine Systems

IEEE Transactions on Medical Robotics and Bionics

IEEE Transactions on Biomedical Engineering

IEEE Transactions on Neural Systems and Rehabilitation Engineering

Frontiers in Robotics and AI  
ACM Transactions on Human Robot Interaction

#### CONFERENCE ORGANIZATION COMMITTEES

2022 IEEE Haptics Symposium (Santa Barbara, CA) - Social Arrangements Co-Chair  
2021 IEEE World Haptics Conference (virtual due to COVID-19) - Sponsorship and Exhibits  
Co-Chair  
2020 IEEE Haptics Symposium (virtual due to COVID-19) - Social Arrangements Co-Chair  
2018 IEEE Haptics Symposium (San Francisco, CA 2019) - Student Volunteers Co-Chair  
2016 IEEE Haptics Symposium (Philadelphia, PA) - Local Arrangements Co-Chair

#### GRANT REVIEWS

NSF Panelist - Engineering Directorate (2021, 2020, 2023, 2024)  
NIH Ad hoc Panelist - MRS Study Section (2022)  
NSF Panelist - CISE Directorate (2017, 2018)

#### SERVICE AND OUTREACH

##### UNIVERSITY SERVICE, JOHNS HOPKINS UNIVERSITY

Vivian Thomas Scholars Initiative Admissions Committee (2024–Present)  
Whiting School of Engineering Faculty Senate (2024–Present)  
Laboratory for Computational Sensing and Robotics M.S.E Admissions Committee (2024)  
Data Science and Artificial Intelligence Institute Director search committee (2023–Present)  
Malone Center for Engineering in Healthcare Appointments Committee (2023–Present)  
Hackerman Hall Existing Space Committee (2023)  
Graduate Board Oral Examinations in Computer Science and Biomedical Engineering (2021–  
Present)  
Diverse Names and Narratives Task Force (2021–2023)  
Homewood Council for Inclusive Excellence (2019–2021)  
Institute for Assured Autonomy Director search committee (2019–2020)  
Laboratory for Computational Sensing and Robotics Assistant Research Engineering Search  
Committee (2019)  
Whiting School of Engineering/Department of Medicine Research Retreat Planning Committee  
(2018–2019)  
Malone Center for Engineering in Healthcare Symposium Planning Committee (2017)

##### DEPARTMENT SERVICE, JOHNS HOPKINS UNIVERSITY

Dept. of Mechanical Engineering Diversity and Inclusion Committee (2020–Present)  
Dept. of Mechanical Engineering Graduate Curriculum Committee (2018–2024)  
Dept. of Mechanical Engineering Junior Faculty Undergraduate Curriculum Committee (2018–  
2019)  
Dept. of Mechanical Engineering Grad Visit Day URM/Women Lunch Committee (2018–2023)

#### BALTIMORE COMMUNITY SERVICE

Faculty Mentor, Baltimore Ingenuity Project (2019–Present)  
Faculty Mentor, JHU Women in Science and Engineering Program (2017–2018, 2024)  
Faculty Mentor, The Park School of Baltimore Senior Internship (2018)

#### AD HOC UNIVERSITY SERVICE

Reader, Whiting School of Engineering Order of the Engineer Induction Ceremony (May 2022)  
Member, Data Science and Artificial Intelligence building dry lab working group (2024)

#### SCIENTIFIC SERVICE

Reviewer, 2023 RSS Pioneers Workshop (2023)

#### AD HOC DIVERSITY AND INCLUSION SERVICE

Mentor, Google-Black in Robotics Doctoral Award Program (2023–Present)  
Panelist, JHU Vivian Thomas Scholars Initiative Virtual Visit Day Panel (January 2024)  
Host, Barclay Middle 7th Grade Annual JHU Trip (Robotics) (November 2023)  
Panelist, Maryland LSAMP Summer Research Professional Development Seminar (July 2023)  
Panelist, JHU Vivian Thomas Scholars Initiative Virtual Visit Day Panel (January 2023)  
Panelist, Explore Hopkins graduate recruitment program (October 2022)  
Co-organizer, JHU Scott Bates Tower Dedication Ceremony (January-July 2022)  
Panelist, JHU Vivian Thomas Scholars Initiative (student visit) (May 2022)  
Review Committee, JHU WSE Excellence in Teaching Awards Committee (February-March 2022)  
Panelist, JHU Vivian Thomas Scholars Initiative Virtual Visit Day Panel (January 2022)  
Panelist, JHU Discover Series Diversity and Inclusion Panel (December 2021)  
Panelist, Explore Hopkins graduate recruitment program (November 2021)  
Interviewee, Baltimore Online Algebra for Students in Technology (BOAST) Program, (July 2021)  
Host, Future Leaders in Mechanical and Aerospace Engineering Seminar (April 2021)  
Moderator, Hopkins Engineering GradPath Collaborative Panel (March 2021)  
Co-organizer, Hopkins Mechanical Engineering URM Graduate School Open House (December 2020)  
Panelist, Hopkins Discover Series Diversity and Inclusion Panel (December 2020)  
Panelist, Explore Hopkins graduate recruitment program (November 2020)  
Participant, Black/LatinX Student Welcome Event (September 2020)  
Member, Mechanical Engineering Diversity and Inclusion Statement Working Group (Summer 2020)  
Panelist, Ingenuity Project Men's Breakfast (January 2020)  
Presenter, Barclay Elementary School Engineers Week Workshop (February 2019)  
Presenter, Barclay Elementary School Engineers Week Workshop (February 2018)

#### PROFESSIONAL DEVELOPMENT

## PROFESSIONAL AFFILIATIONS

Society of American Gastrointestinal and Endoscopic Surgeons (SAGES)	2018–Present
American Society of Mechanical Engineers (ASME)	2015–Present
Institute of Electrical and Electronics Engineers (IEEE)	2010–Present
National Society of Black Engineers (NSBE)	2004–Present

## PROFESSIONAL PROGRAMS

- (NSF Sponsored) Project ELEVATE (Participant), Johns Hopkins University, January 2023–Present
- (NSF sponsored) Minority Faculty Development Workshop (Participant), Harvard University, September 2019
- Academic and Research Leadership Network Symposium (Participant), Academic and Research Leadership Network, April 2017
- Academic and Research Leadership Network Symposium (Participant), Academic and Research Leadership Network, April 2015
- Building Future Faculty Program (Participant), North Carolina State University, April 2015
- FOCUS Fellows Program (Participant), Georgia Institute of Technology, January 2014
- NextProf Future Faculty Workshop (Participant and Invited Guest Speaker), University of Michigan, September 2012
- Academy for Future Science Faculty (Member), Northwestern University, June 2012–June 2016
- Project Management Workshop (Participant), Michigan Alliance for Graduate Education and the Professoriate, March 2012
- Minority Faculty/Student Mixer (Organizer and Participant), Society of Minority Engineers and Scientists Graduate Component, October 2011
- Compact for Faculty Diversity Workshop (Participant), Southern Regional Education Board, September 2011
- Professional Skills for Research Scientists Course (Student), University of Michigan Department of Kinesiology, January–April 2010