Allison M. Okamura, Ph.D.

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Curriculum vitae last updated: March 5, 2023

Education

Ph.D. 2000 Mechanical Engineering, Stanford University, Stanford, California, USA
Dissertation: Haptic Exploration of Unknown Objects

M.S. 1996 Mechanical Engineering, Stanford University, Stanford, California, USA
Specialization: Robotics, Kinematics, and Controls

B.S. 1994 Mechanical Engineering, University of California, Berkeley, California, USA
With Honors

Positions Held

2022-present Richard W. Weiland Professor in the School of Engineering, Stanford University

2021-present Deputy Director, Wu Tsai Neurosciences Institute, Stanford University

2015-present Professor, Mechanical Engineering Department, Stanford University

2012-present Courtesy appointment, Computer Science Department, Stanford University

2011-2015 Associate Professor, Mechanical Engineering Department, Stanford University

2011-2013 Research Professor, Department of Mechanical Engineering, Johns Hopkins University

2010-2011 Vice Chair, Department of Mechanical Engineering, Johns Hopkins University

2009-2010 Visiting Researcher, Kennedy Krieger Institute (sabbatical year)

2009-2011 Professor, Department of Mechanical Engineering, Johns Hopkins University

2007-2011 Associate Director, Laboratory for Computational Sensing and Robotics, Johns Hopkins University

2006-2009 Associate Professor, Department of Mechanical Engineering, Johns Hopkins University

2004-2009 Surgical Assistants Thrust Leader, NSF Engineering Research Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University

2002-2011 Secondary Appointment in Computer Science, Johns Hopkins University

2000-2009 Faculty Member, NSF Engineering Research Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University

2000-2006 Assistant Professor, Department of Mechanical Engineering, Johns Hopkins University

1994-2000 Graduate Research Assistant, Department of Mechanical Engineering, Stanford University

1999-2000 Adjunct Faculty Member, Math and Science Division, College of San Mateo, CA

1998 Teaching Fellow, Department of Mechanical Engineering, Stanford University

1996-1998 Research Engineer, Immersion Corporation, San Jose, CA

Research Interests

My research focuses on developing the principles and tools needed to realize advanced robotic and human-machine systems capable of physical interaction. Topics of particular interest are: (1) Teleoperation: Devices, models, and control systems that allow human operators to manipulate environments that are remote in scale and/or distance. (2) Haptic systems: Devices, models, and control systems that enable compelling touch-based interaction with virtual environments, computers, and remote robots. (3) Robotic manipulation: Robots that physically manipulate their environment or their own shape, incorporating novel designs, sensors, and control systems. Application areas include surgery, simulation and training, rehabilitation, prosthetics, neuromechanics, exploration of hazardous and remote environments, design, and education.

Awards and Honors

2022 Finalist, Best Paper Award, IEEE International Conference on Intelligent Robots and Systems (IROS)

2022 Women in Robotics Engineering and Science (WiRES) – honoring women who have made significant contributions to robotics

2022 Highlighted in the Nature Communications Engineering viewpoint article Rizzo, A., et al. Inspiring engineers. Commun Eng 1, 12 (2022). https://doi.org/10.1038/s44172-022-00013-8

2022 Stanford Faculty Womens Forum Allyship Award

2021-2026 (Re-appointed) Duca Family University Fellow in Undergraduate Education (Bass University Fellows Program), Stanford University

2020 IEEE Robotics and Automation Magazine Best Paper Award for the paper "Vine robots: Design, teleoperation and deployment for navigation and exploration"

2020 IEEE Engineering in Medicine and Biology Society Technical Achievement Award: "For breakthrough technological developments in the field of medical robotics, including designing novel haptic feedback to enhance human performance and opening new pathways for soft robotics"

2020 Finalist, Best Paper in Human-Robot Interaction, IEEE International Conference on Robotics and Automation (ICRA)

2020 Nominee, Best Paper Award, IEEE International Conference on Soft Robotics

2019 IEEE Robotics and Automation Society Distinguished Service Award: "For outstanding service as Editor-in-Chief of the RAS Conference Editorial Board and contributions to RASs new journal, IEEE Robotics and Automation Letters"

2019 "Soft robot that navigates through growth" named by the journal Science Robotics in the Ten Robotics Technologies of the Year for 2018

2018-2020 Stanford Fellow, Stanford University

2018 Stanford Tau Beta Pi Teaching Honor Roll, Stanford University

2018 Finalist, Best Paper in Human-Robot Interaction, IEEE International Conference on Robotics and Automation (ICRA)

2018 Best Student Presentation Award, IEEE Haptics Symposium (student author: Sean Sketch)

2018 Gilbreth Lecturer, National Academy of Engineers

2017 ACM CHI Best Paper Award (among the top 1% of submissions to the SIGCHI 2017 conference)

2017 Johns Hopkins University Society of Scholars

2016-2021 Duca Family University Fellow in Undergraduate Education (Bass University Fellows Program), Stanford University

2014 National Academy of Engineers Frontiers of Engineering Symposium (invited speaker), Irvine, CA

2014 IEEE Haptics Symposium Best Student Paper Award (student author: Zhan Fan Quek)

2013 Medicine Meets Virtual Reality (MMVR) Conference Best Poster Award

2011-2015 Robert Bosch Faculty Scholar, Stanford University

2011 Gabilan Fellow, Stanford University

2011 IEEE Fellow

2009 IEEE Technical Committee on Haptics Early Career Award

2009 Women Scholars Lecture Series (invited speaker), University of Victoria, Canada

2008 Stanford Alumni Distinguished Scholar. Recognition for alumni from underrepresented groups with successful academic careers.

2008 American Association of Publishers Award for Excellence in Physical Sciences and Mathematics for the *Springer Handbook of Robotics* team

2008 Medicine Meets Virtual Reality (MMVR) Conference Best Poster Award

2007-2010 Decker Faculty Scholar, Johns Hopkins University. Awarded to a senior assistant professor or associate professor who exhibits exceptional achievement in his or her area of expertise. Provides flexible financial support to promote innovative research, teaching activities, and entrepreneurial thinking.

2007 National Academy of Engineers Frontiers of Engineering Symposium (invited speaker), Hamburg, Germany

2006 Finalist, Best Paper Award, IEEE/RSJ International Conference on Intelligent Robots and Systems

2005 Early Academic Career Award, IEEE Robotics and Automation Society: "For contributions to the design and control of haptic devices and to teleoperated and needle-based robot-assisted surgery"

2005 Literati Club Award for Excellence, Outstanding Paper of the Year in Industrial Robot

2004 George E. Owen Teaching Award, Johns Hopkins University. Awarded annually for outstanding teaching and devotion to undergraduates.

2004 National Academy of Engineers Frontiers of Engineering Symposium (invited participant), Washington, D.C.

2004 National Science Foundation CAREER Award

2003 Whitaker Foundation Biomedical Engineering Grant (awarded to young investigators)

2003 Diversity Recognition Award, Johns Hopkins University

2000 Best Paper Award, American Society of Engineering Education Annual Conference

1999 American Society of Mechanical Engineers Auxiliary Parsons Scholarship

1999 National Science Foundation Science and Engineering Education Scholars Program (invited participant), Madison, Wisconsin

1999 National Science Foundation Dissertation Enhancement Award

1994-1997 National Science Foundation Graduate Fellowship

1993 Farbar Award, American Society of Mechanical Engineers

1993 Boeing Company Scholarship

1992 Pi Tau Sigma, Mechanical Engineering Honor Society

1992 University of California Japanese American Alumni Association Scholarship

1991 Levens Prize, University of California at Berkeley Mechanical Engineering

1990 Alumni Scholarship, University of California at Berkeley

Publications

Journal Articles

[J1] C. G. Welker, S. H. Collins, and A. M. Okamura. Human perception of wrist flexion and extension torque during upper and lower extremity movement. *IEEE Transactions on Haptics*, 15(4):741–752, 2022.

[J2] C. Seim, B. Ritter, T. Starner, K. Flavin, M. G. Lansberg, and A. M. Okamura. Design of a wearable vibrotactile stimulation device for individuals with upper-limb hemiparesis and spasticity. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 30:1277–1287, 2022.

[J3] M. Salvato, N. Heravi, A. M. Okamura, and J. Bohg. Predicting hand-object interaction for improved haptic feedback in mixed reality. *IEEE Robotics and Automation Letters*, 7(2):3851–3857, 2022.

[J4] S. R. Williams, J. M. Suchoski, Z. Chua, and A. M. Okamura. A 4-degree-of-freedom parallel origami haptic device for normal, shear and torsion feedback. *IEEE Robotics and Automation Letters*, 7(2):3310–3317, 2022.

[J5] M. Sarac, T. M. Huh, H. Choi, M. R. Cutkosky, M. Di Luca, and A. M. Okamura. Perceived intensities of normal and shear skin stimuli using a wearable haptic bracelet. *IEEE Robotics and Automation Letters*, 7(3):6099–6106, 2022.

[J6] L. H. Blumenschein, M. Koehler, N. S. Usevitch, E. W. Hawkes, D. C. Rucker, and A. M. Okamura. Geometric solutions for general actuator routing on inflated beam soft growing robots. *IEEE Transactions on Robotics*, 38(3):1820–1840, 2022.

[J7] M. Salvato, S. R. Williams, C. M. Nunez, X. Zhu, A. Israr, F. Lau, K. Klumb, F. Abnousi, A. M. Okamura, and H. Culbertson. Data-driven sparse skin stimulation can convey social touch information to humans. *IEEE Transactions on Haptics*, 15(2):392–404, 2022.

[J8] D. R. Deo, P. Rezaii, L. R. Hochberg, A. M. Okamura, K. V. Shenoy, and J. M. Henderson. Effects of peripheral haptic feedback on intracortical brain-computer interface control and associated sensory responses in motor cortex. *IEEE Transactions on Haptics, DOI: 10.1109/TOH.2021.3072615*, 14(4):762–775, 2021.

[J9] C. G. Welker, V. L. Chiu, A. S. Voloshina, S. H. Collins, and A. M. Okamura. Teleoperation of an ankle-foot prosthesis with a wrist exoskeleton. *IEEE Transactions on Biomedical Engineering*, 68(5):1714–1725, 2021.

[J10] S. Williams and A. M. Okamura. Body-mounted vibrotactile stimuli: Simultaneous display of taps on the fingertips and forearm. *IEEE Transactions on Haptics*, 14(2):432–444, 2021.

[J11] T. K. Morimoto, M. Orta Martinez, R. Davis, P. Blikstein, and A. M. Okamura. Teaching with hapkit: Enabling online haptics courses with hands-on laboratories. *IEEE Robotics and Automation Magazine*, 28(3):79–91, 2021.

[J12] L. H. Blumenschein, M. M. Coad, D. A. Haggerty, A. M. Okamura, and E. W. Hawkes. Design, modeling, control and application of everting vine robots. *Frontiers in Robotics and AI*, 7:153, 2020.

[J13] Z. Chua, A. M. Jarc, S. Wren, I. Nisky, and A. M. Okamura. Task dynamics of prior training influence visual force estimation ability during teleoperation. *IEEE Transactions on Medical Robotics and Bionics*, 2(4):586–597, 2020.

[J14] J. M. Walker and A. M. Okamura. Continuous closed-loop 4-degree-of-freedom holdable haptic guidance. *IEEE Robotics and Automation Letters*, 5(4):6853–6860, 2020.

[J15] Cole Simpson, Bryce Huerta, Sean Sketch, Maarten Lansberg, Elliot Hawkes, and Allison Okamura. Upper extremity exomuscle for shoulder abduction support. *IEEE Transactions on Medical Robotics and Bionics*, 2(3):474–484, 2020.

[J16] N. S. Usevitch, Z. M. Hammond, M. Schwager, A. M. Okamura, E. W. Hawkes, and S. Follmer. An untethered isoperimetric soft robot. *Science Robotics*, 4:eaaz0492, 2020.

[J17] M. Koehler, N. Usevitch, and A. M. Okamura. Model-based design of a soft 3d haptic shape display. *IEEE Transactions on Robotics*, 36(3):613–628, 2020.

[J18] M. M. Coad, R. P. Thomasson, L. H. Blumenschein, N. S. Usevitch, E. W. Hawkes, and A. M. Okamura. Retraction of soft growing robots without buckling. *IEEE Robotics and Automation Letters*, 5(2):2115–2122, 2020.

[J19] L. T. Gan, L. H. Blumenschein, Z. Huang, A. M. Okamura, E. W. Hawkes, and J. A. Fan. 3d electromagnetic reconfiguration enabled by soft continuum robots. *IEEE Robotics and Automation Letters*, 5(2):1704–1711, April 2020.

[J20] Y. Che, A. M. Okamura, and D. Sadigh. Efficient and trustworthy social navigation via explicit and implicit robot-human communication. *IEEE Transactions on Robotics*, 36(3):692–707, 2020.

[J21] J. D. Greer, L. H. Blumenschein, R. Alterovitz, E. W. Hawkes, and A. M. Okamura. Robust navigation of a soft growing robot by exploiting contact with the environment. *International Journal of Robotics Research*, 39(14):1724–1738, 2020.

[J22] M. M. Coad, L. H. Blumenschein, S. Cutler, J. A. Reyna Zepeda, N. D. Naclerio, H. El-Hussieny, U. Mehmood, J.-H. Ryu, E. W. Hawkes, and A. M. Okamura. Vine robots: Design, teleoperation and deployment for navigation and exploration. *IEEE Robotics and Automation Magazine*, 27(3):120–132, 2020.

[J23] M. Orta Martinez, C. M. Nunez, T. Liao, T. K. Morimoto, and A. M. Okamura. Evolution and analysis of Hapkit: An open-source haptic device for educational applications. *IEEE Transactions on Haptics*, 2019.

[J24] P. B. Shull, T. Tan, H. M. Culbertson, X. Zhu, and A. M. Okamura. Resonant frequency skin stretch for wearable haptics. *IEEE Transactions on Haptics*, 12(3):247–256, 2019.

[J25] C. M. Nunez, S. R. Williams, A. M. Okamura, and H. Culbertson. Understanding continuous and pleasant linear sensations on the forearm from a sequential discrete lateral skin-slip haptic device. *IEEE Transactions on Haptics*, 12(4):414–427, 2019.

[J26] C. Rognon, M. Koehler, C. Duriez, D. Floreano, and A. M. Okamura. Soft haptic device to render the sensation of flying like a drone. *IEEE Robotics and Automation Letters*, 4(3):2524–2531, 2019.

[J27] M. Koehler, A. M. Okamura, and C. Duriez. Stiffness control of deformable robots using finite element modeling. *IEEE Robotics and Automation Letters*, 4(2):469–476, 2019.

[J28] S. Nisar, M. Orta Martinez, T. Endo, F. Matsuno, and A. M. Okamura. Effects of different hand-grounding locations on haptic performance with a wearable kinesthetic haptic device. *IEEE Robotics and Automation Letters*, 4(2):351–358, 2019.

[J29] S. Kanjanapas, C. M. Nunez, S. R. Williams, A. M. Okamura, and M. Luo. Design and analysis of pneumatic 2-dof soft haptic devices for shear display. *IEEE Robotics and Automation Letters*, 4(2):1365–1371, 2019.

[J30] Z. F. Quek, W. Provancher, and A. M. Okamura. Evaluation of skin deformation tactile feedback for teleoperated surgical tasks. *IEEE Transactions on Haptics*, 12(2):102–113, 2019.

[J31] J. D. Greer, T. K. Morimoto, A. M. Okamura, and E. W. Hawkes. A soft, steerable continuum robot that grows via tip extension. *Soft Robotics*, 6(1):95–108, 2019.

[J32] Y. Che, H. Culbertson, C.-W. Tang, S. Aich, and A. M. Okamura. Facilitating human-mobile robot communication via haptic feedback and gesture teleoperation. *ACM Transactions on Human-Robot Interaction*, 7(3):20, 2018.

[J33] T. K. Morimoto, J. D. Greer, E. W. Hawkes, M. H. Hsieh, and A. M. Okamura. Toward the design of personalized continuum surgical robots. *Annals of Biomedical Engineering*, 46(10):1522–1533, 2018.

[J34] H. Culbertson, S. Schorr, and A. M. Okamura. Haptics: The present and future of artificial touch sensations. *Annual Review of Control, Robotics and Autonomous Systems*, 1:385–409, 2018.

[J35] Y. Kamikawa and A. M. Okamura. Comparison between force-controlled skin deformation feedback and hand-grounded kinesthetic force feedback for sensory substitution. *IEEE Robotics and Automation Letters*, 3(3):2174–2181, 2018.

[J36] L. H. Blumenschein, L. Gan, J. Fan, A. M. Okamura, and E. W. Hawkes. A tip-extending soft robot enables reconfigurable and deployable antennas. *IEEE Robotics and Automation Letters*, 3(2):949–956, 2018.

[J37] J. M. Walker, H. Culbertson, M. Raitor, and A. Okamura. Haptic orientation guidance using two parallel double-gimbal control moment gyroscopes. *IEEE Transactions on Haptics*, 11(2):267–278, 2018.

[J38] E. W. Hawkes, L. H. Blumenschein, J. D. Greer, and A. M. Okamura. A soft robot that navigates its environment through growth. *Science Robotics*, 2(8):eaan3028, 2017. DOI: 10.1126/scirobotics.aan3028.

[J39] N. Gurari, A. M. Okamura, and K. J. Kuchenbecker. Perception of force and stiffness in the presence of low-frequency haptic noise. *PLOS One*, 12(6):e0178605, 2017. https://doi.org/10.1371/journal.pone.0178605.

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[J41] T. K. Morimoto, E. W. Hawkes, and A. M. Okamura. Design of a compact actuation and control system for flexible medical robots. *IEEE Robotics and Automation Letters*, 2(3):1579–1585, 2017.

[J42] G. Gerboni, J.D. Greer, P.F. Laeseke, G.L. Hwang, and A. M. Okamura. Highly articulated robotic needle achieves distributed ablation of liver tissue. *IEEE Robotics and Automation Letters*, 2(3):1367–1374, 2017.

[J43] A. A. Stanley and A. M. Okamura. Deformable model-based methods for shape control of a haptic jamming surface. *IEEE Transactions on Visualization and Computer Graphics*, 23(2):1029–1041, 2017.

[J44] H. E. B. Russell, L. K. Harbott, I. Nisky, S. Pan, A. M. Okamura, and J. C. Gerdes. Motor learning affects car-to-driver handover in automated vehicles. *Science Robotics*, 1(1):eaah5682, 2016. DOI: 10.1126/scirobotics.aah5682.

[J45] T. K. Morimoto and A. M. Okamura. Design of 3-d printed concentric tube robots. *IEEE Transactions on Robotics*, 32(6):1419–1430, 2016.

[J46] T. K. Adebar, J. D. Greer, P. F. Laeseke, G. L. Hwang, and A. M. Okamura. Methods for improving the curvature of steerable needles in biological tissues. *IEEE Transactions on Biomedical Engineering*, 63(6):1167–1177, 2015.

[J47] J. M. Walker, N. Colonnese, and A. M. Okamura. Noise, but not uncoupled stability, reduces realism and likeability of bilateral teleoperation. *IEEE Robotics and Automation Letters*, 1(1):562–569, 2016.

[J48] K. A. Nichols and A. M. Okamura. A framework for multilateral manipulation in surgical tasks. *IEEE Transactions on Automation Science and Engineering*, 24(2):68–77, 2016.

[J49] N. Colonnese and A. M. Okamura. Stability and quantization error analysis of haptic rendering of virtual stiffness and damping. *International Journal of Robotics Research*, 35(9):1103–1120, 2016.

[J50] N. Colonnese, A. F. Siu, C. M. Abbott, and A. M. Okamura. Rendered and characterized closed-loop accuracy of impedance-type haptic displays. *IEEE Transactions on Haptics*, 8(4):434–446, 2015.

[J51] S. B. Schorr, Z. F. Quek, I. Nisky, W. Provancher, and A. M. Okamura. Tactor-induced skin stretch as a sensory substitution method in teleoperated palpation. *IEEE Transactions on Human-Machine Systems*, 45(6):714–726, 2015.

[J52] Z. F. Quek, S. B. Schorr, I. Nisky, W. R. Provancher, and A. M. Okamura. Sensory substitution and augmentation using 3-degree-of-freedom skin deformation feedback. *IEEE Transactions on Haptics*, 8(2):209–221, 2015.

[J53] M. F. Rotella, I. Nisky, M. Koehler, M. D. Rinderknecht, A. J. Bastian, and A. M. Okamura. Learning and generalization in an isometric visuomotor task. *Journal of Neurophysiology*, 113:1873–1884, 2015.

[J54] K. A. Nichols and A. M. Okamura. Methods to segment hard inclusions in soft tissue during autonomous robotic palpation. *IEEE Transactions on Robotics*, 31(2):344–354, 2015.

[J55] A. A. Stanley and A. M. Okamura. Controllable surface haptics via particle jamming and pneumatics. *IEEE Transactions on Haptics*, 8(1):20–30, 2014.

[J56] N. Colonnese and A. M. Okamura. M-width: Stability, noise characterization and accuracy of rendering virtual mass. *International Journal of Robotics Research*, 34(6):781–798, 2015.

[J57] Z. F. Quek, S. B. Schorr, I. Nisky, W. R. Provancher, and A. M. Okamura. Augmentation of stiffness perception with a 1-degree-of-freedom skin stretch device. *IEEE Transactions on Human-Machine Systems*, 44(6):731–742, 2014.

[J58] D. I. Grow, A. J. Bastian, and A. M. Okamura. Testing models of cerebellar ataxia via dynamics simulation. *Robotica*, 32(8):1383–1397, 2014.

[J59] T. K. Adebar, A. E. Fletcher, and A. M. Okamura. 3D ultrasound-guided robotic needle steering in biological tissue. *IEEE Transactions on Biomedical Engineering*, 61(12):2899–2910, 2014.

[J60] I. Nisky, M. H. Hsieh, and A. M. Okamura. Uncontrolled manifold analysis of arm joint angle variability during robotic teleoperation and freehand movement of surgeons and novices. *IEEE Transactions on Biomedical Engineering*, 61(12):2869–2881, 2014.

[J61] J. P. Swensen, M. Lin, A. M. Okamura, and N. J. Cowan. Torsional dynamics of steerable needles: Modeling and fluoroscopic guidance. *IEEE Transactions on Biomedical Engineering*, 61(11):2707–2717, 2014.

[J62] J. C. Gwilliam, T. Yoshioka, A. M. Okamura, and S. S. Hsiao. Neural coding of lump detection in compliant artificial tissue. *Journal of Neurophysiology*, 2014. DOI: 10.1152/jn.00032.2013.

[J63] N. Bhanpuri, A. M. Okamura, and A. J. Bastian. Predicting and correcting ataxia using a model of cerebellar function. *Brain*, 137(7):1931–1944, 2014.

[J64] D. D. Damian, T. H. Newton, R. Pfeifer, and A. M. Okamura. Artificial tactile sensing of position and slip speed by exploiting geometrical features. *IEEE Transactions on Mechatronics*, 20(1):263–274, 2015.

[J65] I. Nisky, A. M. Okamura, and M. H. Hsieh. Effects of robotic manipulators on movements of novices and surgeons. *Surgical Endoscopy*, 28(7):2145–2158, 2014.

[J66] M. M. Ankarali, H. T. Sen, A. De, A. M. Okamura, and N. J. Cowan. Haptic feedback enhances rhythmic motor control by reducing variability, not convergence rate. *Journal of Neurophysiology*, 111:1286–1299, 2014.

[J67] T. L. Gibo, A. J. Bastian, and A. M. Okamura. Grip force control during virtual object interaction: Effect of force feedback, accuracy demands and training. *IEEE Transactions on Haptics*, 7(1):37–47, 2014.

[J68] A. J. Blank, A. M. Okamura, and L. L. Whitcomb. Task-dependent impedance and implications for upper-limb prosthesis control. *International Journal of Robotics Research*, 3(6):827–846, 2013.

[J69] T. L. Gibo, S. E. Criscimagna-Hemminger, A. M. Okamura, and A. J. Bastian. Cerebellar motor learning: Are environment dynamics more important than error size? *Journal of Neurophysiology*, 110(2):322–333, 2013.

[J70] T. L. Gibo, A. J. Bastian, and A. M. Okamura. Cerebellar ataxia impairs modulation of arm stiffness during postural maintenance. *Journal of Neurophysiology*, 110(7):1611–1620, 2013.

[J71] N. Bhanpuri, A. M. Okamura, and A. J. Bastian. Predictive modeling by the cerebellum improves proprioception. *Journal of Neuroscience*, 33(36):14301–14306, 2013.

[J72] D. De Lorenzo, Y. Koseki, E. De Momi, K. Chinzei, and A. M. Okamura. Coaxial needle insertion assistant with enhanced force feedback. *IEEE Transactions on Biomedical Engineering*, 60(2):379–389, 2013.

[J73] S. K. Charles, A. M. Okamura, and A. J. Bastian. Does a basic deficit in force control underlie cerebellar ataxia? *Journal of Neurophysiology*, 109(4):1107–1116, 2013.

[J74] N. Gurari, K.J. Kuchenbecker, and A. M. Okamura. Perception of springs with visual and proprioceptive motion cues: Implications for prosthetics. *IEEE Transactions on Human-Machine Systems*, 43(1):102–114, 2013.

[J75] J. C. Gwilliam, M. Bianchi, L. Su, and A. M. Okamura. Characterization and psychophysical studies of an air-jet lump display. *IEEE Transactions on Haptics*, 6(2):156–166, 2013.

[J76] N. Bhanpuri, A. M. Okamura, and A. J. Bastian. Active force perception depends on cerebellar function. *Journal of Neurophysiology*, 107:1612–1620, 2012.

[J77] A. Majewicz, S. Marra, M. van Vledder, M. Ling, M. A. Choti, D. Y. Song, and A. M. Okamura. Behavior of tip-steerable needles in ex vivo and in vivo tissue. *IEEE Transactions on Biomedical Engineering*, 59(10):2705–2715, 2012.

[J78] K. B. Reed, A. Majewicz, V. Kallem, R. Alterovitz, K. Goldberg, N. J. Cowan, and A. M. Okamura. Robot-assisted needle steering. *Robotics and Automation Magazine*, 18:35–46, 2011.

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[J80] A. M. Okamura, M. J. Mataric, and H. I. Christensen. Medical and health-care robotics. *IEEE Robotics and Automation Magazine*, 17(3):26–37, 2010.

[J81] S. Misra, K. B. Reed, B. W. Schafer, K. T. Ramesh, and A. M. Okamura. Mechanics of flexible needles robotically steered through soft tissue. *International Journal of Robotics Research*, 29(13):1640–1660, 2010. DOI: 10.1177/0278364910369714.

[J82] S. Misra, K. T. Ramesh, and A. M. Okamura. Modeling of nonlinear elastic tissues for surgical simulation. *Computer Methods in Biomechanics and Biomedical Engineering*, 13(6):811–818, 2010.

[J83] A. Blank, A. M. Okamura, and K. J. Kuchenbecker. Identifying the role of proprioception in upper-limb prosthesis control: Studies on targeted motion. *ACM Transactions on Applied Perception*, 7(13):15, 2010.

[J84] K. B. Reed, A. M. Okamura, and N.J. Cowan. Modeling and control of needles with torsional friction. *IEEE Transactions on Biomedical Engineering*, 56(12):2905–2916, 2009.

[J85] S. Misra, K. J. Macura, K. T. Ramesh, and A. M. Okamura. The importance of organ geometry and boundary constraints for planning of medical interventions. *Medical Engineering and Physics*, 31(2):195–206, 2009.

[J86] A. M. Okamura. Haptic feedback in robot-assisted minimally invasive surgery. *Current Opinion in Urology*, 19(1):102–107, 2009.

[J87] G. D. Hager, A. M. Okamura, P. Kazanzides, L. L. Whitcomb, G. Fichtinger, and R. H. Taylor. Surgical and interventional robotics Part III: Surgical assistance systems. *IEEE Robotics and Automation Magazine*, 15(4):84–93, 2008.

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Invited/Non-refereed/Short Conference Articles and Abstracts

[I1] R. A. G. Adenekan, R. Lowber, B. Huerta, A. M. Okamura, K. T. Yoshida, and C. M. Nunez. Feasibility of smartphone vibrations as a sensory diagnostic tool. In *EuroHaptics Work-in-Progress Paper*, pages 337–339, 2022.

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[I3] R. Eguchi, D. Vacek, C. Godzinski, S. Curry, M. Evans, and A. M. Okamura. Between-tactor display using dynamic tactile stimuli. In *EuroHaptics Work-in-Progress Paper*, 2022.

[I4] C. E. Winston, Z. Zhakypov, M. R. Cutkosky, and A. M. Okamura. A 4-degree-of-freedom origami fingertip haptic device with pneumatic actuators. In *International Conference on Robotics and Automation 2022, Leveraging Advancements in Smart Materials Science: Soft Robots Gaining New Abilities Through Smart and Functional Materials*, 2022.

[I5] E. D. Vasquez, A. M. Okamura, and S. Follmer. Social-cultural factors in the design of technology for hispanic people with stroke. In *IEEE International Conference on Human-Robot Interaction, Workshop on Inclusive HRI: Equity and diversity in design, application, methods and community*, 2022.

[I6] E. D. Vasquez, C. S. Simpson, G. Zhou, G. Waguespack, B. N. Huerta, E. W. Hawkes, M. G. Lansberg, and A. M. Okamura. Feasibility of a passive wearable device for post-stroke shoulder abduction support. In *RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, 2022.

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Patents

1. A. M. Okamura, C. Seim. Computerized Pillow to Assess Hand Flexion Tone, 2021. U.S. patent pending 17/192,104. (Stanford ref. 20-087)
2. S. Follmer, E. W. Hawkes, A. M. Okamura, N. S. Usevitch, M. Schwager, Z. Hammond, J. Ballard. Constant-Volume Inflated Truss Robot, 2021. U.S. patent pending 17/017,299. (Stanford ref. 19-299)
3. H. Culbertson, A. M. Okamura, C. M. Nunez, S. R. Williams. Haptic Device to Simulate a Stroking Sensation, 2021. U.S. patent 16/979,345. (Stanford ref. 17-433)
4. E. W. Hawkes, A. M. Okamura, J. D. Greer, L. H. Blumenschein. Robotic Mobility and Construction by Growth, 2021. U.S. patent 15/943,329. (Stanford ref. 15-383)
5. A. M. Okamura, G. D. Hager, P. J. Stolka, P. Foroughi, M. Rendina. System and Method for Targeting Feedback, 2019. U.S. patent 14/524,570. (Stanford ref. 14-416)
6. A. A. Stanley, A. M. Okamura, and J. C. Gwilliam. Visual and Touch Interaction Display, 2014. U.S. patent application number PCT/US2014/021668. (Stanford ref. S12-428)
7. A. M. Okamura, T. Yamamoto, and B. Vagvolgyi. Environment Property Estimation and Graphical Display, 2009. U.S. patent application number 61/106,683. (JHU ref. P10476-02)
8. R. J. Webster III, A. M. Okamura, N. J. Cowan, R. H. Taylor. An Active Cannula for Bio-sensing and Surgical Intervention, 2005. U.S. patent application number 60/736,789. (JHU ref. 4873)

9. R. J. Webster III, A. M. Okamura, N. J. Cowan, G. S. Chirikjian, K. Y. Goldberg, and R. Alterovitz. Distal Bevel-Tip Needle ControlDdevice and Algorithm, 2005. U.S. patent application number 11/436,995. (JHU ref. 4690)

Invited Presentations

1. Keynote, Hamlyn Symposium on Medical Robotics, London, United Kingdom, June 27, 2023
2. Institute for Robotics and Intelligent Machines Seminar, Georgia Institute of Technology, Atlanta, GA, March 29, 2023
3. Laboratory for Computational Sensing + Robotics Seminar, Johns Hopkins University, Baltimore, MD, March 8, 2023
4. Keynote, SPIE Medical Imaging, San Diego, CA, February 23, 2023
5. Sony R&D Center, Online, January 24, 2023
6. Bay Area Robotics Symposium, University of California, Berkeley, Berkeley, CA, November 4, 2022
7. PHIND Symposium, Stanford University, Stanford, CA, November 1, 2022
8. Workshop on Soft Robots for Humanity, IEEE/RSJ International Conference on Intelligent Robots and Systems, Kyoto, Japan, October 27, 2022
9. IROS 35th Anniversary Forum, Session on Women in Robotics, IEEE/RSJ International Conference on Intelligent Robots and Systems, Kyoto, Japan, October 25, 2022
10. Workshop on Computer-integrated Surgery: Intelligent Robotic Systems of the Future, IEEE/RSJ International Conference on Intelligent Robots and Systems, Kyoto, Japan, October 23, 2022
11. Stanford-Autodesk Design and Manufacturing Research Symposium, San Francisco, CA, September 21, 2022
12. Stanford University Summit on Next Gen Leadership, Sustainability & Social Impact, Stanford Global Projects Center, Stanford University, Stanford, CA, September 12, 2022
13. PHIND Seminar, Stanford University, Stanford, CA, June 21, 2022
14. Leveraging Advancements in Smart Material Science: Soft Robots Gaining New Abilities Through Smart and Functional Materials, Workshop at IEEE International Conference on Robotics and Automation (ICRA), Philadelphia, PA, May 27, 2022
15. Jamming Mechanisms, Workshop at IEEE International Conference on Robotics and Automation (ICRA), Philadelphia, PA, May 23, 2022
16. Mechanical Engineering Colloquium, University of California, Riverside, CA, May 5, 2022
17. Plenary, Embodied Intelligence Conference, Online, March 24, 2022
18. Keynote, IEEE Haptics Symposium Cross-Cutting Challenge Workshop on Integrating Wearable Haptic Interfaces with Real-World Touch Interactions, Online, March 23,
19. Keynote, SPIE Electroactive Polymers and Devices, Long Beach, CA, March 7, 2022
20. Connected Eldercare Seminar, Massachusetts Institute of Technology, Online, February 18, 2022
21. eWEAR Annual Meeting Symposium, Stanford University, Stanford, CA, February 11, 2022
22. Symposium on Soft Haptics, Materials Research Society Fall Meeting, Online, December 8, 2021
23. Robotics Seminar, Northwestern University, Online, November 5, 2021

24. The Future of Telepresence, IEEE Future Directions Workshop, Online, November 1, 2021
25. Bay Area Robotics Symposium, Stanford, CA, October 29, 2021
26. Stanford Medical Mixed Reality presenter and panelist, Online, September 30, 2021
27. RoboTac 2021 Workshop, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Online, September 27, 2021
28. CIS Colloquium, cole polytechnique fdrale de Lausanne (EPFL), Online, September 13, 2021
29. Department of Mechanical and Aerospace Engineering, University of Virginia, Online, September 2, 2021
30. Keynote Speaker, Soft Material Robotic Systems, German Research Foundation, Online, July 6, 2021
31. Tech Talk Seminar Speaker, Cirrus Logic, Online, June 22, 2021
32. Keynote Speaker, Hamlyn Symposium on Medical Robotics, Online, April 22, 2021
33. Plenary Speaker, 2021 IEEE International Conference on Soft Robotics (RoboSoft 2021), Online, April 15, 2021
34. Keynote Speaker, National Science Foundation National Robotics Initiative & Foundations of Robotics Research PI Meeting, Online, March 10, 2021
35. Soft Robotics Distinguished Lecture Series, ETH Zrich (Swiss Federal Institute of Technology in Zrich), Online, March 2, 2021
36. GRASP Lab Seminar, University of Pennsylvania, Online, January 29, 2021
37. Computer Science Department, University of Southern California, Online, January 21, 2021
38. Bay Area Robotics Symposium, Online, November 20, 2020
39. Keynote, IEEE International Conference on Robotic Computing, Online, November 9, 2020
40. Intro to Haptics for XR, Workshop at IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Online, October 29, 2020
41. Computer Science & Engineering Distinguished Speaker, University of California San Diego, Online, October 12, 2020
42. Keynote, Conference on New Technologies for Computer and Robot Assisted Surgery, Online, September 29, 2020
43. Robotics Seminar, University of Utah, Online, September 24, 2020
44. Immersive Technologies for Discovery, Stanford MediaX Virtual Colloquium, Online, July 14, 2020
45. Keynote, 7th International Conference on Mechanics and Mechatronics Research, Berkeley Online, June 29, 2020
46. Keynote, IEEE International Conference on Robotics and Automation, Online, June 8, 2020
47. Shared Autonomy: Learning and Control, Workshop at IEEE International Conference on Robotics and Automation (ICRA), Online, June 4, 2021
48. Robotics Today, Stanford University and MIT Online, June 5, 2020
49. Open Problems for Robots in Surgery and Healthcare, SRI and Silicon Valley Robotics, Online, May 19, 2020

50. Stanford-EPFL Neuroscience Symposium, École polytechnique fédérale de Lausanne, Switzerland, January 16, 2020
51. Applied Mechanics Colloquium, Harvard University, December 11, 2019
52. Bay Area Robotics Symposium, Berkeley, CA, November 15, 2019
53. Plenary Speaker, ASME Dynamic Systems and Control Conference, Park City, UT, October 9, 2019
54. Toyota Research Institute, SAIL-Toyota Center for AI Research, Mountain View, CA, September 12, 2019
55. Department of Mechanical Engineering Seminar, University of Illinois Urbana-Champaign, September 17, 2019
56. Stanford School of Engineering Sierra Camp Weekend, Fallen Leaf Lake, Lake Tahoe, CA, May 2, 2019
57. College of Engineering Distinguished Lecture, University of California, Davis, CA, April 15, 2019
58. SENSORIUM, Enhancing the World of Perception, Stanford School of Medicine, Stanford, CA, April 13, 2019
59. Freudenstein Lecture, Department of Mechanical Engineering, Columbia University, New York, NY, March 29, 2019
60. ABC Robotics Center, Ben-Gurion University of the Negev, Beer-Sheva, Israel, March 27, 2019
61. Keynote Speaker, Karniel Computational Motor Control Workshop, Ben-Gurion University of the Negev, Beer-Sheva, Israel, March 25, 2019
62. Stanford MediaX-Konica Minolta event, Stanford, CA, March 6, 2019
63. eWear Annual Affiliates Meeting, Stanford, CA, February 20, 2019
64. Facebook Reality Labs, Redmond, WA, February 7, 2019
65. Pixel Festival, Stanford Online High School, Stanford, CA, February 2, 2019
66. Toyota Research Institute Tri-University Workshop, Ann Arbor, Michigan, January 16, 2019
67. Contextual Robotics Forum: Healthcare Robotics, University of California, San Diego, CA, November 11, 2018
68. Workshop on Shape Changing Robotic Structures and Interfaces, IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, October 5, 2018
69. Plenary Speaker, Ubiquitous Robots Conference, Honolulu, HI, June 26, 2018
70. Robotics Seminar, Department of Electrical Engineering and Computer Science, Berkeley, CA, June 15, 2018
71. Workshop on Active Touch for Perception and Interaction, IEEE International Conference on Robotics and Automation, Brisbane, Australia, May 25, 2018
72. Media Arts and Technology Seminar, University of California Santa Barbara, Santa Barbara, CA, April 16, 2018
73. Workshop on Medical VR and AR, Stanford Center for Image System Engineering, Stanford University, Stanford, CA, April 5, 2018
74. Robotics Seminar, Purdue University, West Lafayette, IN, March 23, 2018
75. Stanford Biosciences Council, Stanford University, Stanford, CA, February 8, 2018

76. Gilbreth Lecture, National Academy of Engineers National Meeting, Beckman Center, Irvine, CA, February 8, 2018
77. Clayman Institute for Gender Research, Stanford University, Stanford, CA, February 1, 2018
78. Neural Computation and Engineering Connection, University of Washington, Seattle, WA, January 19, 2018
79. Special Robotics Colloquium, University of Washington, Seattle, WA, January 18, 2018
80. Stanford Robotics Seminar, Stanford University, Stanford, CA, January 12, 2018
81. Stanford Engineering Venture Fund Group, Palo Alto, CA, December 6, 2017
82. Bay Area Robotics Symposium, Berkeley, CA, November 17, 2017
83. Alphabet X, Mountain View, CA, November 15, 2017
84. Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, October 23, 2017
85. Silicon Valley Forum panel on "Search and Rescue: How Robots are Changing Recovery & Relief", Computer History Museum, Mountain View, CA, October 16, 2017
86. Stanford Engineering Alumni, Stanford University, Stanford, CA, October 13, 2017
87. Keynote Speaker, World Robot Conference, Beijing, China, August 23, 2017
88. Key Laboratory of Virtual Reality Technology and Systems, Beihang University, Beijing, China, August 22, 2017
89. International Workshop on Intelligent Robots and Systems, Beijing Institute of Technology, Beijing, China, August 22, 2017
90. Keynote Speaker, 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, July 11, 2017
91. Keynote Speaker, SAILORS Program, Stanford University, Stanford, CA, June 30, 2017
92. Keynote Speaker, IEEE World Haptics Conference, Munich, Germany, June 8, 2017
93. MnDrive Distinguished Speaker, University of Minnesota, Minneapolis, MN, April 21, 2017
94. MediaX Conference: Sense-Making & Making Sense, Stanford University, Stanford, CA, April 20, 2017
95. Mechanical Engineering Department, Johns Hopkins University, Baltimore, MD, April 3, 2017
96. Mechanical Engineering Distinguished Colloquium, University of British Columbia, Vancouver, Canada, March 30, 2017
97. Robotics Seminar, Oregon State University, Corvallis, OR, March 3, 2017
98. Siemens Technology & Innovation Council, Half Moon Bay, CA, February 15, 2017
99. Stanford eWear Symposium, Stanford, CA, February 9, 2017
100. NASA Ames Intelligent Robotics Group, Mountain View, CA, February 3, 2017
101. IdeasLab Speaker, Science Hub Speaker, Tipping Point Session Leader, and Davos Insights Panelist, World Economic Forum Annual Meeting Davos, Switzerland, January 16-19, 2017
102. Keynote Speaker, IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics, Singapore, June 28, 2016
103. Osaka University, Osaka, Japan, May 24, 2016

104. Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ, November 13, 2015
105. Bay Area Robotics Symposium, Berkeley, CA, October 23, 2015
106. IEEE/RSJ International Conference on Intelligent Robots and Systems, Workshop on Navigation and Actuation of Flexible Instruments in Medical Applications, Hamburg, Germany, October 2, 2015
107. Plenary Speaker, International Symposium on Robot and Human Interactive Communication, Kobe, Japan, September 1, 2015
108. Keynote Speaker, American Society of Biomechanics Annual Meeting, Columbus, OH, August 5, 2015
109. Ford Research and Innovation Center, Palo Alto, CA, July 30, 2015
110. IEEE World Haptics Conference Workshop on Cutaneous Feedback for Teleoperation in Medical Robotics, Chicago, IL, June 22, 2015
111. IEEE International Conference on Robotics and Automation Workshop on Shared Frameworks for Medical Robotics Research, Seattle, WA, May 30, 2015
112. IEEE International Conference on Robotics and Automation Government Forum, Seattle, WA, May 28, 2015
113. IEEE International Conference on Robotics and Automation Workshop on Challenges in Virtual Reality, Seattle, WA, May 26, 2015
114. IEEE Women in Leadership Conference, San Jose, CA, April 25, 2015
115. System X, Stanford, CA, April 23, 2015
116. CSAIL, Massachusetts Institute of Technology, Boston, MA, April 7, 2015
117. Texas A&M Robotics Symposium, College Station, TX, January 22, 2015
118. Max Plack Institute for Intelligent Systems, Stuttgart, Germany, December 15, 2014
119. Stanford-Berkeley Robotics Symposium, Stanford, CA, October 17, 2014
120. Workshop on Sensorimotor Control and Surgical Robotics, IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, September 18, 2014
121. Keynote Speaker, IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, September 15, 2014
122. National Academy of Engineering, Frontiers of Engineering, Irvine, CA, September 11, 2014
123. Surgical Robotics Summer School, Pittsburgh, PA, July 21, 2014
124. Robotics: Science and Systems Conference, Workshop on Women in Robotics, Berkeley, CA, July 12, 2014
125. Stanford Women's Leadership Conference, Stanford, CA, April 5, 2014.
126. University of Texas, Austin, TX, March 11, 2014.
127. South by Southwest (SXSW), Austin, TX, March 10, 2014.
128. Perspectives in Assisted Technology course, Stanford University, Stanford, CA, February 4, 2014.
129. 2nd Annual Symposium on Brain Surgery Simulation, Mount Sinai Medical Center, New York, NY, November 9, 2013.
130. Google X, Mountain View, CA, November 1, 2013.

131. Eidgenossische Technische Hochschule Zurich (ETHZ), Zurich, Switzerland, October 18, 2013.
132. Ecole Polytechnique Fdrale de Lausanne (EPFL), Lausanne, Switzerland, October 17, 2013.
133. National Robotics Initiative PI Meeting, National Science Foundation, Arlington, VA, October 1, 2013.
134. Mechanical Engineering Department, University of Michigan, Ann Arbor, MI, September 17, 2013.
135. Department of Urology Research Conference, Stanford Medical School, Stanford, CA, August 26, 2013.
136. "We the Geeks" Google+ Hangout on Robots, Hosted by the White House Office of Science and Technology Policy, August 9, 2013.
137. TEDx Stanford, Stanford University, Stanford, CA, May 11, 2013.
138. Women's Community Center, Women in Research Seminar Series, Stanford University, Stanford, CA, February 28, 2013.
139. Jet Propulsion Laboratory, Pasadena, CA, February 21, 2013.
140. Perspectives in Assisted Technology course, Stanford University, Stanford, CA, February 19, 2013.
141. Innovation Masters Series: Design Thinking and the Art of Innovation, Stanford University, Stanford, CA, December 13, 2012.
142. Immersion Corporation, San Jose, CA, November 27, 2012.
143. Simulation in Medical Education Seminar Series, Center for Immersive and Simulation-Based Learning, Stanford School of Medicine, Stanford, CA, November 15, 2012.
144. Stanford Robotics Club, Stanford University, Stanford, CA, October 22, 2012.
145. Department of Mechanical Engineering Graduate Seminar, University of Colorado, Boulder, CO, September 6, 2012.
146. Workshop on Algorithmic Frontiers in Medical Robotics: Manipulation in Uncertain, Deformable, Heterogenous Environments, Robotics: Science and Systems Conference, Sydney, Australia, July 9, 2012.
147. Innovation Masters Series: Design Thinking and the Art of Innovation, Stanford University, Stanford, CA, June 21, 2012.
148. Noise and Rhythm: Harnessing the Complexity of Medicine and Robotics, Wyss Institute Symposium, Harvard Medical School, Boston, MA, June 8, 2012.
149. Image-Guided Interventions Symposium, Stanford University, Stanford, CA, May 24, 2012.
150. Pathways to Clinical Needle Steering Workshop, IEEE International Conference on Robotics and Automation, St. Paul, MN, May 18, 2012.
151. Robotics Colloquium, University of Washington, Seattle, WA, May 4, 2012.
152. Willow Garage, Menlo Park, CA, March 26, 2012.
153. 4th Japan-U.S.A. Joint Workshop on Development of Model-based Assistive Robotic Technologies for Medicine and Rehabilitation, San Francisco, CA, March 9, 2012.
154. Tutorial on Best Practices for Teaching Haptics, IEEE Haptics Symposium, Vancouver, BC, Canada, March 4, 2012.
155. Women's Perspectives course, Stanford University, Stanford, CA, February 9, 2012.
156. Perspectives in Assisted Technology course, Stanford University, Stanford, CA, February 2, 2012.

157. Biomechanics Seminar, Stanford University, Stanford, CA, November 7, 2011.

158. Workshop on Methods for Safer Surgical Robotics Procedures, IEEE/RSJ International Conference on Intelligent Robots and Systems, San Francisco, CA, September 30, 2011.

159. 3rd Japan-U.S.A. Joint Workshop on Development of Model-based Assistive Robotic Technologies for Medicine and Rehabilitation, San Francisco, CA, September 26, 2011.

160. Intuitive Surgical, Inc., Sunnyvale, CA, August 29, 2011.

161. Christie Lecture, Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD, May 5, 2011.

162. W. M. Keck Center for Interdisciplinary Bioscience Training Seminar, Rice University, Houston, TX, April 15, 2011.

163. IDEAS (Innovation, Design, and Emerging Alliances in Surgery): Opportunities and Challenges in Surgical Robotics Workshop, Beth Israel Deaconess Medical Center, Boston, MA, April 9, 2011.

164. 2nd Japan-U.S.A. Joint Workshop on Development of Model-based Assistive Robotic Technologies for Medicine and Rehabilitation, San Francisco, CA, March 18, 2011.

165. Department of Mechanical Engineering Seminar, University of Maryland, College Park, MD, April 1, 2011.

166. Department of Mechanical Engineering Seminar, University of Maryland, Baltimore County, Baltimore, MD, February 11, 2011.

167. Department of Electrical Engineering and Computer Science Seminar, University of California at Berkeley, Berkeley, CA, April 15, 2010.

168. Robotics and Intelligent Machines Seminar, Georgia Institute of Technology, Atlanta, GA, February 17, 2010.

169. Controls, Robotics, and Embedded Systems Seminar, University of California at Berkeley, Berkeley, CA, January 28, 2010.

170. Department of Mechanical Engineering Distinguished Lecture Series, Stanford University, Stanford, CA, January 27, 2010.

171. 50 Years of Robotics Celebration, University of Pennsylvania, Philadelphia, PA, December 10, 2009.

172. Space Science Telescope Institute, Johns Hopkins University, Baltimore, MD, December 1, 2009.

173. National Advisory Council meeting, National Institute for Biomedical Imaging and Bioengineering, National Institutes of Health, Bethesda, MD, September 11, 2009.

174. Peter Wall Institute for Advanced Studies, Joint Colloquium on Haptics, University of British Columbia, Vancouver, BC, Canada, June 30, 2009.

175. Bioengineering Department Seminar, Stanford University, Stanford, CA, May 18, 2009.

176. ICRA Workshop on Advanced Sensing and Sensor Integration in Medical Robotics, Kobe, Japan, May 13, 2009.

177. RoboFest: A Celebration of Robotics at the GRASP Lab (symposium honoring Ruzena Bajcsy), University of Pennsylvania, Philadelphia, PA, April 22, 2009.

178. Society of Women Engineers Student Chapter Meeting, Johns Hopkins University, Baltimore, MD, March 9, 2009.

179. Department of Mechanical Engineering Seminar, Boston University, Boston, MA, March 6, 2009.

180. Department of Mechanical Engineering Seminar, University of Victoria, Victoria, Canada, February 26, 2009.

181. Women Scholars Public Lecture, University of Victoria, Victoria, Canada, February 25, 2009.

182. Department of Surgery Seminar, University of California at San Diego, San Diego, California, January 21, 2009.

183. Winter School on Medical Robotics and Computer-Integrated Interventional Medicine, Johns Hopkins University, Baltimore, Maryland, January 16, 2009.

184. NSF CISST ERC Graduation Celebration, Johns Hopkins University, Baltimore, Maryland, January 12, 2009.

185. ERC-CISST/Laboratory for Computational Sensing and Robotics Professional Development Seminar, Johns Hopkins University, Baltimore, Maryland, November 12, 2008.

186. Center for Adaptive Neural Systems, Arizona State University, Tempe, Arizona, October 21, 2008.

187. Workshop on Surgical Robotics, Second IEEE RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics, Scottsdale, Arizona, October 19, 2008.

188. Department of Mechanical Engineering, Tufts University, Medford, Massachusetts, October 2, 2008.

189. Plenary talk, Performance Metrics for Intelligent Systems Workshop, National Institute of Standards and Technology, Gaithersburg, Maryland, August 19, 2008.

190. NSF/ JST US-Japan Robotics Workshop on Safety, Security, and Society, San Francisco, California, August 15, 2008.

191. Center for Intelligent Machines, Electrical and Computer Engineering, McGill University, Montreal, Canada, July 10, 2008.

192. 5th Annual Innovations in the Surgical Environment Conference, University of Maryland Medical Center, Baltimore, Maryland, June 27, 2008.

193. Meyerhoff Scholars Bridge Program, University of Maryland Baltimore County, Johns Hopkins University, Baltimore, Maryland, June 24, 2008.

194. Department of Mechanical Engineering, Massachusetts Institute of Technology, Boston, Massachusetts, June 2, 2008.

195. IEEE Baltimore Section Annual Awards Dinner, Baltimore, Maryland, May 14, 2008.

196. Willow Garage, Inc., Palo Alto, CA, May 6, 2008.

197. Laboratory for Computational Sensing and Robotics Seminar, Johns Hopkins University, Baltimore, Maryland, April 30, 2008.

198. Booz Allen Hamilton Distinguished Colloquium in Electrical and Computer Engineering, University of Maryland, College Park, Maryland, March 28, 2008.

199. American Society of Mechanical Engineers, Baltimore Section Meeting, Baltimore, Maryland, February 21, 2008.

200. Scientific Computing Applications in Surgical Simulation of Soft Tissues, Institute for Pure and Applied Mathematics, Los Angeles, California, January 10, 2008. (My presentation was given by S. Misra.)

201. International Symposium on Robotics Research, Hiroshima, Japan, November 29, 2007.

202. Department of Mechanical Engineering, University of Delaware, Newark, DE, October 19, 2007.

203. School of Health, Physical Education, and Recreation, University of Nebraska at Omaha, Omaha, Nebraska, August 24, 2007.

204. Department of Robotic Systems, Deutsches Zentrum fur Luft- und Raumfahrt (DLR), Munich, Germany, July 17, 2007.

205. Institute of Automatic Control Engineering, Technischen Universitt Mnchen, Munich, Germany, July 16, 2007.

206. Meyerhoff Scholars Bridge Program, University of Maryland Baltimore County/Johns Hopkins University, Baltimore, MD, June 26, 2007.

207. 10th German-American Frontiers of Engineering Symposium, National Academy of Engineers/Alexander Van Humboldt Foundation, Hamburg, Germany, April 26, 2007. (My presentation was given by J. J. Abbott.)

208. Workshop on Computer-Integrated Surgery and Interventional Robotics, International Conference on Robotics and Automation, Rome, Italy, April 10, 2007.

209. Immersion Medical, Gaithersburg, MD, March 15, 2007.

210. Robotics and Controls Seminar, University of Washington, Seattle, WA, March 2, 2007.

211. MARC Scholars Program, University of Maryland, Baltimore County, Baltimore, MD, February 20, 2007.

212. Bodian Seminar, Krieger Mind-Brain Institute, Johns Hopkins University, Baltimore, MD, December 4, 2006.

213. Technion-JHU symposium, Johns Hopkins University, Baltimore, MD, October 30, 2006.

214. IEEE-RAS/IFRR School of Robotics Science on Haptic Interaction, September 27, 2006.

215. Sciences, technologies et applications haptiques, Universit Pierre et Marie Curie, September 25, 2006.

216. GRASP Laboratory, University of Pennsylvania, Philadelphia, PA, Dec. 2, 2005.

217. Faculty Workshop on Academic Publishing, Morgan State University, Baltimore, MD, May 17, 2005.

218. Johns Hopkins University Alumni College, Johns Hopkins University, Baltimore, MD, May 6, 2005.

219. Engineering Research Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University, Baltimore, MD, May 4, 2005.

220. Houston Society for Engineering in Medicine and Biology, Houston, TX, Feb. 10, 2005. (Keynote Speaker for Robotics)

221. CIMIT Forum on Haptics, CIMIT, Boston, MA, Nov. 23, 2004.

222. Department of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, Nov. 2, 2004.

223. Workshop on Issues and Approaches to Task Level Control, 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems, Sendai, Japan, September 28, 2004.

224. Workshop on Multi-point Interaction in Robotics and Virtual Reality, 2004 IEEE International Conference on Robotics and Automation, New Orleans, LA, April 27, 2004.

225. Workshop on Educational Robotics, 2004 IEEE International Conference on Robotics and Automation, New Orleans, LA, April 27, 2004.

226. New Techne Symposium, The Johns Hopkins University, Baltimore, MD, April 9, 2004.

227. Robotics Seminar, University of California at Berkeley, Berkeley, CA, March 5, 2004.

228. Robotics Seminar, Stanford University, Stanford, CA, March 4, 2004.

229. Mechanical Engineering Womens Seminar, Stanford University, Stanford, CA, March 4, 2004.

230. Controls Seminar, University of Michigan, Ann Arbor, MI, February 6, 2004.

231. Controls and Robotics Seminar, University of Washington, Seattle, WA, January 9, 2004.

232. Workshop on Reality-based Modeling of Tissues for Simulation and Robot-Assisted Surgery, 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems, Las Vegas, NV, October 31, 2003.

233. Department of Mathematical Sciences, Johns Hopkins University, Baltimore, MD, October 9, 2003.

234. Multi-Disciplinary Minimally Invasive Surgery Conference, Johns Hopkins Medical Institutions, Baltimore, MD, June 25, 2003.

235. Robotics and Energetic Machines Group, Oak Ridge National Laboratories, Oak Ridge, TN, May 12, 2003.

236. IEEE Engineers Week Dinner, IEEE Baltimore Chapter, Baltimore, MD, April 9, 2003.

237. School of Electrical and Computer Engineering, Purdue University, West Lafayette, Indiana, February 6, 2003.

238. Intuitive Surgical, Inc., Sunnyvale, CA, December 20, 2002.

239. Laboratory for Human and Machine Haptics, Massachusetts Institute of Technology, Cambridge, MA, December 17, 2002.

240. Advanced Information Technology Branch, Naval Research Laboratory, Washington, DC, November 18, 2002.

241. Department of Mechanical Engineering, University of Maryland Baltimore County, Baltimore, MD, November 1, 2002.

242. Society of Women Engineers, Johns Hopkins University Student Section, Baltimore, MD, February 28, 2002.

243. WashCAS (Metropolitan Washington DC Computer-Assisted Surgery Society), Washington, DC, February 19, 2002.

244. Department of Mechanical Engineering, University of Wisconsin, Madison, WI, October 11, 2001.

245. Department of Mechanical Engineering and Mechanics, Drexel University, Philadelphia, PA, September 28, 2001.

246. Institute for Mathematics and its Applications, Workshop on Haptics, Virtual Reality, and Human Computer Interaction, Minneapolis, MN, June 14, 2001.

247. Krieger Mind-Brain Institute, Johns Hopkins University, Baltimore, MD, October 30, 2000.

248. TIMC/IMAG Laboratory, Grenoble, France, October 24, 2000.

249. INRIA, SHARP Pro ject, Grenoble, France, October 23, 2000.

250. Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD, September 28, 2000.

251. Center for Computer Integrated Surgical Systems and Technology, Johns Hopkins University, Baltimore, MD, September 27, 2000.

252. Workshop on Reality-based Modeling and Applications in Reverse Engineering, Computer Graphics, and VR, 2000 IEEE International Conference on Robotics and Automation, San Francisco, CA, April 28, 2000.

253. Department of Mechanical Engineering, University of California at Berkeley, April 10, 2000.

254. Department of Mechanical Engineering, University of Washington, Seattle, WA, March 30, 2000.

255. Department of Mechanical Engineering, University of Utah, Salt Lake City, UT, March 23, 2000.

256. Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD, March 9, 2000.

257. Department of Mechanical Engineering, University of Illinois, Urbana-Champaign, IL, March 2, 2000.

258. Department of Mechanical Engineering, California State University, San Jose, February 18, 2000.

259. Stanford Workshop on Manufacturing Education 99 (Interactive Learning: Games and Simulations for Teaching of Manufacturing), Alliance for Innovative Manufacturing, Stanford University, Stanford, CA, June 14, 1999.

260. Human Computer Interface Technology Seminar, Department of Computer Science, Stanford University, Stanford, CA, November 19, 1998.

261. Computer Science Robotics Seminar, Department of Computer Science, Stanford University, Stanford, CA, November 10, 1997.

262. Design Theory and Methodology Forum, Department of Mechanical Engineering, Stanford University, Stanford, CA, April 30, 1997.

Advising

Doctoral and Pre-doctoral Students

Sehui Jeong, Ph.D. student, Stanford Mechanical Engineering expected 2027. Stanford Graduate Fellow.

Brian Vuong, Ph.D. student, Stanford Mechanical Engineering expected 2026. Stanford Graduate Fellow, NSF Graduate Fellow.

Elizabeth Childs, Ph.D. student, Stanford Mechanical Engineering expected 2026. Knight-Hennessy Fellow. (co-advised with James Landay)

Yimeng Qin, Ph.D. student, Stanford Mechanical Engineering expected 2026.

Godson Osele, Ph.D. student, Stanford Mechanical Engineering expected 2026. Ford Foundation Fellow, RAISE Fellow, SystemX DEI Fellow.

Sreela Kodali, Ph.D. student, Stanford Electrical Engineering expected 2024. NSF Graduate Fellow.

Rachel Adenekan, Ph.D. student, Stanford Mechanical Engineering expected 2023. Stanford Graduate Fellow, NSF Graduate Fellow.

Crystal Winston, Ph.D. student, Stanford Mechanical Engineering expected 2025. Stanford Graduate Fellow. (co-advised with Mark Cutkosky)

Elizabeth Vasquez, Ph.D. student, Stanford Mechanical Engineering expected 2024. NSF Graduate Fellow. (co-advised with Sean Follmer)

Rianna Jitosho, Ph.D. student, Stanford Mechanical Engineering expected 2024. NSF Graduate Fellow. (co-advised with Karen Liu)

Jasmin Palmer, Ph.D. student, Stanford Mechanical Engineering expected 2024. NSF Graduate Fellow.

Catie Cuan, Ph.D. student, Stanford Mechanical Engineering expected 2023.

Kyle Yoshida, Ph.D. student, Stanford Mechanical Engineering expected 2023. Stanford Graduate Fellow, NSF Graduate Fellow.

Nathaniel Agharese, Ph.D. student, Stanford Mechanical Engineering expected 2023.

Brian Do, Ph.D. student, Stanford Mechanical Engineering expected 2023. NSF Graduate Fellow.

Millie Salvato, Ph.D. student, Stanford Mechanical Engineering expected 2022. DAAD Fellow, Link Foundation Fellow. (co-advised with Jeannette Bohg)

Negin Heravi, Ph.D. student, Stanford Mechanical Engineering, 2022. NSF Graduate Fellow. (co-advised with Jeannette Bohg) "Multimodal Object Representation Learning in Haptic, Auditory, and Visual domains." Now at Snap (started 2022).

Zonghe Chua, Ph.D. student, Stanford Mechanical Engineering, 2022. Bio-X Fellow. "Visual Force Estimation in Robot-assisted Minimally Invasive Surgery ." Now a professor at Case Western Reserve University (started 2022).

Cara Nunez, Ph.D. student, Stanford Bioengineering, 2021. NSF Graduate Fellow. Now a postdoc at Harvard University (started 2021). Will be a professor at Cornell University (starting 2023).

Sophia Williams, Ph.D. student, Stanford Electrical Engineering, 2021. NSF Graduate Fellow. "Wearable Haptic Devices for Social and Virtual Interaction." Now at Auris Health (started 2021).

Cara Gonzalez Welker, Ph.D. student, Stanford Bioengineering, 2021. NSF Graduate Fellow. (co-advised with Scott Delp and Steven Collins). "Sensorimotor Control of Lower-Limb Assistive Devices." Now a postdoc at Univeristy of Michigan (started 2021). Will be a professor at University Colorado at Boulder (starting 2022).

Margaret Coad, Ph.D. student, Stanford Mechanical Engineering, 2021. ARCS Fellowship. "Design, Modeling, and Control of Vine Robots for Exploration of Unknown Environments." Now a professor at Univeristy of Notre Dame (started 2021).

Nathan Usevitch, Ph.D. student, Stanford Mechanical Engineering, 2020. "Design and control of soft shape-changing robots." Now at Facebook Reality Labs (started 2020).

Cole Simpson, Ph.D. student, Stanford Mechanical Engineering, 2020. NSF Graduate Fellow. "Wearable devices for physical assistance: Enhancing capabilities after stroke and in running." Now at Intuitive Surgical, Inc. (started 2021).

Julie Walker, Ph.D. student, Stanford Mechanical Engineering, 2020. NSF Graduate Fellow, Stanford Graduate Fellow. "Hand-held haptic interfaces for multi-degree-of-freedom haptic guidance." Now at Intuitive Surgical, Inc. (started 2020).

Melisa Orta Martinez, Ph.D. student, Stanford Mechanical Engineering, 2020. "Design and analysis of open-source educational haptic devices." Now a professor at Carnegie Mellon University (started 2020).

Margaret Koehler, Ph.D. student, Stanford Mechanical Engineering 2020. NSF Graduate Fellow. "Model-based design and control of deformable robots and haptic devices." Now at Intuitive Surgical, Inc. (started 2020).

Darrel Deo, Ph.D. Mechanical Engineering, Stanford University, 2019. NSF Graduate Fellow, Stanford Bio-X Fellow. "Movement Representation in Human Motor Cortex and Applications to Brain-Computer Interface Control." Now a postdoc at Stanford University with Krishna Shenoy and Jaimie Henderson (started 2019).

Laura Blumenschein, Ph.D. Mechanical Engineering, Stanford University, 2019. NSF Graduate Fellow. "Design and Modeling of Soft Growing Robots." Now a professor at Purdue University (started 2020).

Jake Suchoski, Ph.D. Mechanical Engineering, Stanford University, 2019. "The Role of Skin Deformation Feedback in Haptic Perception of Virtual Objects." Now at Intuitive Surgical, Inc. (started 2019).

Sean Sketch, Ph.D. Mechanical Engineering, Stanford University, 2019. Stanford Interdisciplinary Graduate Fellow. "Proprioception in the Upper Limb of Non-Disabled and Stroke-Impaired Populations." Now at Intuitive Surgical, Inc. (started 2019).

Yuhang Che, Ph.D. Mechanical Engineering, Stanford University, 2018. "Proactive Communication for Human-Robot Interaction." Now at Waymo (started 2019).

Joseph Greer, Ph.D. Mechanical Engineering, Stanford University, 2018. "Modeling, Estimation, and Control for Navigation of Flexible Continuum Robots." Now at Facebook Reality Labs (started 2018).

Tania Morimoto, Ph.D. Mechanical Engineering, Stanford University, 2017. NSF Graduate Fellow. "Patient-Specific Design of Concentric Tube Robots." Now a professor at University of California, San Diego (started 2018).

Samuel Schorr, Ph.D. in Mechanical Engineering, Stanford University, 2017. NSF Graduate Fellow. "Fingerpad Skin Deformation for Sensory Substitution of Force in Teleoperation and Virtual Reality." Now at Intuitive Surgical, Inc. (started 2017).

Andrew Stanley, Ph.D., in Mechanical Engineering, Stanford University, 2016. NSF Graduate Fellow. "Haptic Jamming: Controllable Mechanical Properties in a Shape-Changing Interface." Now at Facebook Reality Labs (started 2017).

Zhan Fan Quek, Ph.D. in Mechanical Engineering, Stanford University, 2015. A*STAR Singapore Fellowship. "Sensory Substitution and Augmentation of Forces and Torques using Tactile Skin Deformation Feedback." Now at A*STAR (started 2015).

Troy Adebar, Ph.D. in Mechanical Engineering, Stanford University, 2015. NSERC Alexander Graham Bell Canada Graduate Scholarship. "Ultrasound-Guided Robotic Needle Steering for Percutaneous Interventions in the Liver." Now at Intuitive Surgical, Inc. (started 2015).

Nick Colonnese, Ph.D. in Mechanical Engineering, Stanford University, 2015. "Stability and Transparency of Bilateral Teleoperators and Haptic Displays." Now at Facebook Reality Labs (started 2015).

Kirk Nichols, Ph.D. in Mechanical Engineering, Stanford University, 2015. "A Multilateral Manipulation Software Framework for Human-Robot Collaboration in Surgical Tasks." Now at Intuitive Surgical, Inc. (started 2015).

Ann Majewicz, Ph.D. in Mechanical Engineering, Stanford University, 2014. NSF Graduate Fellow. "Robotic Needle Steering: Design and Evaluation for Clinical Application". Professor at University of Texas, Dallas (started 2014), then University of Texas, Austin (started 2020).

Tricia Gibo, Ph.D. in Mechanical Engineering, Johns Hopkins University, 2013. NSF Graduate and Link Fellow. (Co-advised with A. J. Bastian) "Control and Learning of Dynamics in Human Movement". Was a Postdoc at TU Delft (started 2014), now at Emergo by UL (started 2017).

Jim Gwilliam, Ph.D. in Biomedical Engineering, Johns Hopkins University, 2013. NSF Graduate Fellow. (Co-advised with S. S. Hsiao) "Tactile Sensing and Display for Robot-Assisted Minimally Invasive Surgery: Detecting Lumps in Soft Tissue". Was at ICU Medical (started 2015), now at Health Catalyst (started 2019).

Tom Wedlick, Ph.D. in Mechanical Engineering, Johns Hopkins University, 2013. DHS, NDSEG, and NSF Graduate Fellow. "Robotic Needle Insertion: Modeling and Novel Insertion Techniques". Was at Exponent (started 2013), now at Amazon (started 2018).

Nasir Bhanpuri, Ph.D. in Biomedical Engineering, Johns Hopkins University, 2012. NIH Pre-doctoral fellowship, Ruth L. Kirschstein National Research Service Award. (Co-advised with A. J. Bastian). "Cerebellar internal models contribute to action and perception". Now a Clinical Informatics Data Scientist at Virta Health (started 2016).

Amy Blank, Ph.D. in Mechanical Engineering, Johns Hopkins University, 2012. NSF Graduate Fellow. (Co-advised with L. L. Whitcomb). "Proprioceptive Motion Feedback and User-Selectable Impedance Systems for Upper-Limb Prosthesis Control". Now at Barrett Technologies (started 2015).

David Grow, Ph.D. in Mechanical Engineering, Johns Hopkins University, May 2011. NIH NRSA Fellow. "Robotic Assistance for Rehabilitation of Coordination Deficits". Was a Professor at New Mexico Tech (started 2011), now at Los Alamos National Laboratory (started 2019).

Tomonori Yamamoto, Ph.D. in Mechanical Engineering, Johns Hopkins University, January 2011. "Applying Tissue Models in Teleoperated Robot-Assisted Surgery". Now an engineer at EndoMaster in Singapore (started 2012).

Netta Gurari, Ph.D. in Mechanical Engineering, Johns Hopkins University, October 2010. NSF Graduate Fellow. "Characterization of Human Perception Using Haptic Systems and Implications for Upper-Limb Prosthetics". Now a Research Professor at Rehabilitation Institute of Chicago and Northwestern University (started 2016), will be a professor at Virginia Tech (starting 2022).

Sarthak Misra, Ph.D. in Mechanical Engineering, Johns Hopkins University, June 2009. "Realistic Tool-Tissue Interaction Models for Surgical Simulation and Planning". Now a Professor at the University of Twente, Enschede, The Netherlands (started 2009).

Lawton Verner, Ph.D. in Mechanical Engineering, Johns Hopkins University, June 2009. NDSEG and NSF Graduate Fellow. "Sensor/Actuator Asymmetries in Telemanipulators". Now an engineer at Intuitive Surgical Inc. (started 2009).

Robert J. Webster, III, Ph.D. in Mechanical Engineering, Johns Hopkins University, December 2007 (Co-advised with N. J. Cowan). NDSEG and NSF Graduate Fellow. "Design and Mechanics of Continuum Robots for Surgery". Now a Professor in Mechanical Engineering at Vanderbilt University (started 2008).

Panadda (Nim) Marayong, Ph.D. in Mechanical Engineering, Johns Hopkins University, August 2007. "Motion Control Methods for Human-Machine Cooperative Systems". Now a Professor in Mechanical Engineering at California State University Los Angeles (started 2007).

Jake J. Abbott, Ph.D. in Mechanical Engineering, Johns Hopkins University, August 2005. "Virtual Fixtures for Bilateral Telemanipulation". Now a Professor of Mechanical Engineering at the University of Utah (started 2008).

Masters Thesis/Research Students

David Vacek, M.S. in Mechanical Engineering, Stanford University, expected 2023.

Andrew Low, M.S. in Mechanical Engineering, Stanford University, expected 2022.

Alexis Lowber, M.S. in Computer Science, Stanford University, expected 2023.

Lizmarie Comenencia Ortiz, M.S. in Mechanical Engineering, Stanford University, 2016. NSF Graduate Fellow. Now a Ph.D. student at Stanford University.

Michele Rotella, M.S. in Mechanical Engineering, Stanford University, 2013. NSF Graduate Fellow. Now studying at University of Delaware to obtain a doctorate in Physical Therapy.

Alex Burtness, M.S. in Mechanical Engineering, Johns Hopkins University, 2010. "Evaluation of Haptic Feedback Methods for Teleoperated Explosive Ordnance Disposal Robots". Now in the U.S. Navy.

Carol E. Reiley, M.S. in Computer Science, Johns Hopkins University, 2007. "Evaluation of Augmented Reality Alternatives to Direct Force Feedback in Robot-Assisted Surgery: Visual Force Feedback and Virtual Fixtures". Now a Ph.D. student advised by Gregory D. Hager at Johns Hopkins University.

Sunipa Saha, M.S. in Biomedical Engineering, Johns Hopkins University, 2006. "Appropriate Degrees of Freedom of Force Sensing in Robot-Assisted Minimally Invasive Surgery". Now at Medtronic.

Tope Akinbiyi, M.S. in Mechanical Engineering, Johns Hopkins University, 2005. (co-advised with Russell H. Taylor). "Intelligent Instruments and Visual Force Feedback in Laparoscopic Minimally Invasive Surgery". Now in the M.D. program at Mount Sinai School of Medicine.

Todd Murphy, M.S.in Mechanical Engineering 2004. "Towards Objective Surgical Skill Evaluation with Hidden Markov Model-based Motion Recognition". Now at Intuitive Surgical, Inc.

Chad Schneider, M.S. in Mechanical Engineering 2004. "Systems for Robotic Needle Insertion and Tool-Tissue Interaction Modeling". First at Key Technologies, Inc., now independent consulting.

Masaya Kitagawa, M.S. in Mechanical Engineering 2003. "Indirect Feedback of Haptic Information for Robot-Assisted Telemanipulation". Now at National Instruments.

Christina Simone, M.S. in Mechanical Engineering 2002. "Modeling of Needle Insertion Forces for Percutaneous Therapies". Now at Naval Surface Warfare Center.

Postdoctoral Fellows/Senior Lab Members

Alaa Eldin Abdelaal, 2023-present. Ph.D. University of British Columbia 2022. NSERC Postdoctoral Scholar.

Cosima du Pasquier, 2022-present. Ph.D. Eidgenssische Technische Hochschule Zrich (ETH Zurich) 2021.

Ryo Eguchi, 2021-present. Ph.D. Keio University 2021. JSPS Postdoctoral Scholar.

Zhenishbek Zhakypov, 2021-present. Ph.D. cole polytechnique fdrale de Lausanne (EPFL) 2020.

Caitlyn Seim, 2019-2022. Ph.D. Georgia Tech 2019. NIH Postdoc Fellow and Wu Tsai Neurosciences Institute Interdisciplinary Scholar Award. Now a research engineer at BD (started 2022).

Fabio Stroppa, 2019-2021. Ph.D. Scuola Superiore Sant'Anna 2018. Now a professor at Kadir Has University, Turkey (started 2021).

Mine Sarac, 2019-2021. Ph.D. Scuola Superiore Sant'Anna 2018. Now a professor at Kadir Has University, Turkey (started 2021).

Ming Luo, 2018-2020. Ph.D. Worcester Polytechnic Institute 2017. Now a professor at Washington State University (started 2020).

Laura Blumenschein, 2019-2020. Ph.D. Stanford University 2019. Now a professor at Purdue University (started 2020).

Giada Gerboni, 2016-2019. Ph.D. Scuola Superiore Sant'Anna 2016. Now at Intuitive Surgical, Inc. (started 2019).

Matthew Gilbertson, 2017-2018. Ph.D. Massachusetts Institute of Technology 2016. Now at Lockheed Martin (started 2018).

Heather Culbertson, 2015-2017. Ph.D. University of Pennsylvania 2015. Now an Assistant Professor in Computer Science at University of Southern California (started January 2017).

Kamran Shamaei, 2014-2015. Ph.D. Yale 2014. Now at Think Surgical (started October 2015).

Ryder Winck 2013-2014. Ph.D. Georgia Institute of Technology 2012. Now an Assistant Professor in Mechanical Engineering at Rose-Hulman Institute of Technology (started August 2014).

Ilana Nisky 2011-2014. Ph.D. Ben Gurion University of the Negev 2011. Now an Assistant Professor in Biomedical Engineering at Ben Gurion University of the Negev (started August 2014).

Ali Shahdi 2013-2013. Ph.D. McMaster University 2010. Previously Post-doctoral Principal Researcher/Project Manager, CSIR, and Post-doctoral R&D Fellow, Quanser Inc. Now at a start-up company (started May 2013).

Steven Marra was supported on my projects as a research scientist, 2010-2011. Ph.D. Johns Hopkins University 2001. Postdoc and lecturer at Dartmouth College Thayer School of Engineering and Dartmouth-Hitchcock Medical Center Section of Vascular Surgery 2001-2007. Senior Research and Design Engineer, Director, Clinical Trials Affairs, M2S, Inc., 2007-2009. Now a Senior Lecturer at Johns Hopkins University (started July 2011).

Paul Griffiths 2008-2010. Ph.D. University of Michigan 2008. Now an engineer at Intuitive Surgical Inc. (started November 2010).

Steven Charles 2008-2010 (co-supervised with A. J. Bastian). Ph.D. Massachusetts Institute of Technology 2008. Now an Assistant Professor in Mechanical Engineering at Brigham Young University (started July 2010).

Erion Plaku 2008-2009 (co-supervised with Gregory D. Hager and Noah J. Cowan). Ph.D. Rice University 2008.

Sam Song 2008-2009 (co-supervised with Peter Kazanzides, Louis L. Whitcomb, and Gabor Fichtinger). Ph.D. Imperial College of London, U. K. 2005. Postdoc University of British Columbia, Canada 2006. Research Scientist Western Pennsylvania Hospital, Pittsburgh 2006-2008. Now an Associate Research Professor in the Engineering Research Center for Computer-Integrated Surgical Systems and Technology at Johns Hopkins University.

Kyle Reed 2007-2009 (co-supervised with Noah J. Cowan). Ph.D. Northwestern University 2007. Currently an Assistant Professor in Mechanical Engineering at the University of South Florida (started August 2009).

Katherine J. Kuchenbecker 2006-2007. Ph.D. Stanford University 2006. Was a tenured Associate Professor in Mechanical Engineering and Applied Mechanics at University of Pennsylvania (started July 2007), and now a Director of the Max Planck Institute for Intelligent Systems (started 2018).

Mohsen Mahvash, 2004-2006. Ph.D. McGill University 2002. Assistant Research Professor at Johns Hopkins University in 2007. Currently an Assistant Research Professor supervised by Pierre Dupont at Boston University, Boston MA (started September 2007).

Jessica R. Crouch 2003-2004. Ph.D. University of North Carolina-Chapel Hill 2003. Currently an Adjunct Assistant Professor in Computer Science at Old Dominion University (started September 2004).

Sung-Ouk Chang 2003-2004. Ph.D. Pusan University Korea 2003. Currently a research engineer with Samsung (started September 2004).

Visiting Students and Scholars

Sang-Goo Jeong, 2019-2020. Ph.D. student, KOREATECH, Korea.

Dangxiao Wang, 2018-2019. Professor, Beihang University, China.

Carine Rognon, 2018-2019. Ph.D. student, EPFL, Switzerland.

Christian Duriez, 2018-2019. Research Director at INRIA, France.

Pete Shull, 2018, Assistant Professor, Shanghai Jiaotong University, China.

Elliot Hawkes, 2017, Assistant Professor, University of California, San Diego.

Yasuhisa Kamikawa, 2017, Sony, Japan.

Sajid Nisar, 2017-2018. Ph.D. student, Kyoto University, Japan.

Nima Enayati, 2017. Ph.D. student, Politecnico di Milano, Italy.

Yu Sun, 2017-2018, Professor, Department of Computer Science, University of South Florida.

Yoshihiro Kuroda, 2016, Assistant Professor, Osaka University, Japan.

Mike Rinderknecht, 2012-2013. Ph.D. student, ETH Zurich, Switzerland.

William Provancher, 2012-2013. Associate Professor, Department of Mechanical Engineering, University of Utah.

Yoshihiro Kuroda, 2012-2013. Assistant Professor, Dept. of Medical Science and Bioengineering, Osaka University, Japan.

Dana Damian, 2011-2012. Ph.D. student, Computer Science, University of Zurich, Switzerland.

Yoshihiko Koseki, 2010-2011. Researcher, Surgical Assist Technology Group (SAT), National Institute of Advanced Industrial Science and Technology (AIST), Japan.

Danilo de Lorenzo, 2011-2012. Ph.D. student, Bioengineering Department, Politecnico di Milano, Italy.

Matteo Bianchi, 2011-2012. Ph.D. student, Interdepartmental Research Center "E.Piaggio", Politecnico di Milano, Italy.

Jakob Kemper, 2004-2005. M.S. student, TU Munich, Germany. (co-advised with Gabor Fichtinger)

Undergraduate Students

At Stanford University: Research is performed for course credit, pay (either through an REU supplement to an NSF grant or from the ME Department SURI program), or volunteer participation. The following Stanford undergraduate students have performed research in the lab: Song Wu (2020), James Pillot (2020), Sochima Ezema (2020), Claire Brooks (2020), Mitchell So (2020), Steven Trinh (2019-2020), Thomas Trzpit (2019-2020), Bryce Huerta (2019-2020), Tita Kanjanapas (2018-2019), Alexis Lowber (2019-2020), Marie Payne (2019-2020), Brandon Ritter (2019), Xin Yi Ren (2019), Devin Hunter (2019), Lauren Pitzer (2019), Nicole Salz (2019), Valory Banashek (2019), Tiger Sun (2018), Sadie Cutler (2018), Michael Raitor (2015-2016), Annalisa Taylor (2015-2016), Aaron Barron (2015), Andre Cornman (2015), Zoe Goldblum (2015), Brice Dudley (2015), Javier Reyna (2015), Gabe Haro (2015), Coleen Holden (2015), Sarah Cabreros (Sum2014), Nina Jimenez (Sum2014), Caroline Fong (Sum2014), Sanjay Srinivas (Sum2014), Akzl Pultorak (Sum2014), Jeanny Wang (Sum2014), Caroline Abbott (Sum2014), Iris Yan (Sum2014), Michael Lin Yang (UC Berkeley, Sum2014), Alexa Siu (Georgia Tech, Sum 2014), Matt Weber (W2013-S2014), Kenji Hata (W2014-Sum2014), Arushi Raghuvanshi (W2014-S2014), Jaih Hunter-Hill (Sum2013), Adam Genecov (Sum2013), Joshua Siegel (Sum2013), Margaret Koehler (Sum2012, A2012, W2013), Denis Lin (Sum2012), Margaret Chapman (S2012).

At Johns Hopkins University: Over 50 undergraduate researchers were advised/mentored from 2000-2011. The majority have been Johns Hopkins University undergraduate students in Mechanical Engineering, Biomedical Engineering, Computer Science, and Electrical Engineering. Research is performed for course credit, pay (either through an REU supplement to an NSF grant or directly from a research grant), or volunteer participation. Approximately two undergraduate research students per year have been from other institutions; they typically come to JHU for the summer through the REU program of the Engineering Research Center for Computer-Integrated Surgical Systems and Technology (R. Etienne-Cummings is PI of the REU supplements/site grants). About a third of the undergraduate researchers have been co-authors on papers or abstracts, and many of them have gone on to Ph.D. research and received competitive national fellowships (e.g., NSF, NDSEG).

Thesis and Oral Exam Committees

Not including own students, and Stanford Ph.D. unless otherwise stated.

2020: Laura Matloff, Lawrence Kim, Chris Dembia, Mengyuan Yan, Chi-chun Pan, Tae Myung Huh, Will Roderick, Eric Chang, Mikael Jorda, Ross Bennett-Kennett, Kai Zhang, and departmental qualifying exams.

2019: Simone Ciotti (Ph.D. University of Pisa), Diana Chin, Carmichael Ong, Christopher Berkey, Inrak Choi, Yuxin Liu, Sumeet Singh, Jake Sganga, and departmental qualifying exams.

2018: Nicholas Moehle, Nir Evan-Chen, Natalie Burkhard, John Kegelman, Eulalie Coevoet (Ph.D. INRIA), and departmental qualifying exams.

2017: Cesare Jenkins, Xiyang Yeh, Gerald Brantner, Rivers Ingersoll, Jung Hwa Bae, and departmental qualifying exams.

2016: Nitin Kapania, Jamy Li, Xin Alice Wu, and departmental qualifying exams.

2015: Avinash Balachandran, Elliot Hawkes, Michael Yip, David Held, Katelyn Cahill-Rowley , and departmental qualifying exams.

2014: Robert Wilson, Sonny Chan, Jeamin Koo, Santhi Elayaperumal, Paul Theodosis, Reuben Brewer, Wisit Jirattigalachote, and departmental qualifying exams.

2013: Barrett Heyneman, James Gwilliam (JHU Ph.D.), Kirstin Talvala, Adam Leeper, and departmental qualifying exams.

2012: Nasir Bhanpuri (JHU Ph.D.), Danilo De Lorenzo (Politecnico di Milano Ph.D.), Varun Ganapathi, Laura Santos-Carreras (EPFL Ph.D.), Matteo Bianchi (University of Pisa Ph.D.), Pete Shull, Seokchang Ryu, Dan Walker, Adam Jungkunz, Dan Aukes, and departmental qualifying exams.

2011: Krisada (Mick) Kritayakirana, John Swenson (JHU Ph.D.), Heidi Weeks (JHU GBO), Zachary Pezzementi (JHU Ph.D.), and departmental qualifying exams.

2010: Christina Fuentes (JHU Ph.D.), and graduate board orals and departmental qualifying exams.

2009: Ehsan Dehghan (University of British Columbia Ph.D.), and departmental qualifying exams.

2008: Timothy Edmunds (Rutgers Ph.D.), Wooram Park (JHU Ph.D.), Vinutha Kallem (JHU Ph.D.), Gregory Fischer (JHU Ph.D.), Stephen Martin (JHU Ph.D.), and departmental qualifying exams.

2007: Ankur Kapoor (JHU Ph.D.), Aniruddha Chatterjee (JHU M.S.), Yoonju Cho (JHU M.S.), and graduate board orals and departmental qualifying exams.

2006: Melanie Palomeres (JHU Ph.D.), Jinseob Kim (JHU Ph.D.), and graduate board orals and departmental qualifying exams.

2005: Jake Abbott (JHU Ph.D.), Tabish Mustufa (JHU M.S.), Takintope Akinbiyi (JHU M.S.), Jakob Kemper (TUM M.S.), Jack Li (JHU M.S.), and graduate board orals and departmental qualifying exams.

2004: Yu Zhou (JHU Ph.D.), Alexandru Patriciu (JHU Ph.D.), Anonymous (Ph.D.), and graduate board orals and departmental qualifying exams.

2003: Kiezo Miyahara (JHU Ph.D.), Jackrit Suthakorn (JHU Ph.D.), and graduate board orals and departmental qualifying exams.

2002: Sangyoon Lee (JHU Ph.D.), David Smallwood (JHU Ph.D.), Anonymous (Ph.D.), and departmental qualifying exams.

2001: David Stein (JHU Ph.D.), Yunfeng Wang (JHU Ph.D.), and departmental qualifying exams.

Instruction and Course Development

Stanford University Courses (2012-present)

ME1: Introduction to Mechanical Engineering This course is intended to be the starting point for Mechanical Engineering majors. It will cover the concepts, engineering methods, and common tools used by mechanical engineers while introducing the students to a few interesting devices. We will discuss how each device was conceived, design challenges that arose, application of analytical tools to the design, and production methods. Main class sections will include lectures, demonstrations, and in-class group exercises. Lab sections will develop specific skills in freehand sketching and computational modeling of engineering systems. *Stanford University: Autumn 2022. TBD students.*

ME23N: Soft Robots for Humanity (Freshman IntroSem) While traditional robotic manipulators are constructed from rigid links and simple joints, a new generation of robotic devices are soft, using flexible, deformable materials. Students in this class will get hands-on experience building soft robots using various materials, actuators, and programming to create robots that perform different tasks. Through this process, students will gain an appreciation for the capabilities and limitations of bio-inspired systems, use design thinking to create novel robotic solutions, and gain practical interdisciplinary engineering skills.*Stanford University: Autumn 2019. 16 students.*

ME20N: Haptics: Engineering Touch (Freshman IntroSem) Students in this class learned how to build, program, and control haptic devices, which are mechatronic devices that allow users to feel virtual or remote environments. In the process, students gained an appreciation for the capabilities and limitations of human touch, developed an intuitive connection between equations that describe physical interactions and how they feel, and gained practical interdisciplinary engineering skills related to robotics, mechanical engineering, electrical engineering, bioengineering, and computer science. In-class laboratories give students hands-on experience in assembling mechanical systems, making circuits, programming Arduino microcontrollers, testing their haptic creations, and using Stanford's student prototyping facilities. The final project for this class involved creating a novel haptic device that could be used to enhance human interaction with computers, mobile devices, or remote-controlled robots. *Stanford University: Autumn 2013, 2014, 2017. 16 students per quarter.*

Online course: Introduction to Haptics Similar to ME20N above, but without the project and taught online. Special open-hardware haptic devices (Hapkit, `http://hapkit.stanford.edu`) were designed and distributed to the remote students. Demonstrated the potential for hands-on labs in an online learning environment. Student retention and success were approximately 75% – much higher than typical online courses. *Taught via Stanford University's OpenEdX platform: Autumn 2013. 102 students. Since then, it is a self-paced MOOC with over 5,000 students having enrolled.*

ENGR 105: Feedback Control Design Design of linear feedback control systems for command-following error, stability, and dynamic response specifications. Root-locus and frequency response design techniques. Examples from a variety of fields. Some use of computer aided design with MATLAB. In 2013 and 2014 I introduced a small laboratory component in place of traditional simulation assignments. *Stanford University: Winter 2012, 2013, 2014, 2015, 2016, 2017, 2020, Spring 2021, Winter 2022. Approximately 60-80 students per year.*

ME 327: Design and Control of Haptic Systems (new course) Study of the design and control of haptic systems, which provide touch feedback to human users interacting with virtual environments and teleoperated robots. Focus is on device modeling (kinematics and dynamics), synthesis and analysis of control systems, design and implementation, and human interaction with haptic systems. Coursework includes homework/laboratory assignments and a research-oriented project. Directed toward graduate students and advanced undergraduates in engineering and computer science. *Stanford University: Fall 2012, Spring 2014, Fall 2015, Winter 2018, Spring 2019, Spring 2020, Spring 2022. 20-80 students per year.*

ME 328: Medical Robotics (new course) Study of the design and control of robots for medical applications. Focus is on robotics in surgery and interventional radiology, with introduction to other healthcare robots. Delivery is through instructor lectures and weekly guest speakers. Coursework

includes homework and laboratory assignments, an exam, and a research-oriented project. Directed toward graduate students and advanced undergraduates in engineering and computer science; no medical background required. *Stanford University: Spring 2012, 2013, 2016, 2019. 22-50 students per year.*

CS/ME 571: Surgical Robotics Seminar Surgical robots developed and implemented clinically on varying scales. Seminar goal is to expose students from engineering, medicine, and business to guest lecturers from academia and industry.engineering and clinical aspects connected to design and use of surgical robots, varying in degree of complexity and procedural role. *Stanford University: same quarters and ME 328. Approximately 40 students per year. Co-taught with Federico Barbagli.*

Johns Hopkins University Courses (2000-2011)

Freshman Curriculum Reform From 2006 to 2010, led the Johns Hopkins University Mechanical Engineering Department's effort to re-design the freshman curriculum as a highly integrated physics and mechanical engineering sequence. This includes three year-long courses: Freshman Experiences in Mechanical Engineering I & II, Introduction to Mechanics I & II, and Mechanical Engineering Freshman Laboratory I & II. Developed high-level structure for all three courses. Created a laboratory sequence that alternates related physics and engineering laboratories. Developed new set of physics/mechanics laboratories using a computer-vision-based tracking system.

Freshman Experiences in Mechanical Engineering I & II (modified course) An overview of the field of mechanical engineering along with topics that will be important throughout the mechanical engineering program. This one-year course includes applications of mechanics, elementary numerical analysis, programming in Matlab, use of computer in data acquisition, analysis, design, and visualization, technical drawing, the design process and creativity, report preparation, teamwork, and engineering ethics. *Johns Hopkins University: Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2010. Approximately 35 students per semester in 2007-2008, 58 in 2008-2009, and 55 in 2010.*

Mechanical Engineering Freshman Laboratory I & II (new course) Hands on laboratory complementing Freshman Experiences in Mechanical Engineering and Introduction to Mechanics, including experiments, mechanical dissections, and design experiences distributed throughout the year. Experiments are designed to give students background in experimental techniques as well as to reinforce physical principles. Mechanical dissections connect physical principles to practical engineering applications. Design projects allow students to synthesize working systems by combining mechanics knowledge and practical engineering skills. *Johns Hopkins University: Fall 2007, Spring 2008, Fall 2008, Spring 2009. Approximately 35 students per semester in 2007-2008, 58 in 2008-2009, and 55 in 2010.*

Mechatronics (modified course) This interdisciplinary course include lectures, lab assignments, and projects that teach the student to design and build mechatronic devices, building on the themes of Robot Sensors and Actuators. We expand on the topics of mechanism design, motors and sensors, interfacing and programming microprocessors, mechanical prototyping, and creativity in the design process. Course labs and projects are performed in small student groups. Each group develops a microprocessor-controlled electromechanical device, such as a mobile robot or art-making machine. *Johns Hopkins University: Fall 2006. Approximately 20 students.*

Design and Analysis of Dynamic Systems (new course) Modeling and analysis of damped and undamped, forced and free vibrations in single and multiple degree-of-freedom linear dynamical systems. Introduction to stability and control of linear dynamical systems. Designed and implemented a new set of labs incorporating the Haptic Paddle (http://www.haptics.me.jhu.edu/research/paddle/paddle.html). Johns Hopkins University: Spring 2002, 2003, 2004, 2005, 2006; lab portion only Spring 2007, 2008. Approximately 40 students per year. Also at Stanford University: called Dynamic Systems (modified course), co-taught with P. Mitiguy, Fall 1998. Approximately 60 students.

Robot Sensors and Actuators Introduction to modeling and hands-on use of actuators and sensors in mechatronic design. A microprocessor is used for control. Course work includes weekly lectures and hands-on laboratory exercises in which the students construct and use various mechatronic sensors

and actuators. The cumulative laboratory sequence concludes with students integrating sensor and actuator knowledge they have developed in a final project. *Johns Hopkins University: Fall 2004. Approximately 65 students.*

Introduction to Robotics Graduate level introduction to robotics with emphasis on the mathematical tools for describing the kinematics and dynamics of robot arms. Topics include the geometry and mathematical representation of rigid body motion, forward and inverse kinematics of articulated mechanical arms, trajectory generation, manipulator dynamics, actuation, sensing and design issues, manipulator control, and additional special topics such as medical robotics, motion planning, and physics-based manipulation. *Johns Hopkins University: Fall 2002, 2003. Approximately 15 students per year.*

Haptic Systems for Teleoperation and Virtual Reality (new course) Graduate-level introduction to the field of haptics, focusing on virtual environments that are displayed through the sense of touch. Topics covered included introduction to haptics, human haptic sensing and control, sensing and actuation of haptic interfaces, grounded and ungrounded feedback, tactile displays, rigid and deformable virtual surfaces, surface property rendering, dynamic simulation, reality-based modeling, psychophysics, human factors, and applications in entertainment, education and training, scientific visualization, simulated surgery, and teleoperation. The course began with lectures and assignments, and then transitioned to reading and discussion of research papers, presentations, and course projects of the students own design. *Johns Hopkins University: Fall 2000, 2001, 2003, 2006, Spring 2009, Spring 2011. Approximately 12 students per year until 2006, 25 students in 2009, 24 students in 2011.*

Other Courses

Graphics in Engineering (new course) Freshman-level introduction to engineering graphics and communications. Prepared and presented lectures and laboratories on sketching, orthographic pro jection and standard views, engineering drawing and practices, geometric relationships, descriptive geometry, 3-D graphics, using AutoCAD, introduction to design and documentation. Developed and directed student design projects and final presentations. *College of San Mateo: Fall 1999, Spring 2000. Approximately 15 students per year.*

Professional Service

International Program, Editorial, and Review Committees

2022-present IEEE Robotics and Automation Society IEEE Fellow Nomination Committee member

2022-present Advisory Board, IEEE Reviews of Biomedical Engineering (RBME)

2022 General Co-Chair, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2018-2021 Editor-in-Chief, IEEE Robotics and Automation Letters

2018-2022 National Institutes of Health (NIH) Study Section Member, MRS panel

2015-2018 Deputy Editor-in-Chief, IEEE Robotics and Automation Letters

2015-2018 Editor, International Journal of Robotics Research

2011-2018 National Institutes of Health (NIH) ad hoc reviewer

2014 National Science Foundation (NSF) panelist

2014-2017 Editor-in-Chief, IEEE International Conference on Robotics and Automation (ICRA)

2013 Editor, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2013 National Science Foundation (NSF) ad hoc reviewer

2013 Natural Sciences and Engineering Research Council (NSERC) Canada ad hoc reviewer

2012 National Science Foundation (NSF) Panel

2011-2014 Associate Editor, IEEE Transactions on Haptics

2011 Associate Editor, World Haptics Conference

2011 International Conference on Rehabilitation Robotics (ICORR) Scientific Committee

2010-2011 Guest Editor, IEEE Transactions on Haptics – Special Issue on Haptics in Medicine and Clinical Skill Acquisition

2010 National Science Foundation (NSF) graduate research fellowship review panel

2010-2012 Editor, IEEE International Conference on Robotics and Automation

2010 Senior Program Committee, IEEE International Conference on Robotics and Automation

2009 Area Chair, Robotics: Science and Systems Conference

2009 Associate Editor, World Haptics Conference

2009 National Science Foundation (NSF) proposal review panel and ad-hoc reviewer

2008 National Institutes of Health (NIH), NIBIB Training Grant Panel

2008 Video Proceedings program committee, IEEE International Conference on Robotics and Automation

2007-2010 Associate Editor, IEEE Transactions on Haptics

2007-2010 Co-chair, program and organizing committee, Symposium on Haptic Interfaces for Virtual Environments and Teleoperator Systems (held biannually)

2007 Scientific Review Committee, Medical Image Computing and Computer-Aided Intervention (MICCAI)

2007 Program Committee, Robotics: Science and Systems

2007 Co-chair, special sessions committee, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2006 Video Proceedings co-Chair, IEEE International Conference on Robotics and Automation

2005 Program committee, World Haptics Conference

2004 National Science Foundation (NSF) proposal review panel

2004 Program committee, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2005 National Institutes of Health (NIH), Bio-Computing and Health Informatics Study Section (ad hoc member of review panel)

2005 National Science Foundation (NSF) review panel

2004 Program committee, Medical Image Computing and Computer-Aided Intervention (MICCAI)

2004 Program committee, Eurohaptics

2003-2006 Program and organizing committee, Haptics Symposium (three-year term)

2003 Program committee, IEEE International Conference on Robot-Human Communication (RO-MAN)

2003 Program committee, Eurohaptics

2003 Program committee, Medical Image Computing and Computer-Aided Intervention (MICCAI)

2003 National Science Foundation (NSF) review panel

Administrative and Organizational Committees

2020-present IEEE RAS Technical Activities Board

2020-2021 IEEE RAS Financial Activities Board

2016-present IEEE RAS Publication Activities Board

2016 IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics Awards committee

2014 IEEE/RSJ International Conference on Intelligent Robots and Systems Awards committee

2014 Member, IEEE Robotics and Automation Society Administrative Committee

2012-13 Robotics Roadmap Committee. Revised a report that identifies the future impact of robotics on the economic, social, and security needs of the USA, outlines scientific and technological challenges, and documents a technological roadmap to address them. Report presented to congress in 2013.

2011 IEEE Robotics and Automation Society IEEE Fellow evaluation committee

2011 IEEE/RSJ International Conference on Intelligent Robots and Systems Awards committee

2010 IEEE Robotics and Automation Society Fellow Evaluation committee

2009 IEEE Robotics and Automation Magazine Editor-in-Chief Search committee

2009 IEEE Robotics and Automation Society Awards Nomination committee

2008-2010 CCC/CRA Robotics Roadmap Committee. Developed a report released May 2009 at the Robotics Congressional Caucuss briefing of the 111th Congress. The report identifies the future impact of robotics on the economic, social, and security needs of the USA, outlines scientific and technological challenges, and documents a technological roadmap to address them. http://www.us-robotics.us/reports/CCC Report.pdf

2008 Co-organized (with Nancy Amato) the second IEEE RAS Fellowship for gender diversity in robotics and automation

2008 IEEE Robotics and Automation Society Awards Nomination committee

2007 Editor-in-Chief Search Committee, IEEE Transactions on Haptics

2007 Awards committee chair, World Haptics Conference

2007 Co-founded and co-organized (with George Bekey) the first IEEE RAS Fellowship for a female graduate student in robotics and automation

2006-present Vice Chair for Finance, IEEE Technical Committee on Haptics

2006 Founding Member, IEEE Technical Committee on Haptics

2006-2007 Originated and led the organization of the first IEEE RAS Birds of a Feather Lunch for Women at ICRA 2007. Co-organizers were Danica Kragic, Nancy Amato, Mihoko Otake, Aude Billard, and Robin Murphy. Over 100 people attended the event, which included presentations and a discussion panel with Q & A session.

2006-2007 Member, Haptics Journal Steering Committee. Result: Founding of the IEEE Transactions on Haptics.

2006-2007 Membership co-Chair, IEEE Robotics and Automation Society

2005 Awards committee, World Haptics Conference

2004-2005 Member, IEEE Robotics and Automation Society Administrative Committee

2004 Awards Committee, Haptics Symposium

2002 Local Arrangements Vice Chair, 2002 IEEE International Conference on Robotics and Automation

Professional Memberships

Institute for Electrical and Electronic Engineers (IEEE): Robotics and Automation Society, Computer Society, and Engineering in Medicine and Biology Society

American Society of Mechanical Engineers (ASME)

Society for Neuroscience

American Physiological Society (APS)

American Society for Engineering Education (ASEE)

Association for Women in Science (AWIS)

Society of Women Engineers (SWE)

Washington Area Computer Aided Surgery Society (WashCAS)

Pi Tau Sigma

Reviews

Journal paper reviews: Science Translational Medicine, PNAS, IEEE Transactions on Robotics, IEEE Transactions on Haptics, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Systems, Man, and Cybernetics, IEEE Journal of Oceanic Engineering, IEEE Transactions on Information Technology in Biomedicine, IEEE Computer Graphics and Applications, IEEE Transactions on Industrial Electronics, IEEE/ASME Transactions on Mechatronics, ASME Journal of Dynamic Systems, Measurement and Control, ASME Journal of Mechanical Design, ASME Journal of Applied Mechanics, ACM Transactions on Applied Perception, International Journal of Robotics Research, Robotics and Autonomous Systems, Haptics-e: The Electronic Journal of Haptics Research, International Journal of Human-Computer Studies, Human Factors, Computerized Medical Imaging and Graphics, Journal of Biomechanics.

Conference paper reviews: In addition to the conference program committees listed earlier, occasional reviews are provided for numerous annual and biannual conferences, including IEEE International Conference on Robotics and Automation, IEEE/RSJ International Workshop on Intelligent Robots and Systems, Robotics: Science and Systems, IEEE Conference on Rehabilitation Robotics, Medical Image Computing and Computer-Aided Intervention, IEEE Engineering in Medicine and Biology Conference, IEEE International Conference on Automation and Robotics, American Control Conference, ASME Design Automation Conference, ASME IMECE Conference (Dynamic Systems and Control Division), Workshop on Robot-Human Communication, Symposium on Haptics for Virtual and Teleoperator Environments, World Haptics Conference, Eurohaptics Conference.

Organization of Workshops and Tutorials

CCC Workshop on Next Generation Robotics, San Francisco, CA, March 11, 2016. (Co-organizer)

Roadmapping Workshop for Medical and Healthcare Robotics, Los Angeles, CA, July 23, 2012. (Co-organizer)

Tutorial on Best Practices for Teaching Haptics, IEEE Haptics Symposium, March 4, 2012. (Organizer)

Workshop on Advanced Sensing and Sensor Integration in Medical Robotics, IEEE International Conference on Robotics and Automation, May 13, 2009. (Co-organizer)

Needle Steering: Recent Results and Future Opportunities, 11th International Conference on Medical Image Computing and Computer Assisted Intervention, September 6, 2008. (Co-organizer)

NSF/ JST US-Japan Robotics Workshop on Safety, Security, and Society, San Francisco, California, August 15, 2008. (Area leader for medical robotics)

CCC/CRA Roadmapping Workshop for Medical and Healthcare Robotics, Washington, DC, June 19-20, 2008. (Co-organizer)

Reality-Based Modeling of Tissues for Simulation and Robot-Assisted Surgery, IEEE/RSJ International Conference on Intelligent Robots and Systems, October 31, 2003. (Co-organizer)

ONR Workshop on Human and Machine Haptics, December 7-9, 1997. (Co-organizer)

University Service

Stanford University

Founding member and executive committee member of the Stanford Robotics Center (2022-present)

Mechanical Engineering Department Diversity, Equity, and Inclusion (DEI) Committee (2020-present) and Chair (2022-present)

Mechanical Engineering Department Faculty Search Committee (2022-2023)

Mechanical Engineering Department Director of Graduate Studies, Chair of the Graduate Studies Committee (2019-present)

Mechanical Engineering Department Graduate Experience Committee, Chair (2017-2019)

Faculty Senate (2017-2020)

Policy Planning Board (2015-2016)

School Growth Planning Committee, School of Engineering (2014-2015)

Faculty Advisory Board, Center for the Advancement of Womens Leadership (2013-present)

Faculty Women's Forum Steering Committee (2013-2015)

Mechanical Engineering Department Product Design Faculty Search Committee Co-Chair (2013-2014)

Mechanical Engineering Department Graduate Admissions Committee (2011-2016); Chair (2014-2016)

Mechanical Engineering Department ad hoc Space Committee (2013-2014)

Society of Women Engineers student chapter, acting advisor (2012-2013)

Mechanical Engineering Department Biomechanics Faculty Search Committee (2011-2012)

Johns Hopkins University

Vice Chair, Department of Mechanical Engineering (2010-2011) – Chair of Undergraduate Curriculum Committee, Chair of Undergraduate Program Committee, member of Graduate Program Committee, member of ABET committee, Chair of Lecturer Search Committee

Graduate Admissions Committee, Department of Mechanical Engineering (2000-2001, 2004-2005, Chair: 2007-2009)

Curriculum Committee, Department of Mechanical Engineering (2007-2009)

Machine Shop/Undergraduate Laboratories Committee, Department of Mechanical Engineering (2004-2009)

Undergraduate Recruiting Committee, Department of Mechanical Engineering (2000-2003, 2004-2007, Chair: 2004-2007)

Student Affairs Committee, Department of Mechanical Engineering (2002-2003, 2004-2007, 2008-2009)

Web/Publicity Committee, Department of Mechanical Engineering (2000-2004, Chair: 2002-2004)

Associate Director, Laboratory for Computational Sensing and Robotics (2007-2011). Worked alongside other robotics faculty to define the organization and administration for this new interdisciplinary center. Worked closely with architects to design the physical infrastructure for LCSR in a new building, and coordinated several phases of moving into the new space.

Thrust Leader, Engineering Research Center for Computer-Integrated Surgical Systems and Technology (2004-2010)

Faculty Advisor for the Johns Hopkins University Society of Women Engineers Student Chapter, 2001-2009

HopkinsOne Faculty Advisory Committee (2008-2009)

Search Committee for the Chair of the Biomedical Engineering Department (2006-2007)

Numerous presentations to alumni, industry partners, and prospective donors, organized by the Whiting School of Engineering and the Johns Hopkins University Development Offices (2000-2011)

Personal

Born July 9, 1972, Fontana, California, USA. Married, two children. Hobbies: Running and ice hockey.