SLIMAN J. BENSMAIA

October 2022

CONTACT INFORMATION

Address: 1027 E 57th St.
Chicago, IL 60637
Phone #: (773) 834-5203
Email: sliman@uchicago.edu
Faculty page: http://pondside.uchicago.edu/oba/faculty/bensmaia_s.html
Lab website: http://bensmaialab.org

EDUCATION

B.A. Cognitive Science, May 1995, University of Virginia

M.S. Cognitive Psychology, May 1999, University of North Carolina at Chapel Hill

Ph.D. Cognitive Psychology with a minor in neurobiology, May 2003, University of North Carolina at Chapel Hill – Advisor: Mark Hollins

RESEARCH EXPERIENCE

07/2019 – present	Professor, Department of Organismal Biology and Anatomy, University of Chicago.
07/2015 – 07/2019	Associate Professor, Department of Organismal Biology and Anatomy, University of Chicago.
09/2009 – 07/2015	Assistant Professor, Department of Organismal Biology and Anatomy, University of Chicago.
03/2006 – 09/2009	Associate Research Scientist, Krieger Mind/Brain Institute, Johns Hopkins University.
09/2003 – 03/2006	Postdoctoral Fellow, Krieger Mind/Brain Institute, Johns Hopkins University – Advisor: Kenneth Johnson.

AWARDS

2002	Baughman Award for Innovative Dissertation Projects, Department of Psychology, University of North Carolina at Chapel Hill.
2011	Early Career Award, National Science Foundation.
2013	Early Career Award, IEEE Technical Committee on Haptics.
2014	Distinguished Alumnus Award, University of North Carolina Department of Psychology.

2015	Distinguished Investigator Award, University of Chicago Biological Sciences Division.
2018	Kavli Frontiers of Science Fellow.
2019	James and Karen Frank Family Professor.

TEACHING

2021-present	Neural interfaces for restoration and augmentation.
2017 – 2021	Survey of Systems Neuroscience, course director. Core course in Computational Neuroscience and Neurobiology, 15-25 undergraduate and graduate students.
2014, 2017	Medical Robotics, Northwestern University, guest lecturer.
2012 – 2020	Methods in Computational Neuroscience, course director. Core course in Computational Neuroscience, 15-20 undergraduate and graduate students.
2009 – present	Integrative Organismal Biology, guest lecturer.
2009 – present	Topics in Integrative Organismal Biology, guest lecturer.
2009 – 2020	Systems Neuroscience (undergraduate), guest lecturer.
2009 – 2017	Systems Neuroscience (graduate), guest lecturer.
2009 – 2011	Computational Neuroscience 2, course director.
2007	Primate Physiology, course director (co-taught with S. Hendry).
2001 – 2003	Sensation and Perception, teaching fellow.
2000	Sensation and Perception, teaching assistant (taught by M. Hollins).

ACADEMIC COMMITTEES AND SERVICE

2022	Simian Collective conference, co-organizer.
2018	Hand, Brain, and Technology conference, co-organizer.
2016-present	Admissions Committee, Computational Neuroscience, chair.
2011, 2015	Admissions Committee, Neurobiology and Computational Neuroscience.
2014	Organizing committee, University of Chicago day.
2013-present	Darwinian Cluster Retreat Committee, chair.
2012-present	Committee on Teaching Assistantships.
2012	Preliminary Examination Committee, Committee on Neurobiology.
2011	Organismal Biology and Anatomy Neuroscience Search Committee.
2010-present	Executive Committee, Computational Neuroscience.
2010	Neurobiology and Computational Neuroscience Admissions Committee.
2010, 2011	Tactile Research Group meeting, co-organizer.

SOCIETY MEMBERSHIPS

Society for Neuroscience, American Physiological Society, Tactile Research Group, Technical Committee on Haptics, Institute for Electrical and Electronics Engineers

EDITORIAL BOARDS

Attention, Perception and Psychophysics (consulting editor)
Encyclopedia of Computational Neuroscience (associate editor)
Frontiers in Computational Neuroscience (associate editor)
Nature Scientific Reports (editorial board member)
PLoS ONE (academic editor)

AD HOC REVIEWER

Department of Defense; National Institutes of Health; National Science Foundation; Israeli Science Foundation; Netherlands Organization for Scientific Research; Biotechnology and Biological Sciences Research Council; COSYNE; Nature; Science; Science – Translational Medicine; Proceedings of the National Academy of Science; Neuron; Nature Neuroscience; Trends in Cognitive Sciences; Trends in Neuroscience; eLife; Journal of Neuroscience; Journal of Neurophysiology; Journal of Neural Engineering; Journal of Neuroscience Methods; Experimental Brain Research; Somatosensory and Motor Research; PLoS ONE; PLoS Computational Biology; IEEE Transactions on Biomedical Engineering; IEEE Transactions on Haptics; IEEE Transactions on Robotics; IEEE Transactions on Neural Systems and Rehabilitation Engineering; IEEE Virtual Reality; BMC Neuroscience; Brain Research; Perception; Neuroscience Letters; Consciousness and Cognition; Perception.

PUBLICATIONS

1. Callier, T., Gitchell, T., Harvey, M.A., & Bensmaia, S.J. (2022). Disentangling temporal and rate codes in primate somatosensory cortex. *bioRxiv*.
2. Shelchkova, N.D., Downey, J.E., Greenspon, C.M., Okorokova, E.V., Sobinov, A.R., Verbaarschot, C.V., He, Q., Sponheim, C., Tortolani, A.F., Moore, D.D., Kaufman, M.T., Lee, R.C., Satzer, D., Gonzalez-Martinez, J., Warnke, P.C., Miller, L.E., Boninger, M.L., Gaunt, R., Collinger, J., Hatsopoulos, N., Bensmaia, S.J. (2022). Microstimulation of human somatosensory cortex evokes task-dependent, spatially patterned responses in motor cortex. *bioRxiv*: 2022.08.10.503543
3. Martin, A.B., Cardenas, M.A., Andersen, R.K., Bowman, A.I., Hillier, E.A., Bensmaia, S.J., Fuglevand, A.J., & Gothard, K.M. (2022). A context-dependent switch from sensing to feeling in the primate amygdala. *bioRxiv*: 2022.10.15.512319
4. Nanivadekar, A.C., Bose, R., Petersen, B., Okorokova, E.V., Sarma, D., Farooqui, J., Dalrymple, A.N., Levy, I., Helm, E.R., Miele, V.J. & Boninger, M.L., Capogrosso, M., Bensmaia, S.J., Weber, D.J., & Fisher, L.E. (2022). Spinal cord stimulation restores sensation, improves function, and reduces phantom limb pain after transtibial amputation. *MedRxiv*.
5. Long, K.H., Lieber, J.D. & Bensmaia, S.J. (2022). Texture is encoded in precise temporal spiking patterns in primate somatosensory cortex. *Nature Communications*, 13: 1311.

6. Long, K.H., Fitzgerald, E.E., Berger-Wolf, E., Fawaz, A., Greenspon, C.M., Lindau, S.T., & Bensmaia, S. J. (2022). The coarse mental map of the breast is anchored on the nipple. *bioRxiv.*
7. Long, K.H., Greenspon, C.M., van Driesche, A., Lieber, J.D. & Bensmaia, S.J. (2022). Texture coding in higher order somatosensory cortices. *bioRxiv*.
8. Sombeck, J.T., Heye, J., Kumaravelu, K., Goetz, S.M., Peterchev, A.V., Grill, W.M., Bensmaia, S. J. & Miller, L.E. (2022). Characterizing the short-latency evoked response to intracortical microstimulation across a multi-electrode array. *Journal of Neural Engineering*, 19: 026044.
9. Christie, B., Osborn, L.E., McMullen, D.P., Pawar, A.S., Thomas, T.M., Bensmaia, S.J., Celnik, P.A., Fifer, M.S. & Tenore, F.V. (2022). Perceived timing of cutaneous vibration and intracortical microstimulation of human somatosensory cortex. *Brain Stimulation*, 15: 881-888.
10. Yan, Y., Sobinov, A.R., & Bensmaia, S.J. (2022). Prehension kinematics in humans and macaques, *Journal of Neurophysiology*, 127: 1669-1678
11. Lieber, J.D. & Bensmaia, S.J. (2022). The neural basis of tactile texture perception, *Current Opinion in Neurobiology*, 76: 102621.
12. Sobinov, A.R. & Bensmaia, S.J. (2021). The neural mechanisms of manual dexterity, *Nature Reviews Neuroscience,* 22: 741-757.
13. Fifer, M.S., McMullen, D.P., Osborn, L.E., Thomas, T.M., Christie, B.P., Nickl, R.W., Candrea, D.N., Pohlmeyer, E.A., Thompson, M.C., Anaya, M.A., Schellekens, W., Ramsey, N.F., Bensmaia, S.J., Anderson, W.S., Wester, B.A., Crone, N.E., Celnik, P.A., Cantarero, G.L., Tenore, F.V. (2021). Intracortical somatosensory stimulation to elicit fingertip sensations in an individual with spinal cord injury, *Neurology*, *98*, e679-e687.
14. Graczyk, E.L., Christie, B.P., Tyler, D.J., & Bensmaia, S.J. (2022). Frequency shapes the quality of tactile percepts evoked through electrical stimulation of the nerves, *Journal of Neuroscience*, 42, 2052-2064.
15. Long., K.H., McLellan, K.R., Boyarinova, M., & Bensmaia, S.J. (2022). Proprioceptive sensitivity to imposed finger deflections, *Journal of Neurophysiology*, 127, 412-420.
16. Suresh, A.K., Greenspon, C.M., He, Q., Rosenow, J.M., Miller, L.E., & Bensmaia, S.J. (2021). Sensory computations in the cuneate nucleus of macaques, *Proceedings of the National Academy of Sciences,* 118*.*
17. Kumaravelu, K., Sombeck, J., Miller, L.E., Bensmaia, S.J., & Grill, W.M. (2022). Stoney vs. Histed: Quantifying the spatial effects of intracortical microstimulation, *Brain Stimulation*, 15, 141-151.
18. McMullen, D. P., Thomas, T. M., Fifer, M. S., Candrea, D. N., Tenore, F. V., Nickl, R. W., Pohlmeyer, E. A., Coogan, C., Osborn, L. E., Schiavi, A., Wojtasiewicz, T., Gordon, C. R., Cohen, A. B., Ramsey, N. F., Schellekens, W., Bensmaia, S. J., Cantarero, G. L., Celnik, P. A., Wester, B. A., Anderson, W. S., & Crone, N. E. (2021). Novel intraoperative online functional mapping of somatosensory finger representations for targeted stimulating electrode placement: technical note, *Journal of Neurosurgery*, 1: 1-8.

19. Osborn, L.E., Christie, B.P., McMullen, D.P., Nickl, R.W., Thompson, M.C., Pawar, A.S., Thomas, T.M., Alejandro, Anaya, M., Crone, N.E., Wester, B.A., Bensmaia, S.J., Celnik, P.A., Cantarero, G.L., Tenore, F.V., Fifer, M.S. (2021). Intracortical microstimulation of somatosensory cortex enables object identification through perceived sensations, 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 6259-6262.
20. O'Connor, D.H., Krubitzer, L.E., and Bensmaia, S.J. (2021). Of mice and monkeys: Somatosensory processing in two prominent animal models, *Progress in Neurobiology*, 201, 102008.
21. Pandarinath, C. & Bensmaia, S.J. (2022). The science and engineering behind sensitized brain-controlled bionic hands, *Physiological Reviews, 102*: 551-604.
22. Long, K.H., Lieber, J.D, & Bensmaia, S.J. (in press). Texture is encoded in precise temporal spiking patterns in primate somatosensory cortex, *Nature Communications.*
23. Versteeg, C., Rosenow, J.M., Bensmaia, S.J., Miller, L.E. (2021). Encoding of limb state by single neurons in the cuneate nucleus of awake monkeys, *Journal of Neurophysiology*, 126: 693-706.
24. Lutz, O.J. & Bensmaia, S.J. (2021). Proprioceptive representations of the hand in somatosensory cortex, *Current Opinion in Physiology*, 21: 9-16.
25. Liu, M., Batista, A., Bensmaia, S., & Weber, D.J. (2021). Information about contact force and surface texture is mixed in the firing rates of cutaneous afferent neurons, *Journal of Neurophysiology*, 125, 496-508.
26. Bensmaia, S.J., Tyler, D.J., & Micera, S. (2020). Restoration of sensory information via bionic hands, *Nature Biomedical Engineering*, 1-13.
27. Ortiz-Catalan, M., Mastinu, E., Greenspon, C.M., Bensmaia, S.J. (in press). Chronic use of a sensitized bionic hand does not remap the sense of touch, *Cell Reports*.
28. Suresh, A.K., Goodman, J.M., Okorokova, E.V., Kaufman, M.T., Hatsopoulos, N.G., Bensmaia, S.J. (2021). Neural population dynamics in motor cortex are different for reach and grasp, *eLife*, 9, e58848.
29. Kumaravelu, K., Tomlinson, T., Callier, T., Sombeck, J., Bensmaia, S.J., Miller, L.E., & Grill, W. M. (2020). A comprehensive model-based framework for optimal design of biomimetic patterns of electrical stimulation for prosthetic sensation, *Journal of Neural Engineering,* 17.
30. Yan, Y., Goodman, J.M., Moore, D.D. Solla, S.A., & Bensmaia, S.J. (2020). Unexpected complexity of everyday manual behaviors, *Nature Communications*, 11, 3564.
31. Greenspon, C.M., McLellan, K.R., Lieber, J.D., & Bensmaia, S.J. (2020). Effect of scanning speed on texture-elicited vibrations, *Journal of the Royal Society Interface*, 17, 20190892.
32. Okorokova, E.V., Goodman, J.M., Hatsopoulos, N.G., & Bensmaia, S.J. (2020). Decoding hand kinematics from population responses in sensorimotor cortex during grasping, *Journal of Neural Engineering,* 17.
33. Lieber, J.D., Bensmaia, S.J. (2020). Emergence of an invariant representation of texture in primate somatosensory cortex, *Cerebral Cortex*, 30, 3228-3239.

34. Callier, T., Brantly, N., Caravelli, A., & Bensmaia, S.J. (2020). The frequency of cortical microstimulation shapes artificial touch, *Proceedings of the National Academy of Sciences*, 117, 1191-1200.
35. Lindau, S.T. & Bensmaia, S.J. (2020). Using Bionics to Restore Sensation to Reconstructed Breasts, *Frontiers in Neurorobotics*, 14.
36. Downey, J.E., Brooks, J., & Bensmaia, S.J. (2020). Artificial sensory feedback for bionic hands, *Intelligent Biomechatronics in Neurorehabilitation*, 131-145
37. Goodman, J.M., Tabot, G.A., Lee, A.S., Suresh, A.K., Rajan, A.T., Hatsopoulos, N.G., & Bensmaia, S.J. (2019). Postural representations of the hand in primate sensorimotor cortex, *Neuron*, 104, 1000-1009.
38. Prendergast, B., Brooks, J., Goodman, J.M., Boyarinova, M., Winberry, J.E., & Bensmaia, S.J. (2019). Finger posture and finger load are perceived independently, *Scientific Reports*, 9, 1-10.
39. George, J.A., Kluger, D.T., Davis, T.S., Wendelken, S.M., Okorokova, E.V., He, Q., Duncan, C.C., Huchinson, D.T., Thumser, Z.C., Beckler, D.T., Marasco, P.D., Bensmaia, S.J., & Clark, G.A. (2019). Biomimetic sensory feedback through peripheral nerve stimulation improves dexterous use of a bionic hand, *Science Robotics*: eaax2352.
40. Delhaye, B.P., O'Donnel, M.K., Lieber, J.D., McLellan, K.R., & Bensmaia, S.J. (2019). Feeling fooled: Texture contaminates the neural code for tactile speed, *Public Library of Science Biology,* 17: e3000431.
41. Delhaye, B.P. , Xia, X, Bensmaia, S.J. (2019) Rapid geometric feature signaling in the simulated spiking activity of a complete population of tactile nerve fibers, *Journal of Neurophysiology*, 121: 2071-2082.
42. Callier, T., Suresh, A.K., & Bensmaia, S.J. (2019). Neural coding of contact events in somatosensory cortex, *Cerebral Cortex,* 29, 4613-4627.
43. Lieber, J.D. & Bensmaia, S.J. (2019). Neural mechanisms of tactile texture perception, *Oxford Research Encyclopedia of Neuroscience*.
44. Lieber, J.D. & Bensmaia, S.J. (2019). High-dimensional representation of texture in the somatosensory cortex of primates, *Proceedings of the National Academy of Sciences,* 116: 3268-3277.
45. Okorokova, E.V., He, Q., & Bensmaia, S.J. (2018). Biomimetic encoding model for restoring touch in bionic hands through a nerve interface, *Journal of Neural Engineering*, 15: 066033.
46. Graczyk, E.L., Delhaye, B.P., Scheifer, M.A., Bensmaia, S.J., & Tyler, D.J. (2018). Sensory adaptation to electrical stimulation of the somatosensory nerves, *Journal of Neural Engineering*, 15: 046002.
47. Delhaye, B.P., Long, K.H., & Bensmaia, S.J. (2018). Neural basis of touch and proprioception in primate cortex, *Comprehensive Physiology*, 8: 1575-1602.
48. Boundy-Singer, Z.M., Saal, H.P., & Bensmaia, S.J. (2017). Speed invariance of tactile texture perception, *Journal of Neurophysiology,* 118: 2371-2377.
49. Saal, H.P., Suresh, A.K., Solorzano, L.E., Weber, A.I., & Bensmaia, S.J. (2017). The effect of contact force on the responses of tactile nerve fibers to scanned textures, *Neuroscience*, 389: 99-103.

50. Lieber, J.D., Xia, X., Weber, A.I., and Bensmaia, S.J. (2017). The neural code for tactile roughness in the somatosensory nerves, *Journal of Neurophysiology*, 118: 3107-3117.
51. Suresh, A.K., Winberry, J., Versteeg, C., Chowdhurry, R.H., Tomlinson, T., Rosenow, J.M., Miller, L.E., and Bensmaia, S.J. (2017). Methodological considerations for a chronic neural interface with the cuneate nucleus of macaques, *Journal of Neurophysiology*, 118: 3271-3281.
52. Saal, H.P., Delhaye, B.P., Rayhaun, B.C., & Bensmaia, S.J. (2017). Simulating tactile signals from the whole hand with millisecond precision, *Proceedings of the National Academy of Sciences,* 114: E5693-E5702.
53. Goodman, J.M. & Bensmaia, S.J. (2017). A variation code accounts for the perceived roughness of coarsely textured surfaces, *Scientific Reports*, 25: 46699.
54. Bensmaia, S.J. & Horch, K.W. (2017). Somatic sensation, in *Neuroprosthetics: Theory and Practice*, World Scientific Publishing.
55. Makin, T.R. & Bensmaia, S.J. (2017). Stability of sensory topographies in adult somatosensory cortex, *Trends in Cognitive Sciences*, 21, 195-204.
56. Kim, S.S., Callier, T., and Bensmaia, S.J. (2017). A computational model that predicts behavioral sensitivity to intracortical microstimulation, *Journal of Neural Engineering,* 14: 016012.
57. Delhaye, B.P., Saal, H.P., & Bensmaia, S.J. (2016). Key considerations in designing a somatosensory neuroprosthesis, *Journal of Physiology – Paris*, 110: 402-408.
58. Flesher, S.N., Collinger, J.L., Foldes, S.T., Weiss, J.M., Downey, J.E., Tyler-Kabara, E.C., Bensmaia, S.J., Schwartz, A.B., Boninger, M.L., & Gaunt, R.A. (2016). Intracortical microstimulation of human somatosensory cortex, *Science Translational Medicine,* 8, 361ra141.
59. Graczyk, E.L., Schiefer, M.A., Saal, H.P., Delhaye, B.P., Bensmaia, S.J., & Tyler, D.J. (2016). The neural basis of perceived intensity in natural and artificial touch, *Science Translational Medicine*, 8, 362ra142.
60. Suresh, A.K., Saal, H.P., & Bensmaia, S.J. (2016). Edge orientation signals in tactile afferents of macaques, *Journal of Neurophysiology*, 116, 2647-2655.
61. Goodman, J.M., Bensmaia, S.J. (2018). The neural basis of haptic perception, *Stevens' Handbook of Experimental Psychology and Cognitive Neuroscience,* 2, 1-39.
62. Saal, H.P., Wang, X., & Bensmaia, S.J. (2016). Importance of spike timing in touch: an analogy with hearing? *Current Opinion in Neurobiology*, 40, 142-149.
63. Delhaye, B.P., Schluter, E.W., & Bensmaia, S.J. (2016). Robo-Psychophysics: extracting behaviorally relevant features from the output of sensors on a prosthetic finger, *IEEE Transactions on Haptics*, 9, 499-507.
64. Yau, J.M., Kim, S.S., Thakur, P.S., & Bensmaia, S.J. (2016). Feeling form: the neural basis of haptic shape perception, *Journal of Neurophysiology*, 115, 631-42.
65. Saal, H.P., Harvey, M.A., & Bensmaia, S.J. (2015). Rate and timing of cortical responses driven by separate sensory channels, *eLife*, 10450.
66. Callier, T., Saal, H.P., Tabot, G.A., Kim, S., & Bensmaia, S.J. (2015). Feeling through a bionic hand, *Journal of the Homeland Defense and Intelligence Analysis Center*, 1, 19-22.

67. Cho, Y., Craig, J.C., Hsiao, S.S., & Bensmaia, S.J. (2015). Vision is superior to touch even with equivalent peripheral input, *Journal of Neurophysiology,* 115, 92-99.
68. Kim, S., Callier, T., Tabot, G.A., Tenore, F.V., & Bensmaia, S.J. (2015). Behavioral assessment of sensitivity to intracortical microstimulation of primate somatosensory cortex, *Proceedings of the National Academy of Science,* 112, 15202-7.
69. Rajan, A.T., Boback, J.L., Dammann, J.F., Tenore, F.V., Wester, B.A., Otto, K.J., Gaunt, R.A., & Bensmaia, S.J. (2015). The effects of intracortical microstimulation on neural tissue and fine motor behavior, *Journal of Neural Engineering*, 12, 066018.
70. Pack, C.C. & Bensmaia, S.J. (2015). Seeing and feeling motion: canonical computations in vision and touch, *Public Library of Science Biology*, 13, e1007721.
71. Callier, T., Schluter, E.W., Tabot, G.A., Miller, L.E., Tenore, F.V., & Bensmaia, S.J. (2015). Long-term stability of sensitivity to intracortical microstimulation of somatosensory cortex, *Journal of Neural Engineering*, 12, 056010.
72. Saal, H.P. & Bensmaia, S.J. (2015). Biomimetic approaches to bionic touch through a peripheral nerve interface, *Neuropsychologia*, 79, 344-353.
73. Bensmaia, S.J. (2015). Biological and bionic hands: natural neural coding and artificial perception, *Philosophical Transactions of the Royal Society B*, 370, 20140209.
74. Bensmaia, S.J. & DiCarlo, J.J. (2015). Steven Hsiao: In Memoriam, *Neuron*, 85, 458-461.
75. Callier, T., Saal, H.P., Davis-Berg, E.C., & Bensmaia, S.J. (2015). Kinematics of unconstrained tactile texture exploration, *Journal of Neurophysiology*, 113, 3013-3020.
76. Kim, S., Callier, T., Tabot, G.A., Tenore, F.V., & Bensmaia, S.J. (2015). Sensitivity to microstimulation of somatosensory cortex distributed over multiple electrodes, *Frontiers in Systems Neuroscience*, 9, 47.
77. Pei, Y.C. & Bensmaia, S.J. (2014). The neural basis of tactile motion perception, *Journal of Neurophysiology*, 112, 3023-3032.
78. Tabot, G.A., Kim, S.S., & Bensmaia, S.J. (2015). Restoring tactile and proprioceptive sensation through a brain interface, *Neurobiology of Disease*, 83, 191-198.
79. Saal, H.P. & Bensmaia, S.J. (2014). Touch is a team effort: Interplay of submodalities in cutaneous sensibility, *Trends in Neuroscience*, 37, 689-697.
80. Bensmaia, S.J. & Miller, L.E. (2014). Restoring sensorimotor function through intracortical interfaces: progress and looming challenges, *Nature Reviews Neuroscience*, 15, 313-325.
81. Manfredi, L.R., Saal, H.P., Brown, K.J., Zielinski, M.C., Dammann, J.F., Polashock, V.S., & Bensmaia, S.J. (2014). Natural scenes in tactile texture, *Journal of Neurophysiology.* 111, 1792-802.
82. Chen, K.H., Dammann, J.F., Boback, J.L., Tenore, F.V., Otto, K.J., Gaunt, R.A., & Bensmaia, S.J. (2014). The effect of chronic intracortical microstimulation on the electrode-tissue interface, *Journal of Neural Engineering*, 11.
83. Pei, Y.C., Lee, T.C., Chang, T.Y., Ruffatto, D., Spenko, M., Bensmaia, S.J. (2014). A multi-digit tactile motion stimulator, *Journal of Neuroscience Methods.*
84. Bensmaia, S.J. (2014). Somatosensory prosthesis, in R. Jung & D. Jaeger (eds) The Encyclopedia of Computational Neuroscience, Springer Publishing Company, New York, NY.

85. Bensmaia, S.J. & Tillery, S.H. (2014). Tactile feedback from the hand, in R. Balasubramian, V.J. Santos, & Y. Matsuoka (eds) The Human Hand: A Source of Inspiration for Robotic Hands, Springer Publishing Company, New York, NY.
86. Zaidi, Q., Victor, J., McDermott, J., Geffen, M., Bensmaia, S., & Cleland, T. (2013) Perceptual Spaces: Mathematical structures to neural mechanisms, *Journal of Neuroscience*.
87. Tabot, G.A., Dammann III, J.F., Berg, J.A., Tenore, F.V., Boback, J.L., Vogelstein, R.J., & Bensmaia, S.J. (2013). Restoring the sense of touch with a prosthetic hand through a brain interface, *Proceedings of the National Academy of Science*, 110, 18279-84.
88. Weber, A.I., Saal, H.P., Lieber, J.D., Cheng, J.-W., Manfredi, L.R., Dammann III, J.F., & Bensmaia, S.J. (2013). Spatial and temporal codes mediate the tactile perception of natural textures, *Proceedings of the National Academy of Science,*110, 17107-12.
89. Berg, J.A., Dammann, J.F., Tenore, F.V., Tabot, G.A., Boback, J.L., Manfredi, L.R., Peterson, M.L., Katyal, K.D., Johannes, M.S., Makhlin, A., Wilcox, R., Franklin, R.H., Vogelstein, R.J., Hatsopoulos, N.G., & Bensmaia, S.J. (2013). Behavioral demonstration of a somatosensory neuroprosthesis, *IEEE Transactions in Neural Systems and Rehabilitation Engineering*, 21, 500-507.
90. Harvey, M.A., Saal, H.P., Dammann, J.F., & Bensmaia, S.J. (2013). Multiplexing stimulus information through rate and temporal codes in primate somatosensory cortex, *PLoS Biology*, 11, e1001558.
91. Dong, Y., Mihalas, S., Kim, S.S., Yoshioka, T., Bensmaia, S.J., & Niebur, E. (2013). A simple model of mechanotransduction in primate glabrous skin, *Journal of Neurophysiology,* 109, 1350-9.
92. Cheng, J., Weber, A., & Bensmaia, S.J. (2013). Comparing the effects of isoflurane and pentobarbital on the responses of cutaneous mechanoreceptive afferents, *BMC Anesthesiology*, 13, 10.
93. Mackevicius, E.L., Best, M.D., Saal, H.P. & Bensmaia, S.J. (2012). Millisecond precision spike timing shapes tactile perception, *Journal of Neuroscience*, 32, 15309-17.
94. Armiger, R.S., Tenore, F.V., Katyal, K.D., Johannes, M.A., Makhlin, A., Natter, M.L., Colgate, J.E., Bensmaia, S.J., & Vogelstein, R.J. (2013). Enabling closed-loop control of the modular prosthetic limb through haptic feedback, *Johns Hopkins Applied Physics Laboratory Digest*, 31, 345-353.
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(Articles in italics were featured articles in their respective issues)

PATENTS

System and method for simulating biofidelic signals (co-inventor) – US Patent Pending 13/541791 – A system for simulating biomimetic neuronal signals to be used to convey sensory feedback in neuroprostheses.

Tactile motion stimulator (co-inventor) – China Patent Approved, Taiwan Patent Pending – Stimulator that can deliver motion stimuli to multiple fingers simultaneously.

Patterned stimulation intensity for neural stimulation, US Patent (pending).

Bionic Breast. US Patent (pending).

INVITED TALKS AND SYMPOSIA

09/2022 Zuckerman Institute, Columbia University, New York, NY.
07/2022 Neuromorphic engineering workshop, Telluride, CO (invited speaker).
06/2022 AREADNE conference, Santorini, Greece (invited speaker).
05/2022 Simian Collective, San Diego, CA.
04/2022 Ecole Polytechnique Federale de Lausanne, Geneva, Switzerland.
04/2022 Department of Neuroscience, University of Florida, Gainesville, FL.
03/2022 Gordon Research Conference on Neuroelectronic Interfaces, Ventury, CA.
03/2022 Brain Core Colloquium, University of Alabama Birmingham, Birmingham, AL (virtual).
03/2022 Department of Psychology, Vanderbilt University, Nashville, TN.
03/2022 Zanvyl Krieger Mind/Brain Institute, Johns Hopkins University, Baltimore, MD.

02/2022 Institute of Neuroscience, Guadalajara, Mexico (virtual).
01/2022 NeuroClub Philosophy debate, University of Chicago.
11/2021 Institute of Biology Neuroassembly, Otto-von-Guericke University, Magdeburg, Germany (virtual).
11/2021 University of Chicago Women's Board, presentation of the "The Bionic Breast" project.
11/2021 Physiological Reviews Podcast, discussing "the science and engineering of brain-controlled bionic hands."
11/2021 Minisymposium: Rodents and monkeys, the two dominant mammalian models and their respective contributions to neuroscience, Society for Neuroscience (virtual).
10/2021 Shirley Ryan Ability Laboratory, Chicago, IL.
09/2021 Center for Bionics and Pain Research, Inaugural Symposium, Gothenburg, Sweden.
08/2021 Scientific Sense Podcast.
08/2021 Brain Computer Interface Society (workshop entitled "Biomimetic approaches to restore somatosensation," virtual).
07/2021 World Haptics Conference (workshop entitled "Tactile representations of motion and space," virtual).
07/2021 World Haptics Conference (workshop entitled "Neurohaptics: Touch with the brain," virtual).
05/2021 Chicago Branch of the American Association for Laboratory Animal Science, invited virtual seminar.
05/2021 NeuroClub Philosophy debate, University of Chicago (virtual).
04/2021 Neural Control of Movement (Panel entitled "Sensorimotor processing for forelimb movement, virtual).
02/2021 InMedica Association, Brain Machine Interface panel (virtual).
10/2020 Emerging perspectives in clinical brain research, Hertie Institute for Clinical Brain Research, Tübingen, Germany (virtual).
10/2020 BCI: Science and practice, Samara, Russia (virtual).
09/2020 NeuTouch International Summer School (virtual).
09/2020 Department of Neuroscience, Rutgers University, NJ (virtual).
06/2020 University of Texas Southwestern Medical School, Dallas, TX (virtual).
05/2020 Human/AI Interfaces: Science and Law Panel, University of Chicago (virtual).
04/2020 Eidgenössische Technische Hochschule, Zurich, Switzerland (virtual).
04/2020 Grossman Institute, University of Chicago, Chicago, IL (virtual).
03/2020 Gatsby Institute, University College London, London, UK (cancelled).
03/2020 Department of biomedical engineering, Imperial College, London, UK (cancelled).
03/2020 Cortex Club, Oxford University, Oxford, UK (cancelled).
02/2020 Keystone meeting "Somatosensation: From Detection to Perception" (invited speaker).
01/2020 Johns Hopkins University Applied Physics Laboratory, Laurel, MD.

01/2020 Neuralink, San Francisco, CA.
11/2019 Center for Neural Science, New York University, New York, NY.
10/2019 Sensorimotor seminar, Johns Hopkins Medical Institute, Baltimore, MD.
10/2019 Science colloquium, Goddard Space Flight Center, Greenbelt, MD.
10/2019 Distinguished speakers series, Brain and Behavior Institute, University of Maryland, College Park, MD.
09/2019 European Primate Veterinarians, Rome, Italy.
07/2019 Fondazione Santa Lucia, Rome, Italy.
06/2019 N.1 Institute for Health, National University of Singapore, Singapore.
06/2019 International Conference on Materials for Advanced Technologies, Singapore (invited speaker in symposium entitled "Stretchable materials and devices for wearables and robotics").
06/2019 Department of Neurosurgery, Massachusetts General Hospital, Boston, MA.
06/2019 Rowland Institute, Harvard University, Boston, MA.
05/2019 Center for the Neural Basis of Cognition, University of Pittsburgh, Pittsburgh, PA.
05/2019 Chicago Science Festival, Chicago, IL.
04/2019 Tokyo Hand Meeting, National Institute of Neuroscience, Tokyo, Japan.
04/2019 Brain, Cognition, and Behavior Seminar, University of Notre Dame, South Bend, Indiana.
03/2019 Bernstein Center for Computational Neuroscience, Berlin, Germany.
03/2019 Max Planck Institute for Human Cognitive and Brain Sciences, Berlin, Germany.
12/2018 Feinstein Institute for Medical Research, New York, NY
12/2018 Department of Neuroscience, University of Arizona, Tucson, AZ.
11/2018 Society for Neuroscience, Nanosymposium: Brain machine interface, San Diego, CA [Abstracts of the Society for Neuroscience 48: 271.10].
11/2018 Society for Neuroscience, Nanosymposium: Somatosensation: Cortical Mechanisms, San Diego, CA [Abstracts of the Society for Neuroscience 48: 016.03].
11/2018 Society for Neuroscience, Nanosymposium: Somatosensation: Cortical Mechanisms, San Diego, CA [Abstracts of the Society for Neuroscience 48: 016.04].
10/2018 Chinese-American Kavli Frontiers of Science Symposium, Nanjing, China.
08/2018 Hand, Brain, and Technology Conference, Monte Verita, Switzerland.
07/2018 Unit of Neuroscience, Information, and Complexity, CNRS, Paris, France
06/2018 Labex Cortex, Universite de Lyon, Lyon, France.
05/2018 International Brain Computer Interfaces Meeting, Asilomar, CA.
05/2018 Center for Integrative Neuroscience, Karl Eberhards Universität, Tübingen, Germany.
05/2018 Midwest Monkey Manifolds for Movement Meeting, Shirley Ryan Ability Lab, Chicago, IL.
05/2018 American Society of Mechanical Engineers, Naperville, IL.

04/2018 Department of Neuroscience, Baylor College of Medicine, Houston, TX.
04/2018 Center for Functional Electrical Stimulation, Case Western Reserve University, Cleveland, OH.
03/2018 Netherlands Institute for Neuroscience, Amsterdam, Netherlands.
03/2018 Helmholtz lecture, Helmholtz Institute, Utrecht, Netherlands.
02/2018 Winter School of Biomedical Engineering, American University in Beirut, Beirut, Lebanon.
02/2018 DARPA HAPTIX principal investigator meeting, Charleston, SC (invited speaker).
02/2018 University of California at San Diego, Department of Neuroscience, San Diego, CA
01/2018 Georgia Institute of Technology, Department of Biomedical Engineering, Atlanta, GA.
01/2018 University of Geneva, Neuroscience Center, Geneva, Switzerland.
12/2017 Department of Psychology, University of Sydney, Sydney, Australia.
12/2017 Australasian Neuroscience Society, Sydney, Australia.
11/2017 Frontiers in neuroscience and technology, Zhejiang University Interdisciplinary Institute of Neuroscience and Technology, Hangzhou, China.
10/2017 Brain-computer interfaces: Science and practice, Samara State Medical University, Samara, Russia.
08/2017 Pangborn sensory science symposium, Providence, RI.
08/2017 Summer school in translational neuroscience, Zermatt, Switzerland.
08/2017 Sci Foo, Googleplex, Mountain View, CA.
06/2017 Conference of the International Graphonomics Society (invited speaker), Gaeta, Italy.
06/2017 Startup Village (invited speaker), Moscow, Russia.
05/2017 The Future of Humans & Machines: Partnership, Fusion, or Fear? Johns Hopkins University Applied Physics Laboratory, Laurel, MD (invited speaker on panel entitled “Machines a Part of Us!”).
05/2017 Center for Neuroscience, University of California at Davis, Davis, CA.
05/2017 Department of Bioengineering, Imperial College London, London, United Kingdom.
05/2017 Institute of Cognitive Neuroscience, University College London, London, United Kingdom.
05/2017 Neural Control of Movement, Dublin, Ireland.
03/2017 Restorative Therapies for Sensory Disorders, Göttingen, Germany (invited speaker).
02/2017 DARPA HAPTIX principal investigator meeting, Arlington, VA (invited speaker).
02/2017 Istanbul Neuroprosthetics Workshop, Istanbul, Turkey (keynote speaker).
02/2017 Neuroengineering seminar, University of Minnesota, Minneapolis, MN.
01/2017 Winter Workshop, Mechanism of Mind and Brain, Rusutsu, Hokkaido, Japan (invited speaker).

01/2017 Shitsukan group, Nippon Telegraph and Telephone, Atsugi, Kanagawa, Japan.

12/2016 Workshop on tactile coding and neuroprostheses, Pontedera, Italy.

11/2016 Society for Neuroscience, Nanosymposium: Neural coding in the somatosensory system, San Diego, CA [Abstracts of the Society for Neuroscience 45: 288.02].

11/2016 Barrels XXIX, Brain and Creativity Institute, University of Southern California, Los Angeles, CA.

11/2016 School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ.

10/2016 University of North Carolina/North Carolina State University Joint Department of Biomedical Engineering, Raleigh, NC.

10/2016 Bernstein Sparks Workshop, Delmenhorst, Germany (invited speaker).

10/2016 BCI: Science and practice, Samara Russia (invited speaker).

09/2016 Frontiers in Stem Cells and Regeneration, Woods Hole, MA (invited lecturer).

09/2016 Workshop on computational Touch, Paris, France (invited lecturer).

07/2016 Telluride neuromorphic engineering workshop, Telluride, CO (invited lecturer).

06/2016 AREADNE, Santorini, Greece (invited speaker).

06/2016 University of Pittsburgh Brain Institute, Pittsburgh, PA.

06/2016 Regenerative medicine for minority health and heath disparities, University of Pittsburgh, Pittsburgh, PA.

04/2016 Society for Brain Mapping and Therapeutics, Miami, FL.

03/2016 Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, MA.

01/2016 GDR multielectrode systems for neuroscience, Genoble-Autrans, France (invited speaker).

11/2015 Tactile Research Group, Chicago, IL (invited speaker).

11/2015 Mammalian circuits underlying somatosensation, Janelia Farm Research Campus, Ashburn, VA (invited speaker).

10/2015 Perceptual representation of illumination, shape and Material (PRISM), Leuven, Belgium.

08/2015 Department of Neuroscience, University of Florida, Gainesville, FL.

07/2015 Computational Neuroscience meeting (workshop entitled “Rate vs. temporal coding schemes: mutually exclusive or cooperatively coexisting?”), Prague, Czech Republic.

06/2015 IEEE World Haptics Conference, Chicago, IL (plenary speaker).

05/2015 Chicago Science Festival, Chicago, IL.

04/2015 Department of Bioengineering, University of Washington, Seattle, WA.

04/2015 Department of Biological Structure, University of Washington, Seattle, WA.

04/2015 TEDx Columbia College Chicago, Chicago, IL.

04/2015 Brain Teasers: Cracking the mind’s toughest riddles, University of Chicago, Chicago, IL.

03/2015 Department of Electrical and Computer Engineering, Johns Hopkins University, Baltimore, MD.

03/2015 Mind/Brain Institute, Johns Hopkins University, Baltimore, MD.

01/2015 Department of Psychology, University of California, Berkeley, CA.

01/2015 Institute of Neuroengineering, University of Washington, Seattle, WA.

11/2014 Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 289.11]

11/2014 Killiam Seminar, McGill University, Montreal, Canada.

10/2014 Neuroscience seminar, University of California, Berkeley, CA.

10/2014 Steven S. Hsiao memorial seminar, Johns Hopkins University, Baltimore, MD.

10/2014 Neuroscience seminar, Columbia University, New York, NY.

10/2014 Horizons lecture, Kimberly Clark Corporation, Neenah, WI.

09/2014 International Conference on Intelligent Robots and Systems (workshop entitled "Active touch sensing in robots and animals"), Chicago, IL.

09/2014 Hand, Brain, and Technology, Monte Verita, Ascona, Switzerland.

09/2014 Bernstein conference (workshop entitled "Sensory coding and the natural environment"), University of Göttingen, Göttingen, Germany.

07/2014 Future of Shitsukan Research, University of Tokyo, Tokyo, Japan (invited speaker).

06/2014 GlaxoSmithKline bioelectronics R&D network meeting, Dallas, TX.

06/2014 Regenerative medicine for minority health and heath disparities, Morehouse School of Medicine, Atlanta, GA

05/2014 International Congress on Mechatronic Engineering, Monterrey, Mexico (plenary speaker).

04/2014 Institute of Neuroscience, Université Catholique de Louvain, Brussels, Belgium (lecture).

04/2014 Institute of Neuroscience, Université Catholique de Louvain, Brussels, Belgium (seminar).

04/2014 Neural Control of Movement (panel entitled "Causing a sensation: development of a somatosensory afferent interface for BMI users"), Amsterdam, Netherlands.

04/2014 Department of physiology, University of Gothenburg, Gothenburg, Sweden.

04/2014 Department of integrative medical biology, University of Umea, Umea, Sweden.

03/2014 COSYNE, Salt Lake City, UT (delivered by H. Saal).

02/2014 Haptics symposium, Houston, TX (plenary speaker).

02/2014 Haptics symposium (workshop on brain-computer interfaces and haptics), Houston, TX.

02/2014 Neuroscience seminar, Michigan State University, East Lansing, MI.

02/2014 DARPA sensorimotor prosthetics workshop, Scottsdale, AZ.

01/2014 Society for Integrative and Comparative Biology, Austin, TX (delivered by E. Davis-Berg).

11/2013 Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 593.04].

10/2013 Interdepartmental neuroscience research symposium, SUNY Upstate Medical University, Syracuse, NY.

10/2013 PepsiCo workshop on oral processing, Stamford, CT.

09/2013 Conference on mammalian touch sensation, Janelia Farm Research Campus, VA.

08/2013 Applied neuroscience seminar, Johns Hopkins Applied Physics Laboratory, Laurel, MD.

08/2013 Zanvyl Krieger Mind/Brain Institute, Johns Hopkins University, Baltimore, MD.

07/2013 Organization for Computational Neurosciences Conference (workshop entitled "early touch: from neural coding to haptic space geometry"), Paris, France.

07/2013 Engineering in Medical Biology Conference, Osaka, Japan.

06/2013 Chicago Skeptics Society, Chicago, IL.

06/2013 International Brain Computer Interfaces Meeting, Asilomar, CA.

04/2013 Brain Awareness Day, University of Chicago, Chicago, IL.

04/2013 Department of biomedical engineering, Purdue University, West Lafayette, IN.

02/2013 Department of science and mathematics, Columbia College, Chicago, IL.

02/2013 Neuroscience and robotics laboratory, Northwestern University, Evanston, IL.

10/2012 Society for Neuroscience, New Orleans, LA [Abstracts of the Society for Neuroscience 42: 15.02] (delivered by G. Tabot).

06/2012 AREADNE, Santorini, Greece (invited speaker).

06/2012 Brain Awareness Day, University of Chicago, Chicago, IL.

04/2012 Neural Control of Movement, Venice, Italy.

11/2011 Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 41: 750.01] (delivered by A. Weber).

11/2011 DARPA NEST meeting, Washington, DC.

11/2011 Tactile Research Group, Seattle, WA.

06/2011 International Graphonomics Society Conference, Cancun, Mexico.

05/2011. Acoustical Society of America, Seattle, WA (delivered by J. Yau).

04/2011 Sloan/Shwartz seminar of the California Institute of Technology, Pasadena, CA.

04/2011 Department of physiology, Northwestern University, Chicago, IL.

11/2010 Tactile Research Group, St. Louis, MO.

10/2010 Department of neuroscience of Indiana University, Bloomington, IN.

07/2010 Organization for Computational Neurosciences Conference (workshop entitled "Neurodesign: Using computational modeling for the design of neurotechnology"), San Antonio, TX.

02/2010 Department of Biomedical Engineering of the Illinois Institute of Technology, Chicago, IL.

09/2009 IEEE Engineering in Medicine and Biology Society, Minneapolis, Minnesota (delivered by A. Russel).

05/2009 Committee for computational neuroscience, University of Chicago, Chicago, IL.

11/2008 IEEE Biomedical Circuits and Systems Conference, Baltimore, MD.

04/2005 COSYNE, Salt Lake City, UT (delivered by A. Sripati).

11/2000 Psychonomic Society, New Orleans, LA. [Abstracts of the Psychonomic Society, 5, 17] (delivered by M. Hollins).

11/2000 Tactile Research Group meeting, New Orleans, LA.

03/2000 Biological psychology program, University of North Carolina at Chapel Hill, Chapel Hill, N.C.

11/1999 School of dentistry, University of North Carolina at Chapel Hill, Chapel Hill, NC.

11/1999 Tactile Research Group meeting, Los Angeles, CA.

POSTER PRESENTATIONS

1. Goodman, J.M., Lee, A.S., Okorokova, E.V., Suresh, A.K., Hatsopoulos, N.G., Bensmaia, S.J. (November, 2018). Neurons in somatosensory and motor cortices encode hand postures, not joint velocities [Abstracts of the Society for Neuroscience 48: 310.12].
2. Yan, Y., Moore, D.D., Goodman, J.M., Delhaye, B.P., Bensmaia, S.J. (November, 2018). High-dimensional control of volitional hand movements [Abstracts of the Society for Neuroscience 48: 671.20].
3. Prendergast, B., Goodman, J.M., Boyarinova, M., Winberry, J.E., Bensmaia, S.J. (November, 2018). The perception of the angle of a finger joint is independent of load [Abstracts of the Society for Neuroscience 48: 671.21].
4. He, Q., Okorokova, E.V., Bensmaia, S.J. (November, 2018). A biomimetic model to restore touch in bionic hands through a nerve interface [Abstracts of the Society for Neuroscience 48: 765.10].
5. Suresh, A.K., Goodman, J.M., Lee, S., Hatsopoulos, N.G., Bensmaia, S.J. (November, 2018). Neural dynamics in S1 and M1 underlying arm and hand movements [Abstracts of the Society for Neuroscience 48: 016.03].
6. Long, K.H., Lieber, J.D., Bensmaia, S.J. (November, 2018). Temporal spiking patterns in somatosensory cortex convey information about surface texture [Abstracts of the Society for Neuroscience 48: 016.04].
7. Okorokova, E., Goodman, J.M., Lee, S., Tabot, G., Rajan, A., Hatsopoulos, N.G., Bensmaia, S.J. (November, 2018). Decoding hand kinematics from neuronal populations in primary motor and somatosensory cortices during grasping [Abstracts of the Society for Neuroscience 48: 310.14].
8. Callier, T., Kumaravelu, K., Miller, L.E., Grill, W.M., Bensmaia, S.J. (November, 2018). Perceptual consequences of changing the frequency of intracortical microstimulation applied to somatosensory cortex [Abstracts of the Society for Neuroscience 48: 271.10].

9. Hughes, C.L., Weiss, J.M., Bensmaia, S.J., Gaunt, R.A. (November, 2018). Human perception of biomimetic intracortical microstimulation in somatosensory cortex [Abstracts of the Society for Neuroscience 48: 404.05].
10. Liu, M.F., Winberry, J.E., Verteeg, C., Simpson, T.W., Oby, E.R., Degenhart, A.D., Batista, A.P., Gaunt, R.A., Bensmaia, S.J., Miller, L.E., Weber, D.J. (November, 2018). Effect of surface texture on the encoding of touch, pressure, and shear in the glabrous skin of a Rhesus macaque [Abstracts of the Society for Neuroscience 48: 668.09].
11. Lieber, J.D., Long, K.H., Bensmaia, S.J. (November, 2018). Speed invariant coding of texture in somatosensory cortex [Abstracts of the Society for Neuroscience 48: 668.11].
12. Long, K.H., Suresh, A.K., Bensmaia, S.J. (November, 2018). Characterizing breast sensation and its relationship with sexual arousal [Abstracts of the Society for Neuroscience 48: 668.18].
13. Downey, J.E., Liu, F., Moon, C., Collinger, J.L., Bensmaia, S.J. (November, 2018). Identifying sensory representation of finger segments in people with tetraplegia [Abstracts of the Society for Neuroscience 48: 765.08].
14. Liu, M.F., Winberry, J.E., Simpson, T.W., Delhaye, B.P., Oby, E.R., Degenhart, A.D., Urbin, M.A., Batista, A.P., Gaunt, R.A., Fisher, L.E., Bensmaia, S.J., Weber, D.J. (November, 2017). Dorsal root ganglion neuronal population responses to tactile stimuli in rhesus monkey hand [Abstracts of the Society for Neuroscience 47: 224.11].
15. Lee, S., Goodman, J.M., Bensmaia, S.J., Hatsopoulos, N.G. (November, 2017). Cortico-cortical functional connectivity between the primary motor and somatosensory cortical areas during grasp [Abstracts of the Society for Neuroscience 47: 497.01].
16. Pohlmeyer, E.A., Fifer, M.S., Bensmaia, S.J., Rich, M., Pino, J., Flesher, S.N., Weiss, J.M., Collinger, J.L., Gaunt, R.A., Beaty, J., McLoughlin, M., Tenore, F. (November, 2017). Navigating a virtual environment using intracortical microstimulation of human somatosensory cortex [Abstracts of the Society for Neuroscience 47: 498.13].
17. Kumaravelu, K., Tomlinson, T., Callier, T., Bensmaia, S.J., Miller, L.E., Grill, W.M. (November, 2017). Model-based design of optimal spatiotemporal patterns of intracortical microstimulation for prosthetic sensation [Abstracts of the Society for Neuroscience 47: 499.03].
18. Callier, T. & Bensmaia, S.J. (November, 2016). Neural representation of contact pressure in primary somatosensory cortex [Abstracts of the Society for Neuroscience 46: 151.07].
19. Suresh, A.K., Delhaye, B.P., Saal, H.P., & Bensmaia, S.J. (November, 2016). Coding of edge orientation in afferent responses of macaques [Abstracts of the Society for Neuroscience 46: 151.08].
20. Pirschel, F., Winberry, J.E., & Bensmaia, S.J. (November, 2016). Dynamics of motion signals in the primary somatosensory cortex [Abstracts of the Society for Neuroscience 46: 151.09].
21. Lieber, J.D., Saal, H.P., Boundy-Singer, Z.M., A. I. Weber, Winberry, J.E., & Bensmaia, S.J. (November, 2016). The transformation of texture representations from somatosensory periphery to cortex [Abstracts of the Society for Neuroscience 46: 151.10].

22. Delhaye, B.P., Weber, A.I., & Bensmaia, S.J. (November, 2016). Decoding motion speed from the responses of tactile afferents [Abstracts of the Society for Neuroscience 46: 151.12].
23. Goodman, J.M., Tabot, G.A., Suresh, A.K., Hatsopoulos, N.G., & Bensmaia, S.J. (November, 2016). High-dimensional representation of hand movements in sensory and motor cortices [Abstracts of the Society for Neuroscience 46: 151.11].
24. Graczyk, E.L., Schiefer, M.A., Saal, H.P., Delhaye, B.P., Bensmaia, S.J., & Tyler, D.J. (November, 2016). Fascicular organization affects tactile sensation evoked from peripheral nerve cuff stimulation [Abstracts of the Society for Neuroscience 46: 248.05].
25. Flesher, S.N., Collinger, J.L., Foldes, S.T., Weiss, J.M., Downey, J.E., Tyler-Kabara, E.C., Bensmaia, S.J., Schwartz, A.B., Boninger, M.L., & Gaunt, R.A. (November, 2016). Intracortical microstimulation of human somatosensory cortex elicits cutaneous percepts [Abstracts of the Society for Neuroscience 46: 248.15].
26. Bensmaia, S.J. , Callier, T., Saal, H.P., & Delhaye, B.P. (November, 2016). The dynamics of neural signals about contact pressure - implications for bionic hands [Abstracts of the Society for Neuroscience 46: 288.01].
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28. Saal, H.P., Lieber, J.D., Boundy-Singer, Z.M., Weber, A.I., & Bensmaia, S.J. (November, 2016). Tactile texture invariance and its peripheral neural basis [Abstracts of the Society for Neuroscience 46: 842.01].
29. Lieber, J.D., Saal, H.P., Boundy-Singer, Z.M., Weber, A.I., & Bensmaia, S.J. (November, 2016). The coding of natural textures in primate somatosensory cortex [Abstracts of the Society for Neuroscience 46: 842.04].
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31. Graczyk, E., Schiefer, M.A., Delhaye, B.P., Saal, H.P., Bensmaia, S.J., & Tyler, D.J. (June, 2016). The role of sensory adaptation in artificial tactile intensity. Neural Interfaces Conference, Baltimore, MD.
32. Flesher, S., Downey, J., Collinger, J., Foldes, S., Weiss, J., Tyler-Kabara, E., Bensmaia, S., Schwartz, A., Boninger, M., & Gaunt, R.A. (June, 2016). Intracortical microstimulation as a feedback source for brain-computer interface users. Sixth International Brain-Computer Interface Meeting, Asilomar, CA.
33. Callier, T., Saal, H.P., Schluter, E.W., Tenore, F.V., & Bensmaia, S.J. (October, 2015). Does precise pulse timing affect the perception of intracortical microstimulation? Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 611.16].

34. Saal, H.P., Lieber, J.D., Boundy-Singer, Z.M., Weber, A.I., & Bensmaia, S.J. (October, 2015). Inferring the neural representations underlying perceptual invariance in touch. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.17].
35. Tabot, G.A., Goodman, J.M., Rajan, A.S., Suresh, A.K., Hatsopoulos, N.G., & Bensmaia, S.J. (October, 2015). Neurons in primary somatosensory cortex encode complex hand postures and movements. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.18].
36. Lieber, J.D., Saal, H.P., & Bensmaia, S.J. (October, 2015). The coding of natural textures in primate somatosensory cortex. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.19].
37. Delhaye, B.P., Saal, H.P., Rayhaun, B.C., & Bensmaia, S.J. (October, 2015). A model that simulates the response of the somatosensory nerves to arbitrary spatio-temporal deformations of the skin of the hand. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.20].
38. Delhaye, B.P., Schulter, E.W., Johannes, M.S., Katyal, K.D., Tenore, F.V., & Bensmaia, S.J. (October, 2015). What can bionic fingers tell us about objects? Extracting behaviorally relevant features from finger sensors output. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.21].
39. Goodman, J.M., Tabot, G.A., Rajan, A.S., Suresh, A.K., Hatsopoulos, N.G., & Bensmaia, S.J. (October, 2015). Do proprioceptive neurons in somatosensory cortex encode muscle length? Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.22].
40. Neimat, J.S., Noel, J.P., Saal, H.P., Dammann, J.F., Bensmaia, S.J., & Harvey, M.A. (October, 2015).Tactile responses of single neurons in the ventral caudal nucleus of awake humans. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.23].
41. Suresh, A.K., Tomlinson, T., Winberry, J., Rosenow, J.M., Miller, L.E., & Bensmaia, S.J. (October 2015). Tactile coding in the cuneate nucleus of macaques. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 45: 706.24].
42. Johannes, M.S., Katyal, K.D., Armiger, R.S., Helder, J.B., Para, M.P., Beaty, J.D., Ravitz, A.D., Mcloughlin, M.P., Lasowsky, O., Schluter, E., Bensmaia, S.J. & Tenore, F.V. (November, 2014). Sensing capabilities of the modular prosthetic limb. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 636.20].
43. Goodman, J.M., Lieber, J.D., Saal, H.P. & Bensmaia, S.J. (November, 2014). Spatial variation of simulated slowly adapting type 1 afferent responses to embossed dot patterns predicts perceived roughness. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 441.16].
44. Saal, H.P., Harvey, M.A. & Bensmaia, S.J. (November, 2014). Integration of cutaneous modalities in primate somatosensory cortex. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 339.07].
45. Tabot, G.A., Rajan, A.T., Hatsopoulos, N.G., & Bensmaia, S.J. (November, 2014). Using maximally informative dimensions to zero in on the receptive field properties of

proprioceptive neurons in primary somatosensory cortex. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 339.06].

46. Kim, S.S., Callier, T., Tabot, G.A., Tenore, F.V., & Bensmaia, S.J. (November, 2014). Discrimination of electrical stimulation to primary somatosensory cortex. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 253.10].
47. Suresh, A.K., Tabot, G.A., Rajan, A.T., Hatsopoulos, N.G. & Bensmaia, S.J. (November, 2014). Analysis of joint-angle kinematics of grasping in Rhesus macaque. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 44: 160.04].
48. Tabot, G.A., Rajan, A.S., Hatsopoulos, N.G. & Bensmaia, S.J. (November, 2013). The representation of hand conformation and movements in primary somatosensory cortex. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 644.13].
49. Saal, H.P., Lieber, J.D., Manfredi, L.R., Weber, A.I., Dammann, J.F. & Bensmaia, S.J. (November, 2013). The influence of fingerprint skin on texture perception. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 644.17].
50. Lieber, J.D., Weber, A.I., Saal, H.P., & Bensmaia, S.J. (November, 2013). The peripheral neural code of tactile roughness for natural textures. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 644.22].
51. Rajan, A.S., Tabot, G.A., Bensmaia, S.J., & Hatsopoulos, N.G. (November, 2013). The dynamics of functional connectivity in motor and somatosensory cortices during prehension. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 750.12].
52. Tabot, G.A., Boback, J.L., Dammann, J.F., Tenore, F.V., & Bensmaia, S.J. (November, 2013). Restoring touch using a brain interface: Dependence of artificial percepts on stimulation parameters. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 43: 835.07].
53. Tabot, G.A., Rajan, A.S., Hatsopoulos, N.G., and Bensmaia, S.J. (April, 2013). Proprioceptive representations of the hand in primary somatosensory cortex. Society for the Neural Control of Movement, San Juan, PR.
54. M.A. Harvey, H.P. Saal, J.F. Damman, III, & S.J. Bensmaia (October, 2012). Co-existence of temporal and rate codes in primary somatosensory cortex. Society for Neuroscience, New Orleans, LA [Abstracts of the Society for Neuroscience 42: 677.25].
55. T. Lee, Y.-S. Yeh, T.Y. Chang, D. Ruffatto, M. Spenko, S.J. Bensmaia, & Y.C. Pei (October 2012). A novel multi-digit tactile motion stimulator: Design and application. Society for Neuroscience, New Orleans, LA [Abstracts of the Society for Neuroscience 42: 677.23].
56. L.R. Manfredi, J.F. Damman, III, M.C. Zielinski, V. Polashock, A.T. Baker & S.J. Bensmaia (November, 2011). The statistics of natural scenes in tactile perception. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 41: 704.13].
57. M.A. Harvey, A.I. Weber, M.D. Best & S.J. Bensmaia (2011, November). Spectro-temporal receptive field properties of neurons in primate somatosensory cortex. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 41: 385.05].

58. J.A. Berg, J.F. Dammann, III, L.R. Manfredi, F.V. Tenore , U. Kandaswamy, R.J. Vogelstein, G. Tabot, N.G. Hatsopoulos & S.J. Bensmaia (2011, November). Providing sensory feedback through intracortical microstimulation for upper limb neuroprostheses. Society for Neuroscience, Washington DC [Abstracts of the Society for Neuroscience 41: 84.18].
59. M.R. Fettiplace, B.M. Darbandi, Z. Lai, P. Pouliquen, S.J. Bensmaia, R.S. Armiger, R.J. Vogelstein, & S.S. Hsiao (2010, November). Cortical microstimulation strategies for tactile feedback in the somatosensory cortex. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 40: 295.8].
60. Y.-C. Pei, S.S. Hsiao, J.C. Craig, & S.J. Bensmaia (2010, November). The tactile perception of motion direction relies primarily on signals emanating from SA1 afferents. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 40: 782.3].
61. M.A. Harvey, J.F. Dammann, J.A. Berg, & S.J. Bensmaia (2010, November). The processing of spectrally complex vibrations in somatosensory cortex. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 40: 782.22].
62. S. Kim, A.P. Sripati, R.J. Vogelstein, R.S. Armiger, A.F. Russel, & S.J. Bensmaia (2009, October). Conveying tactile feedback in sensorized upper-limb neuroprostheses. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 39: 895.2].
63. J.M. Yau, D.J. Kim, M. Jo, & S.J. Bensmaia (2009, October). Cross-modal interactions in pitch and loudness. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 39: 260.22].
64. Y.-C. Pei, S.S. Hsiao, J.C. Craig, & S.J. Bensmaia (2009, October). Neural mechanisms of tactile motion integration in primary somatosensory cortex. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 39: 182.7].
65. Y. Cho, S.S. Hsiao, J.C. Craig, Y.-C. Pei, I.M. Solis, & S.J. Bensmaia (2009, October). Comparison of complex shape perception in vision and touch. Society for Neuroscience, Chicago, IL [Abstracts of the Society for Neuroscience 39: 175.4].
66. Kim S, Sripati A, & Bensmaia, S.J. (2008, February). Predicting the timing of spikes evoked in mechanoreceptive afferents by dynamic stimuli. Computational and Systems Neuroscience (COSYNE) conference, Salt Lake City, UT.
67. Bensmaia S.J, Denchev P.V., Pei, Y.C., Craig J.C. & Hsiao S.S. (2007, November). Neural coding of motion in the somatosensory cortex of macaque. Society for Neuroscience, San Diego, CA [Abstracts of the Society for Neuroscience 37: 620.10].
68. Denchev P, Bensmaia S.J, Yoshioka T & Hsiao S.S. (2006, November). Feature representation at the periphery and in the primary somatosensory cortex of macaque: Orientation and direction invariance. Society for Neuroscience, Atlanta, GA [Abstracts of the Society for Neuroscience 36: 446.17].
69. Muniak M, Hsiao S.S., Yoshioka T & Bensmaia S.J (2006, November). The peripheral representation of vibrotactile intensity: Correlating psychophysics with neurophysiology. Society for Neuroscience, Atlanta, GA [Abstracts of the Society for Neuroscience 36: 143.7].

70. Bensmaia S.J. & Sripati A.P.. (2006, March). Spike timing in mechanoreceptive afferent fibers can be predicted using integrate-and-fire mechanisms. Computational and Systems Neuroscience (COSYNE) conference, Salt Lake City, UT.
71. Yoshioka T., Bensmaia S.J., Craig J.C., Hsiao S.S., Ray S., Watson, A.C., Carey L.E. & Johnson K.O. (2005, November). Tactile texture perception using probe or bare finger. Society for Neuroscience, Washington, DC [Abstracts of the Society for Neuroscience 35: 626.8].
72. Bensmaia S.J., Sripati A.P. & Johnson K.O. (2005, November). A biophysical model of afferent responses to dynamic stimuli. Society for Neuroscience, Washington, DC [Abstracts of the Society for Neuroscience 31: 624.12].
73. Bensmaia S.J., Craig J.C., Yoshioka T., & Johnson, K.O. (2004, November). SA and RA contributions to the tactile perception of grating orientation. Society for Neuroscience, San Diego, CA. [Abstracts of the Society for Neuroscience 30: 59.7].
74. Bensmaia S.J., Hollins M. & Yau J. (2003, February). The Pacinian system and the discrimination of high-frequency complex tactile waveforms: A neural model. North Carolina Cognition Conference, Durham, NC.
75. Bensmaia S.J., Vaden K. & Halpin H. (2002, February). How and what does SINBAD learn: improving on an unsupervised error backpropagating network. North Carolina Cognition Conference, Chapel Hill, NC.
76. Bensmaia S.J., Hollins M. & Johnson, M.L. (2002, February). The vibrations of texture. North Carolina Cognition Conference, Chapel Hill, N.C.
77. Bensmaia S.J., Hollins M., & Johnson, M. (2000, February). Role of vibrotactile waveform in the perception of fine textures: methodological considerations. North Carolina Cognition Conference, Winston-Salem, NC.
78. Bensmaia S.J. (2000, February). The Meissner corpuscle: A receptor model. North Carolina Cognition Conference, Winston-Salem, NC.
79. Bensmaia S.J. & Hollins M. (1999, February). Complex tactile waveform discrimination. North Carolina Cognition Conference, Raleigh, NC.

ONGOING RESEARCH SUPPORT

R35 NS122333 (PI) 05/2021-04/2029
Sensory mechanisms of manual dexterity and their application to neuroprosthetics NINDS
Research program award.

UH3 NS 107714 (co-I, PI: Boninger) 09/2018-08/2023
A biomimetic approach towards a dexterous neuroprosthesis Brain Initiative
The goal of this project is to investigate the potential of biomimetic intracortical microsimulation for sensory restoration and motor decoding schemes that enable control over grasp kinematics and kinetics to restore dexterity for people with tetraplegia.

RO1 NS125270 (co-I, PI: Hatsopoulos) 01/2022-12/2027

The interplay between kinematic and force representations in motor and somatosensory cortices during reaching, grasping, and object transport NINDS
The goal of this project is to understand the neural basis of upper limb motor control and somatosensation in a monkey model.

COMPLETED RESEARCH SUPPORT

R21 CA226726 (PI) 02/2019-01/2021
Bionic Breast Project: Towards Restoring Breast Sensory Function in Women with Mastectomy NCI
The goal of this project is to improve our understanding of female breast sensory function and its relationship to sexual function and to lay the foundation for a solution to preserve and /or restore breast function following mastectomy.
Role: Co-PI

R01 MH121009 (Gothard, PI) 09/2019-08/2024
The Role of the Primate Amygdala in Social and Affective Touch NIMH
The goal of this project is to understand the role of the Amygdala in the evaluation of the subjective value and social significance of a tactile stimulus.

R01 NS095251 (PI) 06/2016-05/2021
Biomimetic Somatosensory Feedback through intracortical microstimulation NINDS
We propose to develop a new type of brain interface that will mimic the somatosensory brain activity generated during movement and provide natural and informative artificial sensation for people with paralysis or limb amputation.

R01 NS101325 (PI) 06/2017-05/2022
Touch spanning spatial scales: The neural basis of texture perception in somatosensory cortices NINDS
The goal of this project is to investigate the neural basis of tactile texture perception on primary and secondary somatosensory cortices using a large and diverse set of artificial and natural textures across the range of behaviorally relevant exploratory conditions.

UH3NS100541-01A1 (PI: Fisher) 09/2017-07/2022
Spinal root stimulation for restoration of function in lower-limb amputees NINDS
The goal of this project is to provide technical expertise in the design and analysis of psychophysical experiments.

R01NS095162 (PI) 09/2015 - 06/2020
Probing somatosensory representations in the cuneate nucleus of awake primates

R01 NS 082865 (PI) 03/2013-09/2018
Hand proprioception and sensorimotor interplay NINDS
The aim is to discover the neural basis for proprioception and its role in motor control.

IOS-1150209 (PI) 02/2012-01/2017
CAREER: Vibration and texture perception NSF
The aim is to discover the neural basis for tactile texture perception.

10/2014-6/2016
Anthropomorphic Robotic Tactile Sensing system (PI) Kimberly-Clark
The aim is to develop a robotic system that predicts how human subjects will perceive texture.

02/2014-12-2016
Generating virtual textures to understand tactile perception (PI) FACCTS
The aim is to study tactile texture perception by generating and manipulating virtual textures.

N66001-10-C-4056 (PI) 07/2010-06/2015
Revolutionizing Prosthetics DARPA
The aim is to test methods to convey tactile feedback through stimulation of somatosensory cortex.

c-049 (PI) *04/2014-03/2015*
Probing somatosensory representations in the brainstem Chicago
of awake monkeys (Catalyst award) Biomedical
The aim is to measure cutaneous responses of neurons in the cuneate nucleus or awake, behaving monkeys.

9/2014-3/2015
Peripheral Interface with the Nervous System (PI: Durand) DARPA
The aim is to develop sensory neuroprostheses through a flat neural interface electrode implanted in the peripheral nerve.

R01 NS018787 (PI) 03/2008-03/2013
Cortical Processing of Tactual Spatial Information
The aim is to discover the neural basis for tactile form, texture and motion perception.

10/2012-10/2013
The vibrations of texture (PI) Kimberly Clark
The aim is to characterize the biomechanics of skin-surface interactions and relate them to texture perception.

N66001-06-C-8005 (PI) 04/2008-01/2010
Revolutionizing Prosthetics 2009 DARPA
The aim is to test methods to convey tactile feedback through stimulation of somatosensory cortex.

SUPERVISION OF STUDENTS AND POSTDOCTORAL RESEARCHERS

2020-present Efe Dogruoz, undergraduate research assistant
2019-present Olivia Lutz, graduate student in Computational Neuroscience
2019-present Natalya Schelchova, graduate student in Computational Neuroscience
2019-present Anton Sobinov, postdoctoral scholar
2019-2021 Amani Fawaz, undergraduate research assistant
2018-present Charles Greenspon, postdoctoral scholar
2018-present Yuke Yan, graduate student in Computational Neuroscience
2018-2021 Nicholas Ornstein, undergraduate research assistant
2017-present Thierri Callier, graduate student in Computational Neuroscience
2017-2019 Maria Boyarinova, undergraduate research assistant
2017-present Qinpu He, graduate student in Computational Neuroscience
2017-present Elizaveta Okorokova, graduate student in Computational Neuroscience
2016-2020 Katie Long, graduate student in Interdisciplinary Scientist Training Program
2016-2017 Frederiece Pirschel, postdoctoral scholar
2016-2017 Molly O'Donnell, undergraduate research assistant
2016-2017 Gege "Julia" Ran, undergraduate research assistant
2015 Rahul Kumar, International summer intern (IIT Delhi)
2015-2018 Benoit Delhaye, postdoctoral scholar
2014 Chinmay Purandare, International summer intern (IIT Bombay)
2014 Divyansh Apurva, international summer intern (IIT Delhi)
2014, 2015 Sebastien Novak, international summer intern (Université du Québec)
2014-2019 Aneesha Suresh, graduate student in Computational Neuroscience
2014-2018 James Goodman, graduate student in Computational Neuroscience
2014-2015 Sungshin Kim, postdoctoral scholar
2013-2016 Zoe Boundy-Singer, undergraduate research assistant
2013 Ezra Zigmond, high school summer intern
2012-2018 Justin Lieber, graduate student in Computational Neuroscience
2012-2015 Brandon Rayhaun, undergraduate research assistant
2012-2013 Abdullah Muhammad, undergraduate research assistant
2012-2013 Vimig Socrates, high school intern
2012 Kyler Brown, rotation student in Computational Neuroscience
2012 Jyothsna Suresh, rotation student in Computational Neuroscience
2012 Boleslaw Osinski, rotation student in Biophysics
2012 Felicia Rustandy, high school summer intern
2011-2017 Gregg Tabot, graduate student in Computational Neuroscience
2011-2013 Kevin Chen, undergraduate research assistant
2011-2013 Erika Dunn-Weiss, undergraduate research assistant
2011-2012 Umasankar Kandaswamy, postdoctoral scholar
2010-2013 Michael Harvey, research associate
2010-2013 Louise Manfredi, postdoctoral scholar
2010-2012 Juwen Cheng, visiting scientist
2010-2012 Emily Mackevicius, undergraduate research assistant
2010-2012 Matthew Best, undergraduate research assistant

2010-2012 Emily Lines, undergraduate research assistant
2010-2012 Kenn Miller, undergraduate research assistant
2010 Joseph Brehm, undergraduate summer intern
2010 Lauren Nielsen, undergraduate summer intern
2009-2012 Alison Weber, undergraduate research assistant
2009-2012 Mark Zielinski, undergraduate research assistant
2009-2011 Bahir Desta, undergraduate research assistant
2009 Aaron Olsen, rotation student in Organismal Biology and Anatomy
2009 Alexander Rajan, rotation student in Computational Neuroscience
2008 Jesse Hamilton, undergraduate research assistant
2007-2009 Joseph Kim, undergraduate research assistant (JHU)
2006-2009 Melissa Solis, undergraduate research assistant (JHU)
2006-2009 Yu-Cheng Pei, graduate student in Neuroscience (JHU)
2006-2009 Jonathan Olenczak, undergraduate research assistant (JHU)
2006 Michael Muniak, rotation graduate student (JHU)
2001 Daniel Benjamin, undergraduate research assistant (UNC)
2002-2003 Jeffrey Yau, undergraduate research assistant (UNC)

SERVICE ON PHD THESIS COMMITTEES

Brianna Hutchinson, Case Western Reserve University, Biomedical engineering
Christopher Hughes, University of Pittsburgh, Bioengineering, 2020
Caleb Sponheim, University of Chicago, Computational Neuroscience
Julian Day Cooney, University of Chicago, Computational Neuroscience, 2020
Jacob George, University of Utah, Bioengineering, 2019
Alex Lee, University of Chicago, Computational Neuroscience, 2019
Katherine Henderson, University of Chicago, Organismal Biology and Anatomy, 2020
Brett Aiello, University of Chicago, Organismal Biology and Anatomy, 2018
Raeed Chowdhury, Northwestern University, Biomedical Engineering, 2019
Boleslaw Osinski, University of Chicago, Biophysics, 2018
Alexander Rajan, University of Chicago, Computational Neuroscience, 2016
Richard Williams IV, University of Chicago, Computational Neuroscience, 2014
Noah Ledbetter, University of Utah, Biomedical Engineering, 2011
Michael Lusignan, University of Chicago, Computational Neuroscience, 2012
Christopher Jones, Illinois Institute of Technology, Biomedical Engineering, 2014
Etienne Manderscheid, University of Chicago, Computational Neuroscience, 2014