



CENTER *for*
NEUROTECHNOLOGY

a National Science Foundation Engineering Research Center

Member Publications
October 2011 – March 2023

■ Publications supported directly by CNT funding

2017

- Hennessy, A. and Alimohammad, A. (2017). Design and implementation of a digital secure code-shifted reference UWB transmitter and receiver. *IEEE Transactions on Circuits and Systems I: Regular Papers*, 64(7), 1927-1936.

2018

- Bhagat, N., Valencia, D., Alimohammad, A., and Harris, F. (2018). High-throughput and compact FFT architectures using the Good-Thomas and Winograd algorithms. *IET Communications*, 12(8), 1011-1018.
- Shinde, V., Kumar, G. J., Valencia, D., and Alimohammad, A. (2018). High-throughput and compact reconfigurable architectures for recursive filters. *IET Communications*, 12(13), 1616-1623.

2019

- Korat, U.A., Alimohammad, A. A reconfigurable hardware architecture for principal component analysis. *Circuits Syst Signal Process* 38, 2097–2113 (2019). <https://doi.org/10.1007/s00034-018-0953-y>
- Valencia, D. and Alimohammad, A. Compact and high-throughput parameterizable architectures for memory-based FFT algorithms, *IET Circuits, Devices, and Systems*. 13 (5):696, 2019. <http://dx.doi.org/10.1049/iet-cds.2018.5556>
- Valencia, D. and Alimohammad, A. An efficient hardware architecture for template matching-based spike sorting, *IEEE Transactions on Biomedical Circuits and Systems*, 13:481-492, 2019.
- Valencia, D., Thies, J. and Alimohammad, A. Frameworks for efficient brain-computer interfacing, *IEEE Transactions on Biomedical Circuits and Systems*, October 14, 2019, DOI: 10.1109/TBCAS.2019.2947130.
- Valencia, D. and Alimohammad, A. A real-time spike sorting system using parallel OSort clustering, *IEEE Transactions on Biomedical Circuits and Systems*, 13(6): 1700-1713, 2019.
- Thies, J. and Alimohammad, A., Compact and low-power neural spike compression using undercomplete autoencoders, *IEEE Transactions on Neural Systems and Rehabilitation Engineering* , 27: 1529-1538, 2019.

2020

- Valencia, D., Fard, S.F. and Alimohammad, A. An artificial neural network processor with a custom instruction set architecture for embedded applications, *IEEE Transactions on Circuits and Systems I: Regular Papers*, 2020.
- Valencia, D. and Alimohammad, A. Neural spike sorting using binarized neural networks. *IEEE Trans Neural Syst Rehabil Eng*. 2020 Dec 9;PP. doi: 10.1109/TNSRE.2020.3043403. Epub ahead of print. PMID: 33296305.

2022

- Valencia, D. and Alimohammad, A. Towards in vivo neural decoding. *Biomed. Eng. Lett.* (2022). <https://doi.org/10.1007/s13534-022-00217-z>
- Valencia, D., Mercier, P.P. Alimohammad, A. In vivo neural spike detection with adaptive noise estimation.

J. Neural Eng., 19:4, 2022.

- Valencia, D. and Alimohammad, A. Partially binarized neural networks for efficient spike sorting. Biomed. Eng. Lett. (2022). <https://doi.org/10.1007/s13534-022-00255-7>

2023

- Valencia, D., Leone, G., Keller, N., Mercier, P.P., and Alimohammad, A. Power-efficient in vivo brain-machine interfaces via brain-state estimation. J. Neural Eng. 20 016032, DOI 10.1088/1741-2552/acb385, 2023.

Richard Andersen

2017

- Zhang, C.Y., Aflalo, T., Revechkis, B., Rosario, E.R., Ouellette, D., Pouratian, N. and Andersen, R.A. Partially mixed selectivity in human posterior parietal association cortex. Neuron, 95:697-708, 2017.

2018

- Armenta Salas, M., Bashford, L. Kellis, S., Jafari, M., Jo, H., Kramer, D., Shanfield, K., Pejisa, K., Lee, B., Liu, C.Y., Andersen, R.A. and Romo, R. Proprioceptive and cutaneous sensations in humans elicited by intracortical microstimulation. eLife 2018;7:e32904, DOI: 10.7554/eLife.32904.
- Lee, B., Kramer, D., Armenta Salas, M., Kellis, S., Brown, D., Dobрева, T., Klaes, C., Heck, C., Liu, C. and Andersen, R. A. (2018). Engineering artificial somatosensation through cortical stimulation in humans. Frontiers in Systems Neuroscience, 12, 24. doi:10.3389/fnsys.2018.00024

2019

- Saif-ur-Rehman, M., Lienkämper, R., Parpaley, Y., Wellmer, J., Liu, C., Lee, B., Kellis, S., Andersen, R., Iossifidis, I., Glasmachers, T. and Christian Klaes. SpikeDeeptector: a deep-learning based method for detection of neural spiking activity, J. Neural Eng. 16 (2019)
- Kramer, D.R., Kellis, S., Barbaro, M., Salas, M.A., Nune, G., Liu, C.Y., Andersen, R.A. and Lee, B. Technical considerations for generating somatosensation via cortical stimulation in a closed-loop sensory/motor brain-computer interface system in humans. Journal of Clinical Neuroscience, 63:116-121, 2019.
- Wang, P.T., Camacho, E., Wang, M., Li, Y., Shaw, S.J., Armacost, M., Gong, H., Kramer, D., Lee, B., Andersen, R.A. and Liu, C.Y. A benchtop system to assess the feasibility of a fully independent and implantable brain-machine interface. Journal of neural engineering, 16(6), p.066043. (2019).
- Lim, J., Wang, P.T., Pu, H., Liu, C.Y., Kellis, S., Andersen, R.A., Heydari, P., Do, A.H. and Nenadic, Z.. Dipole Cancellation as an artifact suppression technique in simultaneous electrocorticography stimulation and recording. 9th International IEEE/EMBS Conference on Neural Engineering (NER) (pp. 725-729). IEEE, March, 2019.

Polina Anikeeva

2011

- Anikeeva, P., Andalman, A.S., Witten, I., Warden, M., Goshen, I., Grosenick, L., Gunaydin, L.A., Frank, L.M. and Deisseroth, K. Optetrode: a multichannel readout for optogenetic control in freely moving mice. *Nat. Neurosci.*, 15:163-170, 2011.

2012

- Anikeeva, P. and Deisseroth, K. Photothermal genetic engineering. *ACS Nano*, 6:7548-7552, 2012.

2013

- Liske, H., Towne, C., Anikeeva, P., Zhao, S., Feng, G., Deisseroth, K. and Delp, S. Optical inhibition of motor nerve and muscle activity *in vivo*. *Muscle and Nerve*, 47:916-921, 2013.
- Chen, R., Christiansen, M.G. and Anikeeva, P. Maximizing hysteretic losses in magnetic ferrite nanoparticles via model-driven synthesis and materials optimization. *ACS Nano*, 7:8990-9000, 2013.

2014

- Birmingham, K., Gradinaru, V., Anikeeva, P., Grill, W.M., Pikov, V., McLaughlin, B., Pasricha, P., Weber, D., Ludwig, K., Famm, K. Bioelectronic medicines: a research roadmap. *Nat Rev Drug Discov.*, 13:399-400, 2014.
- Lu, C., Froriep, U. P., Koppes, R. A., Canales, A., Caggiano, V., Selvidge, J., Bizzi, E. and Anikeeva, P. Polymer fiber probes enable optical control of spinal cord and muscle function *in vivo*. *Adv. Funct. Mater.* 24: 6594–6600, 2014.
- Pashaie, R., Anikeeva, P., Lee, J-H., Prakash, R., Yizhar, O., Prigge, M., Chander, D., Richner, T.J. and Williams, J. Optogenetic brain interfaces. *IEEE Reviews in Biomedical Engineering*, 7:3-30, 2014.

2015

- Canales, A., Jia, A., Froriep, U. P., Koppes, R. A., Tringides, C.M., Selvidge, J., Lu, C., Hou, C., Wei, L., Fink, Y. and Anikeeva, P. Multifunctional fibers for simultaneous optical, electrical and chemical interrogation of neural circuits *in vivo*. *Nature Biotechnology*, 33:277-284, 2015.
- Chen, R., Romero, G., Christiansen, M.G., Mohr, A., and Anikeeva, P. Wireless magnetothermal deep brain stimulation. *Science*, 347:1477-1480, 2015.
- Park, S., Koppes, R.A., Froriep, U.P., Jia, X., Achyuta, A.K., McLaughlin, B.L., Anikeeva, P. Optogenetic control of nerve growth. *Sci Rep.* 2015 May 18;5:9669. doi: 10.1038/srep09669.
- Loynachan, C.N., Romero, G., Christiansen, M.G., Chen, R., Ellison, R., O'Malley, T.T., Froriep, U.P., Walsh, D.M. and Anikeeva, P. Targeted magnetic nanoparticles for remote magnetothermal disruption of amyloid- β aggregates. *Adv Healthc Mater*, 4:2100-2109, 2015.
- Anikeeva, P. and Koppes, R.A. Restoring the sense of touch. *Science* 350:274-275, 2015.
- Matsumoto, Y., Chen, R., Anikeeva, P., and Jasanoff, A. Engineering intracellular biomineralization and biosensing by a magnetic protein. *Nat Commun.* 2015 Nov 2;6:8721.
- Anikeeva, P. and Jia, X. Remote-controlled mice. *Cell Systems*, 1:104-105, 2015.

2016

- Koppes, R.A., Park, S., Hood, T., Jia, X., Poorheravi, N.A., Achyuta, A.H., Fink, Y. and Anikeeva, P. Thermally drawn fibers as nerve guidance scaffolds. *Biomaterials*, 81:27-35, 2016.
- Anikeeva, P. Optogenetics unleashed. *Nat Biotechnol.*, 34:43-44, 2016.
- Chen, R., Christiansen, M.G., Sourakov, A., Mohr, A., Matsumoto, Y., Okada, S., Jasanoff, A. and Anikeeva P. High-performance ferrite nanoparticles through nonaqueous redox phase tuning. *Nano Lett.*, 16:1345-1351, 2016.
- Schuerle, S., Dudani, J.S., Christiansen, M.G., Anikeeva, P. and Bhatia, S.N. Magnetically actuated protease sensors for *in vivo* tumor profiling. *Nano Lett.* 16:6303-6310, 2016.
- Anikeeva, P. and Jasanoff, A. Problems on the back of an envelope. *elife*. 2016 Sep 8;5. pii: e19569. doi: 10.7554/eLife.19569.

2017

- Lu, C., Park, S., Richner, T.J., Derry, A., Brown, I., Hou, C., Rao, S., Kang, J., Moritz, C.T., Fink, Y., and Anikeeva, P. Flexible and stretchable nanowire-coated fibers for optoelectronic probing of spinal cord circuits. *Science Advances*, 2017;3: e1600955 29 March 2017.
- Park, S., Guo, Y., Jia, X., Choe, H.K., Grena, B., Kang, J., Park, J., Lu, C., Canales, A., Chen, R., Yim, Y.S., Choi, G.B., Fink, Y. and Anikeeva, P. One-step optogenetics with multifunctional flexible polymer fibers. *Nature Neuroscience*, 20:612–619, 2017.
- Chen, R., Canales, A. and Anikeeva, P. Neural recording and modulation technologies. *Nature Reviews Materials*, 2:1-16, 2017.
- Tian, B., Rogers, J.A., Yang, P., Bao, Z., Melosh, N.A., Gorodetsky A., Lu, T., Anikeeva, P., Cifra, M., Cestellos-Blanco, S., Carvalho-de-Souza, J., Bezanilla, F., Liu, J., Hjort, M., Cao, Y., Lanzani, G., Benfenati, F., Galli, G., Gygi, F., Kautz, R., Kim, S.S., Krivosudský, O., Havelka, D., Jiang, Y. and Xu S. Roadmap on semiconductor-cell biointerfaces. *Phys Biol*. 2017 Dec 5. doi: 10.1088/1478-3975/aa9f34.

2018

- Canales, A., Park, S., Kiliyas, A. and Anikeeva, P. Multifunctional fibers as tools for neuroscience and neuroengineering. *Acc Chem Res*. 2018 Mar 21. doi: 10.1021/acs.accounts.7b00558.
- Kiliyas, A., Canales, A., Froriep, U.P., Park, S., Egert, U. and Anikeeva, P. Optogenetic entrainment of neural oscillations with hybrid fiber probes. *J Neural Eng*. 2018 Jun 20. doi: 10.1088/1741-2552/aacdb9.
- Park, S., Frank, J.A. and Anikeeva, P. Silicon biointerfaces for all scales. *Nat Biomed Eng.*, 2:471-472, 2018.

2019

- Roet, M., Heschem, S-A., Jahanshahi, A., Rutten, B.P.F., Anikeeva, P.O. and Temel, Y. Progress in neuromodulation of the brain; a role for magnetic nanoparticles? *Progress in Neurobiology*, 177:1-14, 2019, <https://doi.org/10.1016/j.pneurobio.2019.03.002>.
- Christiansen, M.G., Senkom A.W. and Anikeeva, P. Magnetic strategies for nervous system control.

Annu Rev Neurosci. 42:271-293, 2019, doi: 10.1146/annurev-neuro-070918-050241.

- Park, S., Loke, G., Fink, Y. and Anikeeva, P. Flexible fiber-based optoelectronics for neural interfaces. *Chem Soc Rev.*, 48:1826-1852, 2019.
- Shahriari, D., Loke, G., Tafel, I., Park, S., Chiang, P.H., Fink, Y. and Anikeeva, P. Scalable fabrication of porous microchannel nerve guidance scaffolds with complex geometries. *Adv Mater.* 2019 Jun 6:e1902021. doi: 10.1002/adma.201902021.
- Frank, J.A., Antonini, M.J. and Anikeeva, P. Next-generation interfaces for studying neural function. *Nat Biotechnol.* 37:1013–1023, 2019, doi: 10.1038/s41587-019-0198-8.

2020

- Guo, Y., Werner, C.F., Canales, A., Yu, L., Jia, X., Anikeeva, P. and Yoshinobu, T. (2020) Polymer-fiber-coupled field-effect sensors for label-free deep brain recordings. *PLoS ONE* 15(1): e0228076. <https://doi.org/10.1371/journal.pone.0228076>
- Rosenfeld, D., Senko, A.W., Moon, J., Yick, I., Varnavides, G., Gregurec, D., Koehler, F., Chiang, P-H. Christiansen, M.G., Maeng, L.Y., Widge, A.S. and Anikeeva, P. Transgene-free remote magnetothermal regulation of adrenal hormones. *Science Advances*, 10 Apr 2020, eaaz3734
- Sun, X., Bernstein, M.J., Meng, M., Zhang, X., Anikeeva, P.O. and Lin, Y. Functionally distinct neuronal ensembles within the memory engram, *Cell*. 2020, pii: S0092-8674(20)30232-4. doi: 10.1016/j.cell.2020.02.055.
- Gregurec, D., Senko, A.W., Chuvilin, A., Reddy, P.D., Sankararaman, A., Rosenfeld, D., Chiang, P-H., Garcia, F., Tafel, I., Varnavides, G., Ciocan, E. and Anikeeva, P. Magnetic vortex nanodiscs enable remote magnetomechanical neural stimulation. *ACS Nano*, 14:8036–8045, 2020.
- Frank, J.A., Antonini, M-J., Chiang, P-H., Canales, A., Konrad, D.B., Garwood, I.C., Rajic, G., Koehler, F., Fink, Y. and Anikeeva, P. In vivo photopharmacology enabled by multifunctional fibers. *ACS Chem Neurosci.* 2020 Oct 27. doi: 10.1021/acscchemneuro.0c00577.
- Shahriari, D., Rosenfeld, D. and Anikeeva, P. Emerging frontier of peripheral nerve and organ interface. *Neuron*, 108:270-285, 2020.
- Lee, Y., Canales, A., Loke, G., Kanik, M., Fink, Y. and Anikeeva, P. Selectively micro-patternable fibers via in-fiber photolithography. *ACS Cent. Sci.* 2020, DOI: 10.1021/acscentsci.0c01188

2021

- Park, S., Yuk, H., Zhao, R., Yim, Y.S., Woldeghebriel, E.W., Kang, J., Canales, A., Fink, Y., Choi, G.B., Zhao, X. and Anikeeva, P. Adaptive and multifunctional hydrogel hybrid probes for long-term sensing and modulation of neural activity. *Nat Commun.* 2021 Jun 8;12(1):3435. doi: 10.1038/s41467-021-23802-9.
- Park, J., Zeng, J.S., Sahasrabudhe, A., Jin, K., Fink, Y., Manthiram, K. and Anikeeva P., Electrochemical modulation of carbon monoxide-mediated cell signaling. *Angew Chem Int Ed Engl.*, 2021 Jul 15. doi: 10.1002/anie.202103228.
- Antonini, M.-J., Sahasrabudhe, A., Tabet, A., Schwalm, M., Rosenfeld, D., Garwood, I., Park, J., Loke, G., Khudiyev, T., Kanik, M., Corbin, N., Canales, A., Jasanoff, A., Fink, Y., Anikeeva P., Customizing MRI-

compatible multifunctional neural Interfaces through fiber drawing. *Adv. Funct. Mater.* 2021, 2104857.
<https://doi.org/10.1002/adfm.202104857>

- Tabet, A., Antonini, M-J., Sahasrabudhe, A., Park, J., Rosenfeld, D., Koehler, F., Yuk, H., Hanson, S., Stinson, J., Stok, M., Zhao, X., Wang, C. and Anikeeva, P. Modular integration of hydrogel neural interfaces. *ACS Cent. Sci.* 2021, August 28, 2021, <https://doi.org/10.1021/acscentsci.1c00592>

Askkan Ashrafi

2013

- Nguyen, T.T., Ashrafi, A., Thomas, J.D., Riley, E.P. and Simmons, R.W. Children with heavy prenatal alcohol exposure have different frequency domain signal characteristics when producing isometric force. *Neurotoxicol Teratol*, 35:14-20, 2013.
- Ashrafi, A. and Harris, F.J. A novel square-root nyquist filter design with prescribed ISI energy. *Signal Processing*, 93:2626-2635, 2013.
- Chaurasiya, P.K., Ashrafi, A. and Nagaraj, S. Novel spectrally efficient UWB pulses using zinc and Walsh basis functions. *The ETRI Journal*, 35:406-413, 2013.
- Ashrafi, A. Optimized linear phase square-root nyquist FIR filters satisfying the CDMA IS-95 and UMTS standards. *Signal Processing*, 93:866-873, 2013.
- Nguyen, T.T., Ashrafi, A., Thomas, J.D., Riley, E.P. and Simmons, R.W. Children with heavy prenatal alcohol exposure have different frequency domain signal characteristics when producing isometric force. *Neurotoxicology and Teratology*, 35:14-20, 2013.

2014

- Ashrafi, A. Optimization of the quantized coefficients for DDFS utilizing polynomial interpolation methods. *IEEE Transactions on Circuits and Systems II: Express Briefs*, 1:105-109, 2014.

2016

- Tavildar, S. and Ashrafi, A. Application of multivariate empirical mode decomposition and canonical correlation analysis for EEG motion artifact removal. 2016 Conference on Advances in Signal Processing (CASP), Pune, 2016, pp. 150-154.

Scott Bellman

2014

- Bellman, S., Burgstahler, S., and Ladner, R. Work-based learning experiences help students with disabilities transition to careers: A case study of University of Washington projects. *WORK: A Journal of Prevention, Assessment and Rehabilitation*, 48:399-405, 2014.

Timothy Brown

2020

- Brown, T. Building intricate partnerships with neurotechnology: Deep brain stimulation and relational agency. *International Journal of Feminist Approaches to Bioethics*, 13:134–154, 2020.

Bing Brunton

2015

- Kopec, C.D., Erlich, J.C., Brunton, B.W., Deisseroth, K. and Brody, C.D. Cortical and subcortical contributions to short-term memory for orienting movements. *Neuron*, 88:367-377, 2015.
- Erlich, J.C., Brunton, B.W., Duan, C.A., Hanks, T.D. and Brody, C.D. Distinct effects of prefrontal and parietal cortex inactivations on an accumulation of evidence task in the rat. *elife*. 2015 Apr 14;4. doi: 10.7554/eLife.05457.
- Hanks, T.D., Kopec, C.D., Brunton, B.W., Duan, C.A., Erlich, J.C. and Brody, C.D. Distinct relationships of parietal and prefrontal cortices to evidence accumulation. *Nature*, 520:220-223, 2015.
- Brunton, B.W., Johnson, L.A., Ojemann, J.G. and Kutz, J.N. Extracting spatial-temporal coherent patterns in large-scale neural recordings using dynamic mode decomposition. *J Neurosci Methods*, 258:1-15, 2016.

2016

- Brunton, S.L., Brunton, B.W., Proctor, J.L., and Kutz, J.N. Koopman invariant subspaces and finite linear representations of nonlinear dynamical systems for control. *PLoS One*, 2016 Feb 26;11(2):e0150171. doi: 10.1371/journal.pone.0150171.

Howard Chizeck

2011

- Matlack, C., Chizeck, H.J., Davis, T.B. and Linnes, J. A low-cost solar disinfection indicator for safe water. *IEEE Global Humanitarian Technology Conference*, Seattle, Oct/Nov 2011.

2012

- Nia Kosari, S., Ramadurai, S., Chizeck, H.J. and Hannaford, B. Robotic compression of soft tissue. *Proc. 2012 IEEE International Conference on Robotics and Automation*, St. Paul-Minneapolis, May 2012.
- Ramadurai, S., Nia Kosari, S., King, H.H., Chizeck, H.J. and Hannaford, B. Application of unscented Kalman filter to a cable driven surgical robot: A simulation study. *Proc. 2012 IEEE International Conference on Robotics and Automation*, St. Paul-Minneapolis, May 2012.
- Matlack, C., Moritz, C. and Chizeck, H.J. Applying best practices from digital control systems to BMI implementation. 34th *IEEE Engineering in Medicine and Biology Conference*, San Diego, Aug. 2012.
- Rydén, F. and Chizeck, H.J. Forbidden-region virtual fixtures from streaming point clouds: remotely touching and protecting a beating heart. *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Vilamoura, Portugal, Oct. 2012.

- Chizeck, H.J. Algorithms for haptic rendering and virtual fixtures for robotic surgery. RSS 2012 Workshop on Algorithmic Frontiers in Medical Robotics: Manipulation in Uncertain, Deformable, Heterogeneous Environments, Sydney, Australia, July 2012.
- Bonaci, T. and Chizeck, H.J. Surgical telerobotics meets information security. RSS 2012 Workshop on Algorithmic Frontiers in Medical Robotics: Manipulation in Uncertain, Deformable, Heterogeneous Environments, Sydney, Australia, July 2012.
- Rydén, F., Nia Kosari, S. and Chizeck, H.J. A computer vision approach to virtual fixtures in surgical robotics. RSS 2012 Workshop on Algorithmic Frontiers in Medical Robotics: Manipulation in Uncertain, Deformable, Heterogeneous Environments, Sydney, Australia, July 2012.
- Bonaci, T. and Chizeck, H.J. Telerobotic surgery meets information security. 21st Usenix Security Symposium, Bellevue, WA. August 8-10, 2012.
- Bonaci, T. and Chizeck, H.J. On potential security threats against rescue robotic systems. IEEE International Symposium on Safety, Security, and Rescue Robotics, College Station, Texas, Nov. 5-8, 2012.
- Matlack, C.B., Chizeck, H.J. and Moritz, C.T. Improving BMI performance metrics via ensemble chance simulations and Fitts' Law. DARPA RE-NET PI Meeting, New Orleans, Nov 12-14, 2012.

2013

- Rydén, F. and Chizeck, H.J. A proxy method for real-time 3-DOF haptic rendering of streaming point cloud data. IEEE Trans. Haptics, 6:257-267, 2013.
- Rydén, F. and Chizeck, H.J. A method for constraint-based six degree-of-freedom haptic interaction with streaming point clouds. International Conference on Robotics and Automation (ICRA), 2013 IEEE 10.1109/ICRA.2013.6630896, 2353-2359.
- Matlack, C., Chizeck, H.J. and Moritz, C. Correctly applying performance metrics to neuroprosthetic control interfaces. Fifth International Brain-Computer Interface Meeting, Pacific Grove, California, June 3-7, 2013.
- Kosari, S.N, Ramadurai, S., Chizeck, H.J. and Hannaford, B. Control and tension estimation of a cable driven mechanism under different tensions. To appear Proc. ASME IDETC/CIE2013, Portland, Oregon, August 4-7, 2013.

2014

- Hebb, A.O., Zhang, J.J., Mahoor, M.H., Tsiokos, C., Matlack, C., Chizeck, H.J. and Pouratian, N. Creating the feedback loop: closed-loop neurostimulation. Neurosurg Clin N Am, 25:187-204, 2014.
- Bonaci, T., Herron, J., Matlack, C. and Chizeck, H.J. Securing the exocortex: A twenty-first century cybernetics challenge. 2014 IEEE Conference on Norbert Wiener in the 21st Century (21CW), DOI: 10.1109/NORBERT.2014.6893912, 2014: 1-8.
- Matlack, C., Haddock, A., Moritz, C.T. and Chizeck, H.J. Motor cortical decoding performance depends on controlled system order. 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), DOI: 10.1109/EMBC.2014.6944143, 2014: 2553-2556.

- Bonaci, T., Calo, R., and Chizeck, H.J. App stores for the brain: Privacy and security in brain-computer interfaces. 2014 IEEE International Symposium on Ethics in Science, Technology and Engineering, DOI: 10.1109/ETHICS.2014.6893415, 2014: 1-7.
- Herron, J. and Chizeck, H.J. Prototype closed-loop deep brain stimulation systems inspired by Norbert Wiener. 2014 IEEE Conference on Norbert Wiener in the 21st Century (21CW), DOI: 10.1109/NORBERT.2014.6893922, 2014: 1-6.

2015

- Bonaci, T., Calo, R. and Chizeck, H.J. App stores for the brain. Privacy and security in brain computer interfaces. IEEE Technology and Society, June 2015, pp. 32-39.
- Houston, B., Blumenfeld, Z., Quinn, E., Bronte-Stewart, H. and Chizeck H. Long-term detection of Parkinsonian tremor activity from subthalamic nucleus local field potentials. Conf Proc IEEE Eng Med Biol Soc. 2015 Aug;2015:3427-31. doi: 10.1109/EMBC.2015.7319129.

2016

- Malekmohammadi, M., Herron, J., Velisar, A., Blumenfeld, Z., Trager, M.H., Chizeck, H.J. and Bronte-Stewart, H. Kinematic adaptive deep brain stimulation for resting tremor in Parkinson's disease. Movement Disorders, 2016 Jan 27. doi: 10.1002/mds.26482.
- Rossi, P. J., Aysegul, G., Jack, J., Linda, W., Andre, M., Giordano, J.J., Elias, W.J., Alterman, R.L., Rossi, M.A., Butson, C.L., Fox, M.D., McIntyre, C.C., Pouratian, N., Swann, N.C., de Hemptinne, C., Gross, R.E., Chizeck, H.J., Tagliati, M., Lozano, A.M., Goodman, W., Langevin, J-P., Akbar, U., Gerhardt, G.A., Grill, W.M., Hallett, M., Herrington, T., Herron, J., van Horne, C., Kopell, B.H., Lang, A.E., Lungu, C., Martinez-Ramirez, D., Mogilner, A.Y., Molina, R. Opri, E., Otto, K.J., Oweiss, K.G., Pathak, Y., Shukla, A., Shute, J., Sheth, S.A., Shih, L.C., Steinke, G.K., Traster, A.I., Vanegas, N., Zaghoul, K., Cendejas-Zaragoza, L., Verhagen, L., Foote, K.D., Okun, M.S. Proceedings of the Third Annual Deep Brain Stimulation Think Tank: A Review of Emerging Issues and Technologies. Frontiers in Neuroscience, 10, 2016, DOI=10.3389/fnins.2016.00119
- Thompson, M.C., Herron, J.A., Brown, T., Ojemann, J.G., Ko, A.L. and Chizeck, H.J. Demonstration of a stable chronic electrocorticography-based brain-computer interface using a deep brain stimulator. Intl. Conf. On Systems, Man, And Cybernetics, Budapest, Hungary, 9-12 Oct 2016.
- Matlack, C., Chizeck, H. and Moritz, C.T. Empirical movement models for brain computer interfaces. IEEE Trans Neural Syst Rehabil Eng. 2016.
- Deeb, W., Giordano, J.J., Rossi, P.J., Mogilner, A.Y., Gunduz, A., Judy, J.W., Klassen, B.T., Butson, C.R., Van Horne, C., Deny, D., Dougherty, D.D., Rowell, D., Gerhardt, G.A., Smith, G.S., Ponce, F.A., Walker, H.C., Bronte-Stewart, H.M., Mayberg, H.S., Chizeck, H.J., Langevin, J.P., Volkmann, J., Ostrem, J.L., Shute, J.B., Jimenez-Shahed, J., Foote, K.D., Wagle Shukla, A., Rossi, M.A., Oh, M., Pourfar, M., Rosenberg, P.B., Silburn, P.A., de Hemptine, C., Starr, P.A., Denison, T., Akbar, U., Grill, W.M. and Okun, M.S. Proceedings of the Fourth Annual Deep Brain Stimulation Think Tank: A Review of Emerging Issues and Technologies, Front Integr Neurosci. 2016 Nov 22;10:38.

2017

- Haddock, A., Velisar, A., Herron, J., Bronte-Stewart, H. and Chizeck, H. Model predictive control of deep brain stimulation for parkinsonian tremor. 8th International IEEE EMBS Conference On Neural Engineering (NER'17), Shanghai, China . May 25-28 2017.
- Houston, B., Thompson, M., Ojemann, J., Ko, A. and Chizeck, H. Classifier-based closed-loop deep brain stimulation for essential tremor. 8th International IEEE EMBS Conference On Neural Engineering (NER'17), Shanghai, China . May 25-28 2017.
- Herron, J.A., Thompson, M.C., Brown, T., Chizeck, H.J., Ojemann, J.G., and Ko, A.L. Cortical brain computer interface for closed-loop deep brain stimulation, IEEE Transactions on Neural Systems and Rehabilitation Engineering, DOI 10.1109/TNSRE.2017.2705661.

2018

- Swann, N.C., de Hemptinne, C., Thompson, M.C., Miocinovic, S., Miller, A.M., Gilron, R., Ostrem, J.L., Chizeck, H.J., and Starr, P.A. Adaptive deep brain stimulation for Parkinson's disease using motor cortex sensing, May 9, 2018, Journal of Neural Engineering, Volume 15, Number 4.
- Heo, T., Huang, K and Chizeck, H.J. Performance evaluation of haptically enabled sEMG, 2018 International Symposium on Medical Robotics (ISMR), March 1-3, 2018, DOI: 10.1109/ISMR.2018.8333289
- Haddock, A., Mitchell, K.T., Miller, A., Ostrem, J.L. and Chizeck, H.J. and Miocinovic, S. Automated deep brain stimulation programming for tremor, IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2018, 10.1109/TNSRE.2018.2852222.
- Houston, B., Thompson, M., Ko, A., Chizeck, H. A machine-learning approach to volitional control of a closed-loop deep brain stimulation system, J. Neural Eng., 2018, <https://doi.org/10.1088/1741-2552/aae67f>

2019

- Ramirez-Zamora, A., Giordano, J., Boyden, E.S., Gradinaru, V., Gunduz, A., Starr, P.A., Sheth, S.A., McIntyre, C.C., Fox, M.D., Vitek, J., Vedam-Mai, V., Akbar, U., Almeida, L., Bronte-Stewart, H.M., Mayberg, H.S., Pouratian, N., Gittis, A.H., Singer, A.C., Creed, M.C., Lazaro-Munoz, G., Richardson, M., Rossi, M.A., Cendejas-Zaragoza, L., D'Haese, P.F., Chiong, W., Gilron, R., Chizeck, H., Ko, A., Baker, K.B., Wagenaar, J., Harel, N., Deeb, W., Foote, K.D. and Okun, M.S. Proceedings of the Sixth Deep Brain Stimulation Think Tank Modulation of Brain Networks and Application of Advanced Neuroimaging, Neurophysiology, and Optogenetics. Front Neurosci. 2019;13:936.

2020

- Castaño-Candamil, S.*, Ferleger, B.I.*, Haddock, A., Cooper, S.S., Herron, J., Ko, A., Chizeck, H.J. and Tangermann, M. (2020). A pilot study on data-driven adaptive deep brain stimulation in chronically implanted essential tremor patients. Front. Hum. Neurosci. 14:541625. doi: 10.3389/fnhum.2020.541625
- Ferleger, B.I.*, Houston, B., Thompson, M.C., Cooper, S.S., Sonnet, K.S., Ko, A.L., Herron, J.A. and Chizeck, H.J. (2020). Fully implanted adaptive deep brain stimulation in freely moving essential tremor patients. J. Neural Eng., 17 056026.
- Ferleger, B.I.*, Sonnet, K.S., Morriss, T.H., Ko, A.L., Chizeck, H.J. and Herron, J.A. A tablet- and mobile-based application for remote diagnosis and analysis of movement disorder symptoms, 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), Montreal, QC, Canada, 2020, pp. 5588-5591, doi: 10.1109/EMBC44109.2020.9176044.

- Cooper, S.S.*, Ferleger, B.I.*, Ko, A.L., Herron, J.A. and Chizeck, H.J. Rebound effect in deep brain stimulation for essential tremor and symptom severity estimation from neural data. 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), Montreal, QC, Canada, 2020, pp. 3621-3624, doi: 10.1109/EMBC44109.2020.9175908.
- Sonnet, K.S.*, Ferleger, B.I., Ko, A.L., Chizeck, H.J. and Herron, J.A. Multi-class classification and feature analysis of FTM drawing tasks in a digital assessment of tremor. 2020 42nd Annual International Conference of the IEEE Bioinformatics And BioEngineering Society.

Eric Chudler

2012

- Ritchie, S.J., Chudler, E.H. and Della Sala, S. Don't try this at school: the attraction of 'alternative' educational techniques. In *Neuroscience in Education: The Good, The Bad and The Ugly*, New York: Oxford University Press, 244-264, 2012.
- Chudler, E.H., Phokpe, T., Chophel, S. and Johnson, B. Neuroscience for Tibetan Buddhist monastics. Program No. 28.02., Society for Neuroscience abstract, 2012.

2013

- Chudler, E.H. *The Little Book of Neuroscience Haiku*, New York: W.W. Norton and Co., Inc., 2013.

2014

- Chudler, E.H. and Bergsman, K.C. Explain the brain: Web sites to help scientists teach neuroscience to the general public. *CBE-Life Science Education*, 577-583, 2014.

2015

- Straus, K.M. and Chudler, E.H. Botanical heart throbs: heart rate in blackworms. *Science Scope*, 39:26-31, 2015.

2016

- Chudler, E.H. and Bergsman, K.C. Brains-computers-machines: Neural engineering in science classrooms. *CBE-Life Science Education*, March 1, 2016 15:fe1; doi:10.1187/cbe.15-11-0242
- Straus, K.M. and Chudler, E.H. Online teaching resources about medicinal plants and ethnobotany. *CBE-Life Science Education*, December 1, 2016, 15:fe910.1187/cbe.16-06-0190

2017

- Chudler, E.H. and Johnson, L.A. *Brain Bytes. Quick Answers to Quirky Questions about the Brain*. New York: W.W. Norton and Company, 2017.
- Chudler, E.H. and Smith, K. Exploring color perception with the Stroop effect. *ChildArt*, October-December: 21-22, 2017.

2018

- Chudler, E.H. Brain Lab for Kids: 52 Mind-Blowing Experiments, Models, and Activities to Explore Neuroscience. Beverly (MA): Quarto Publishing Group, 2018.
- Bellman, S., Burgstahler, S. and Chudler, E.H. Engaging students with disabilities in engineering: Promising practices from an engineering research center. American Behavioral Scientist, Article first published online: April 16, 2018, <https://doi.org/10.1177/0002764218768864>.
- Gamble, L., Angerer, T., Graham, D. and Chudler, E. Surface characterization of biologically related systems with imaging TOF-SIMS and complementary techniques, Microscopy and Microanalysis, 24(S1): 1018-1019, 2018.

2019

- Johnson, L.A. and Chudler, E.H. Worried? Science investigates some of life's common concerns, New York: W.W. Norton and Company, 2019.
- Angerer, T.B., Chakravarty, N., Taylor, M.J., Nicora, C.D., Graham, D.J., Anderton, C.R., Chudler, E.H. and Gamble, L.J. Insights into the histology of planarian flatworm *Phagocata gracilis* based on location specific, intact lipid information provided by GCIB-ToF-SIMS imaging. Biochim Biophys Acta Mol Cell Biol Lipids. 1864:733-743, 2019.

2020

- Bergsman, K.C., Chudler, E.H. Adapting a Neural Engineering Summer Camp for High School Students to a Fully Online Experience. Biomed Eng Education (2020). <https://doi.org/10.1007/s43683-020-00011-2>

2021

- Bergsman, K. C. and Chudler, E. H. (2021, July). Curriculum Resources for Incorporating Cutting-edge Neurotechnologies into Secondary STEM Classrooms Paper presented at 2021 ASEE Virtual Annual Conference Content Access, Virtual Conference. <https://peer.asee.org/36893>
- Bergsman, K. C., Goering, S. and Chudler, E. H. (2021, July). Partnerships and Pedagogies for Introducing Neuroethics to Secondary STEM Classrooms [Poster] Paper presented at 2021 ASEE Virtual Annual Conference Content Access, Virtual Conference. <https://peer.asee.org/37566>
- Chudler, E.H. Teaching neuroscience one potato chip at a time, The MindBrainEd Think Tank+, 7:7-10, 2021.

2022

- Chudler, E.H. What Hollywood gets wrong (and right) about neuroscience. Princeton University Press IDEAS, December 23, 2022.
- Chudler, E.H., Neuropedia: A Brief Compendium of Brain Phenomena , Princeton University Press, 2022.

Tom Daniel

2012

- Sponberg, S. and Daniel, T.L. Abdicating power for control: a precision timing strategy to modulate function of flight power muscles. Proc Biol Sci. 279:3958-3966, 2012.

- Tanner, B.C., Daniel, T.L. and Regnier, M. Filament compliance influences cooperative activation of thin filaments and the dynamics of force production in skeletal muscle. *PLoS Comput Biol*, 8:e1002506, 2012.
- George, N.T., Sponberg, S. and Daniel, T.L. Temperature gradients drive mechanical energy gradients in the flight muscle of *Manduca sexta*. *J Exp Biol*, 215:471-479, 2012.
- Tsang, W.M., Stone, A.L., Otten, D., Aldworth, Z.N., Daniel, T.L., Hildebrand, J.G., Levine, R.B. and Voldman, J. Insect-machine interface: a carbon nanotube-enhanced flexible neural probe. *J Neurosci Methods*, 204:355-365, 2012.
- Williams, C.D., Regnier, M. and Daniel, T.L. Elastic energy storage and radial forces in the myofilament lattice depend on sarcomere length. *PLoS Comput Biol*, 8:e1002770, 2012.
- Hinterwirth, A.J., Medina, B., Lockey, J., Otten, D., Voldman, J., Lang, J.H., Hildebrand, J.G. and Daniel, T.L. Wireless stimulation of antennal muscles in freely flying hawkmoths leads to flight path changes. *PLoS One*, 7:e52725, 2012.

2013

- Dyhr, J.P., Morgansen, K.A., Daniel, T.L. and Cowan, N.J. Flexible strategies for flight control: an active role for the abdomen. *The Journal of Experimental Biology* 216:1523-1536, 2013.
- George, N.T., Irving, T.C., Williams, C.D. and Daniel, T.L. The cross-bridge spring: can cool muscles store elastic energy? *Science*, 340:1217-1220, 2013.

2014

- Dickerson, B.H., Aldworth, Z.N. and Daniel, T.L. Control of moth flight posture is mediated by wing mechanosensory feedback. *J. Exp Biol.* 2014 Apr 15.
- Eberle, A.L., Reinhall, P.G. and Daniel, T.L. Fluid-structure interaction in compliant insect Wings. *Bioinspir. Biomim.* 2014 May 22;9(2):025005).
- Cowan, N.J., Ankarali, M.M., Dyhr, J.P., Madhav, M.S., Roth, E., Sefati, S., Sponberg, S., Stamper, S.A., Fortune, E.S. and Daniel, T.L. Feedback control as a framework for understanding tradeoffs in biology. *Integr Comp Biol.* 2014 Jun 3. pii: icu050.
- Dieudonne, A., Daniel, T.L., and Sane, S.P. Encoding properties of the mechanosensory neurons in the Johnston's organ of the hawk moth, *Manduca sexta*. *J Exp Biol.* 217:3045-3056, 2014.

Felix Darvas

2013

- Smith, M., Weaver, K., Grabowski, T. and Darvas, F. Utilizing high gamma (HG) band power changes as a control signal for non-invasive BCI. *Brain-computer interface research, a state-of-the-art summary.* SpringerBriefs in Electrical and Computer Engineering, 2013.
- Smith, M., Weaver, K., Grabowski, T. and Rao, R., Darvas, F. Correlating high gamma power and fMRI bold response [abstract]. In: *Organization for Human Brain Mapping*, June 16-20, 2013, Seattle, WA.

2016

- Darvas, F., Mehić, E., Caler, C.J., Ojemann, J.G. and Mourad, P.D. Toward deep brain monitoring with superficial EEG sensors plus neuromodulatory focused ultrasound. *Ultrasound Med Biol.* S0301-5629(16)00113-117, 2016, doi: 10.1016/j.ultrasmedbio.2016.02.020.

Adrienne Fairhall

2012

- Fairhall, A., Shea-Brown, E. and Barreiro, A. Information theoretic approaches to understanding circuit function. *Curr Opin Neurobiol*, 22:653-659, 2012.

2013

- Mease, R.A., Famulare, M., Gjorgjieva, J., Moody, W.J. and Fairhall, A.L. Emergence of adaptive computation by single neurons in the developing cortex. *J. Neurosci*, 33:12154-12170, 2013.

2014

- Fairhall, A. The receptive field is dead. Long live the receptive field? *Current Opinion Neurobiology*, 25C:ix-xii, 2014.
- Fairhall, A. and Sompolinsky, H. Editorial overview: Theoretical and computational neuroscience. *Curr Opin Neurobiol*, 25:v-viii, 2014.
- Mease, R.A., Lee, S., Moritz, A.T., Powers, R.K., Binder, M.D. and Fairhall, A.L. Context-dependent coding in single neurons, *J. Comput. Neurosci.* 37:459-480, 2014, doi: 10.1007/s10827-014-0513-9.
- Barnett, H.M., Gjorgjieva, J., Weir, K., Comfort, C., Fairhall, A.L., and Moody, W.J. Relationship between individual neuron and network spontaneous activity in developing mouse cortex. *J Neurophysiol.* 2014 Sep 3. pii: jn.00349.2014.
- Gjorgjieva, J., Mease, R.A., Moody, W.J. and Fairhall, A.L. Intrinsic neuronal properties switch the mode of information transmission in networks. *PLoS Comput Biol.* 2014 Dec;10(12):e1003962.

2015

- Schwemmer, M.A., Fairhall, A.L., Denève, S., and Shea-Brown, E.T. Constructing precisely computing networks with biophysical spiking neurons. *J Neurosci.*, 35:10112-10134, 2015.
- Pang, R. and Fairhall, A.L. Let music sound while she doth make her choice. *Neuron*, 87:1126-1128, 2015.
- Yuste, R. and Fairhall, A.L. Temporal dynamics in fMRI resting-state activity. *Proc Natl Acad Sci USA*, 112:5263-5264, 2015.
- van Breugel, F., Riffell, J., Fairhall, A.L. and Dickinson, M.H. Mosquitoes use vision to associate odor plumes with thermal targets. *Curr. Biology* 25:2123-2129, 2015.
- Sponberg, S., Daniel, T. and Fairhall, A. Dual dimensionality reduction reveals independent encoding of motor features in a muscle synergy for insect flight control. *PLoS Comp. Biol.* 11(4):e1004168 (2015)

2016

- Pang, R., Lansdell, B.J. and Fairhall, A.L. Dimensionality reduction in neuroscience. *Curr Biol.*, 26(14):R656-660, 2016, doi: 10.1016/j.cub.2016.05.029.
- Aljadeff, J., Lansdell, B.J., Fairhall, A.L. and Kleinfeld, D. Analysis of neuronal spike trains, deconstructed. *Neuron*, 91(2):221-259, 2016, doi: 10.1016/j.neuron.2016.05.039.

2017

- Mease, R.A., Kuner, T., Fairhall, A.L. and Groh, A. Multiplexed spike coding and adaptation in the thalamus. *Cell Rep* 2017 May 9;19(6):1130-1140. doi: 10.1016/j.celrep.2017.04.050.
- Machens, C. and Fairhall, A. Editorial overview: Computational neuroscience. *Curr Opin Neurobiol.* 46:A1-A5, 2017, doi: 10.1016/j.conb.2017.09.009.
- Budzilloa, A., Duffy, A., Miller, K.E., Fairhall, A.L. and Perkel, D.J. Dopaminergic modulation of basal ganglia output through coupled excitation–inhibition. *PNAS*, 114:5713–5718, 2017.

2019

- Weber, A.I. and Fairhall, A.L. The role of adaptation in neural coding. *Curr Opin Neurobiol.*, 58:135-140, 2019.

Eberhard Fetz

2012

- Fetz, E.E. Artistic explorations of the brain. *Front Hum Neurosci*, 6:9, 2012.
- Seki, K. and Fetz, E.E. Gating of sensory input at spinal and cortical levels during preparation and execution of voluntary movement. *Journal of Neuroscience* 32:890-902, 2012.
- Zanos, S., Zanos, T.P., Marmarelis, V.Z., Ojemann, G.A. and Fetz, E.E. Relationships between spike-free local field potentials and spike timing in human temporal cortex. *Journal of Neurophysiology*, 107:1808-1821, 2012.
- Richardson, G. and Fetz, E.E. Brain-state dependence of electrically evoked potentials monitored with head-mounted electronics. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 20:756-761, 2012.
- Miller, K.J., Hermes, D., Honey, C.J., Hebb, A.O., Ramsey, N.F., Knight, R.T., Ojemann, J.G. and Fetz, E.E. Human motor cortical activity is selectively phase-entrained on underlying rhythms. *PLoS Computational Biology*, 8:1-21, 2012.
- Sacchet, M.D., Mellinger, J., Sitaram, R., Braun, C., Birbaumer, N. and Fetz, E. Volitional control of neuromagnetic coherence. *Frontiers in Neuroscience*, 6:189, 2012.

2013

- Fetz, E.E. Volitional control of cortical oscillations and synchrony. *Neuron*. 77:216-218, 2013.

- Lucas, T.H. and Fetz, E.E. Myo-cortical crossed feedback reorganizes primate motor cortex output. *J Neurosci*, 33:5261-5274, 2013.
- Nishimura, Y., Perlmutter, S.I. and Fetz, E.E. Restoration of upper limb movement via artificial corticospinal and musculospinal connections in a monkey with spinal cord injury. *Front Neural Circuits*, 7:57, 2013.
- Edwardson, M., Lucas, T., Carey, J. and Fetz, E. New modalities of brain stimulation for stroke rehabilitation. *Experimental Brain Research* 224:335-358, 2013.
- Nishimura, Y., Perlmutter, S.I., Eaton, R.W. and Fetz, E.E. Spike-timing-dependent plasticity in primate corticospinal connections induced during free behavior. *Neuron*, 80:1301-1309, 2013.

2014

- Potter, S.M., El Hady, A. and Fetz E.E. Closed-loop neuroscience and neuroengineering. *Front Neural Circuits*. 8:115, doi: 10.3389/fncir.2014.00115.eCollection 2014.

2015

- Fetz, E.E. Restoring motor function with bidirectional neural interfaces, In Dancause N, Rossignol S, Nadeau S, editors: *Sensorimotor Rehabilitation: At the Crossroads of Basic and Clinical Sciences*, Progress in Brain Research, Volume 218, 241-252, 2015.
- Edwardson, M.A., Avery, D.H., Fetz, E.E. Volitional muscle activity paired with transcranial magnetic stimulation increases corticospinal excitability. *Front Neurosci*. 8:442. doi: 10.3389/fnins.2014.00442, 2015.
- Fetz, E.E. Bidirectional interactions between the brain and implantable computers. *Proceedings of the Bial Foundation 10th Symposium Behind and Beyond the Brain*, pp 27-36, 2015.
- Zaidi, A.D., Munk, M.H., Schmidt, A., Risueno-Segovia, C., Bernard, R., Fetz, E., Logothetis, N., Birbaumer, N. and Sitaram, R. Simultaneous epidural functional near-infrared spectroscopy and cortical electrophysiology as a tool for studying local neurovascular coupling in primates. *Neuroimage*. 120:394-399, 2015.
- Fetz, E. Volitional control of neural activity – Past and future. Keynote lecture for symposium on real-time functional imaging and neurofeedback, University of Florida, Gainesville, FL, February 12-13, 2015
- Fetz, E. Clinical applications of bidirectional brain-machine interfaces. 2015 International Workshop on Clinical Brain-Machine Interfaces, Tokyo, Japan, March 13-15, 2015.
- Fetz, E. Applications of closed-loop brain computer interfaces, British Neuroscience Association Meeting, Edinburgh, Scotland, April 12-16, 2015
- Fetz, E. Bidirectional interactions between the brain and implantable computers. 2015 Alberta Motor Control Meeting, Jasper, Alberta, Canada, September 25, 2015.

2016

- Eaton, R.W., Libey, T. and Fetz, E.E. Operant conditioning of neural activity in freely behaving monkeys with intracranial reinforcement, *J Neurophysiol*. 2016 Dec 28;:jn.00423.2016.

- Lajoie, G., Krouchev, N.I., Kalaska, J.F., Fairhall, A.L. and Fetz, E.E. Correlation-based model of artificially induced plasticity in motor cortex by a bidirectional brain-computer interface. *PLoS Comput Biol.* 2017 Feb 2;13(2):e1005343. doi: 10.1371/journal.pcbi.1005343.
- Rembado, I., Zanos, S. and Fetz, E.E. (2017). Cycle-triggered cortical stimulation during slow wave sleep facilitates learning a BMI task: a case report in a non-human primate. *Front. Behav. Neurosci.* 11:59. doi: 10.3389/fnbeh.2017.00059

2017

- Kajal, D.S., Braun, C., Mellinger, J., Sacchet, M.D., Ruiz, S., Fetz, E., Birbaumer, N. and Sitaram, R. Learned control of inter-hemispheric connectivity: Effects on bimanual motor performance. *Hum. Brain Mapp.*, 38: 4353-4369, 2017, doi:10.1002/hbm.23663
- Libey, T. and Fetz, E.E. Open-source, low cost, free-behavior monitoring, and reward system for neuroscience research in non-human primates. *Front. Neurosci.* 11:265. doi: 10.3389/fnins.2017.00265, 2017.
- Clausen, J., Fetz, E., Donoghue, J., Ushiba, J., Spörhase, U., Chandler, J., Birbaumer, N. and Soekadar, S.R. Help, hope, and hype: Ethical dimensions of neuroprosthetics, *Science*, 356:1338-1339, 2017.

2018

- Zanos, S., Rembado, I., Chen, D. and Fetz, E.E. Phase-locked stimulation during cortical beta oscillations produces bidirectional synaptic plasticity in awake monkeys. *Curr Biol.* 2018 Aug 3. pii: S0960-9822(18)30908-4. doi: 10.1016/j.cub.2018.07.009.

2019

- Tavildar, S., Mogen, B., Zanos, S., Seeman, S.C., Perlmutter, S.I., Fetz, E. and Ashrafi, A. Inferring cortical connectivity from ECoG signals using graph signal processing. *IEEE Access*, 7:109349-109362, 2019.

2021

- Shupe, L. and Fetz, E., An integrate-and-fire spiking neural network model simulating artificially induced cortical plasticity. *eNeuro* 25 February 2021, ENEURO.0333-20.2021; DOI: 10.1523/ENEURO.0333-20.2021
- Rembado, I., Song, W., Su, D.K., Levari, A., Shupe, L.E., Perlmutter, S., Fetz, E. and Zanos, S. Cortical responses to vagus nerve stimulation are modulated by brain state in nonhuman primates. *Cerebral Cortex*, 2021;, bhab158, <https://doi.org/10.1093/cercor/bhab158>
- Shupe, L.E., Miles, F.P., Jones, G., Yun, R., Mishler, J., Rembado, I., Murphy, R.L., Perlmutter, S.I. and Fetz, E.E., Neurochip3: An autonomous multichannel bidirectional brain-computer interface for closed-loop activity-dependent stimulation. *Front. Neurosci.* 15:718465. doi: 10.3389/fnins.2021.718465.
- Yun, R., Bogaard, A.R., Richardson, A.G., Zanos, S., Perlmutter, S.I. and Fetz, E.E. Cortical Stimulation Paired With Volitional Unimanual Movement Affects Interhemispheric Communication. *Front Neurosci.* 2021 Dec 24;15:782188. doi: 10.3389/fnins.2021.782188. PMID: 35002605; PMCID: PMC8739774.

Frédéric Gilbert

2017

- Gilbert, F. Deep brain stimulation: Inducing self-estrangement. *Neuroethics*, doi:10.1007/s12152-017-9334-7, 2017.
- Gilbert, F., Goddard, E., Viaña, J.N.M., Carter, A. and Horne, M. I miss being me: Phenomenological effects of deep brain stimulation. *AJOB Neuroscience*, 8:96-109, 2017.
- Gilbert, F., Cook, M., O'Brien, T. and Illes, J. Embodiment and estrangement: Results from a first-in-human "Intelligent BCI" trial. *Sci Eng Ethics* (2017). <https://doi.org/10.1007/s11948-017-0001-5>.

2018

- Gilbert, F., O'Brien, T., and Cook, M. The effects of closed-loop brain implants on autonomy and deliberation. What are the risks of being kept in the loop? *Cambridge Quarterly of Healthcare Ethics*, 27:316–325, 2018.
- Gilbert, F. and Viana, J.N.M. A personal narrative on living and dealing with psychiatric symptoms after DBS surgery. *Narrative Inquiry in Bioethics*, 8: 67–77, 2018.
- Viaña, J.M.N., Carter, A. and Gilbert, F. Of meatballs And invasive neurotechnological trials: Additional considerations for complex clinical decisions. *AJOB Neuroscience*, 9:2, 100-104, 2018, DOI: 10.1080/21507740.2018.1460417
- Gilbert, F., Viaña, J.N.M. and Ineichen, C. Deflating the "DBS causes personality changes" bubble. *Neuroethics*. 2018, <https://doi.org/10.1007/s12152-018-9373-8>
- Viana, J.M.N. and Gilbert, F. Deep brain stimulation for people with Alzheimer's disease: Anticipating potential effects on the tripartite self, *Dementia: International journal of social research and practice*, 2018, <https://doi.org/10.1177/1471301218761147>
- Gilbert, F. and Tubig, P. Cognitive enhancement with brain implants: The burden of abnormality. *J. Cognitive Enhancement*, 2018, doi.org/10.1007/s41465-018-0105-0
- Viaña, J.N.M. and Gilbert, F. (2018), 32 Shades of neuroethics—A review of the Routledge Handbook of Neuroethics, edited by L. Syd M Johnson and Karen S. Rommelfanger, *The American Journal of Bioethics*, 18:10, W1-W3, DOI: 10.1080/15265161.2018.1513603

2019

- Gilbert, F., Pham, C., Viaña, J.N.M. and Gillam, W. (2019) Increasing brain-computer interface media depictions: pressing ethical concerns, *Brain-Computer Interfaces*, DOI: 10.1080/2326263X.2019.1655837
- Gilbert, F., Brown, T., Dasgupta, I., Martens, H., Klein, E., and Goering, S. An instrument to capture the phenomenology of implantable brain device use. *Neuroethics*, 1-9. 2019.
- Pham, C. and Gilbert, F., Predicting the future of brain-computer interface technologies: the risky business of irresponsible speculation in news media, *Bioethics Forum*, 12:15-28, 2019.

2020

- Stevens, I. and Gilbert, F. (2020) N-of-1 trial for closed-loop deep brain stimulation devices. *Ethics & Human Research - The Hasting Center*. DOI 10.1002/eahr.500045

- Stevens, I. and Gilbert, F. Experimental usage of AI brain-computer interfaces: Computerize errors, side-effects, and alteration of personality. In *Military and Humanitarian Medical Ethics, Volume Ethics of Military Medical Innovation, Experimentation, and Enhancement*. Editors D. Messelken/D. Winkler. Springer, 2020.

2021

- Gilbert, F. and Lancelot, M. Incoming ethical issues for deep brain stimulation: when long-term treatment leads to a 'new form of the disease'. *J. Medical Ethics*, 47:20-25, 2021.
- Gilbert, F., Harris, A.R. and Kidd, M. Burnt in your memory or burnt memory? Ethical issues with optogenetics for memory modification. *AJOB Neuroscience*, 12:1, 22-24, 2021.

Sara Goering

2012

- Kelley, M., Edwards, K., Starks, H., Fullerton, M., James, R., Goering, S., Holland, S., Disis, M. and Burke, W. Values in translation: how asking the right questions can move translational science toward greater health impact. *Clinical and Translational Science*, 5:445-451, 2012.

2014

- Goering, S. Is it still me? DBS, agency, and the extended, relational me. *AJOB Neuroscience* 5: 50-51, 2014.

2015

- Goering, S. Rethinking disability: the social model of disability and chronic disease. *Current Reviews in Musculoskeletal Medicine*, 8:134-138, 2015.
- Goering, S. Stimulating autonomy: DBS and the prospect of choosing to control ourselves through stimulation. *AJOB Neuroscience* 6:1-3, 2015.
- Brown, T. A relational take on advisory brain implant systems. *AJOB Neuroscience* 6:46-47, 2015.

2016

- Brown, T., Moore, P., Herron, J., Thompson, M., Bonaci, T., Chizeck, H. and Goering, S. Personal responsibility in the age of user-controlled neuroprosthetics. 2016 IEEE International Symposium on Ethics in Engineering, Science and Technology (ETHICS), 1 - 12, DOI: 10.1109/ETHICS.2016.7560039, 2016.
- Brown, T., Thompson, M.C., Herron, J., Ko, A., Chizeck, H. and Goering, S. Controlling our brains – a case study on the implications of brain-computer interface-triggered deep brain stimulation for essential tremor. *Brain-Computer Interfaces*, pages 1-6, 14 Sep 2016, <http://dx.doi.org/10.1080/2326263X.2016.1207494>
- Goering, S. and Yuste, R. On the necessity of ethical guidelines for novel neurotechnologies. *Cell*, 167:882-885, 2016.

2017

- Goering, S., Klein, E., Dougherty, D.D. and Widge, A.S. Staying in the loop: Relational agency and identity in next-generation DBS for psychiatry. *AJOB Neuroscience*, 8:2, 59-70, 2017.
- Goering, S. Thinking differently: Neurodiversity and neural engineering, *Handbook of Neuroethics* (eds. Rommelfanger and Johnson), pp. 37-50, Routledge, 2017.
- Goering, S., Brown, T. and Alsarraf, J. Others' contributions to narrative identity matter. *AJOB Neuroscience* 8(3): 176-178, 2017.
- Yuste, R., Goering, S. and the Morningside Group. Four ethical priorities for neurotechnologies and AI. *Nature*, 551: 159-163, 2017.

2019

- MacDuffie, K.E. and Goering, S. Neurotechnologies cannot seize thoughts: A call for caution in nomenclature. *AJOB Neurosci.* 10:23-25, 2019.
- Hendriks, S., Grady, C., Ramos, K.M., Chiong, W., Fins, J.J., Ford, P., Goering, S., Greely, H.T., Hutchison, K., Kelly, M.L., Kim, S.Y.H., Klein, E., Lisanby, S.H., Mayberg, H., Maslen, H., Miller, F.G., Rommelfanger, K., Sheth, S.A. and Wexler, A. Ethical challenges of risk, informed consent, and posttrial responsibilities in human research with neural devices. *JAMA Neurol.* doi:10.1001/jamaneurol.2019.3523, Published online October 17, 2019.
- Boulicault, M. and Brown, T. How relationships matter: The need for closer attention to relationality in neuroethical studies. *AJOB Neuroscience*, 9(4): 235-237, 2019, DOI: 10.1080/21507740.2018.1561545
- Dasgupta, I. Ethical oversight of direct-to-consumer neurotechnologies: The FDA, the FTC, or self-regulation? *AJOB neuroscience*, 10(4), 200, 2019.
- Martens, H. and Brown, T. Trusting oneself and others: Relational vulnerability and DBS for depression. *AJOB Neuroscience*, 9: 226-227, 2019.
- Schönau, A. Mensch-Maschine-Schnittstellen in den Bio- und Neurotechnologien In: Liggieri, Kevin/Müller, Oliver (Hg.): *Mensch-Maschine-Interaktion Handbuch Zu Geschichte - Kultur - Ethik*. Stuttgart: J. B. Metzler. S. 198–204, 2019.
- Schönau, A. Machina Ex Machina: Mensch-Maschine-Interaktion in virtuellen Umgebungen In: Klager, Christian (Hg.): *Die Zukunft im Spiel*. Göttingen: Cuvillier. S. 121–140, 2019.

2020

- Goering, S. and Klein, E. Embedding ethics in neural engineering. An integrated transdisciplinary collaboration, in E. Brister and R. Frodeman (eds), *A Guide to Field Philosophy: Case Studies and Practical Strategies*, New York: Taylor & Francis, 17-34, 2020.
- Dasgupta, I., Versalovic, E., Schönau, A., Klein, E. and Goering, S. BCI mediated action and responsibility: Questioning the distinction between recreation and necessity. *AJOB Neurosci.*, 11:63-65, 2020.
- Goering, S. and Specker Sullivan, L. Introduction to the special section: Feminist approaches to neurotechnologies. *IJFAB: International Journal of Feminist Approaches to Bioethics*, 13:89-97, 2020.

- Dasgupta, I. Assessing current mechanisms for the regulation of direct-to-consumer neurotechnology, in *Developments in Neuroethics and Bioethics, Ethical Dimensions of Commercial and DIY Neurotechnologies*, vol. 3, edited by E. Holt, 2020, pp. 233-266.
- Goering, S. and Klein, E. Fostering neuroethics integration with neuroscience in the BRAIN Initiative: Comments on the NIH Neuroethics Roadmap. *AJOB Neuroscience*, 11:184-188, 2020.
- Dasgupta, I., Schönau, A., Versalovic, E., Klein, E. and Goering, S. BCI mediated action and responsibility: Questioning the distinction between able-bodied recreation and disability-related necessity. *AJOB Neuroscience* 11(1):63-65, 2020.
- Martinez-Martin, N., Dasgupta, I., Carter, A., Chandler, J.A., Kellmeyer, P., Kreitmair, K., Weiss, A. and Cabrera, L.Y. Ethics of digital mental health during COVID-19: Crisis and opportunities. *JMIR Ment Health*, 2020; 7(12):e23776. *Joint first authors
- MacDuffie, K.E. A “salad bowl” approach to neuroethics collaboration. *AJOB Neuroscience*, 11:201-203, 2020.
- MacDuffie, K.E., Grubbs, L., Best, T., LaRoche, S., Mildon, B., Myers, L., Stafford, E. and Rommelfanger, K.S. Stigma and functional neurological disorder: a research agenda targeting the clinical encounter. *CNS Spectr.* 2020 Dec 3:1-6. doi: 10.1017/S1092852920002084.

2021

- Goering, S., Brown, T. and Klein, E. (2021), Neurotechnology ethics and relational agency. *Philosophy Compass* e12734. <https://doi.org/10.1111/phc3.12734>
- Boulicault, M. and Schroeder, A. (forthcoming). Trust in Science: Comparing Alternatives to the Value-Free Ideal In *Social Trust*, K. Vallier (ed.), Routledge.
- Pham, M., Sample, M., Dasgupta, I., Goering, S. and Klein, E. (forthcoming). Developing Ethical Guidelines for Implantable Neurotechnology: The Importance of Incorporating Stakeholder Input. In *Springer Handbook of Neuroengineering*, edited by Nitish V. Thakor.
- Schönau, A., Dasgupta, I., Brown, T., Versalovic, E., Klein, E. and Goering S. Mapping the dimensions of agency. *AJOB Neurosci.* 12:2-3, 172-186, DOI: 10.1080/21507740.2021.1896599.
- Schönau, A. The spectrum of responsibility ascription for end users of neurotechnologies. *Neuroethics* (2021). <https://doi.org/10.1007/s12152-021-09460-0>.
- Goering, S., Klein, E., Specker Sullivan, L., Wexler, A., Agüera, Y. Arcas, B., Bi, G., Carmena, J.M., Fins, J.J., Friesen, P., Gallant, J., Huggins, J.E., Kellmeyer, P., Marblestone, A., Mitchell, C., Parens, E., Pham, M., Rubel, A., Sadato, N., Teicher, M., Wasserman, D., Whittaker, M., Wolpaw, J. and Yuste R. Recommendations for responsible development and application of neurotechnologies. *Neuroethics.* 2021 Apr 29:1-22. doi: 10.1007/s12152-021-09468-6.
- Wexler, A., Choi, R.J., Ramayya, A.G., Sharma, N., McShane, B.J., Buch, L.Y., Donley-Fletcher, M.P., Gold, J.I., Baltuch, G.H., Goering, S. and Klein, E. Ethical Issues in intraoperative neuroscience research: Assessing subjects' recall of informed consent and motivations for participation. *AJOB Empir Bioeth.* 2021 Jul 6:1-10. doi: 10.1080/23294515.2021.1941415.

- Goering, S., Wexler, A. and Klein, E. Trading vulnerabilities: Living with Parkinson's disease before and after deep brain stimulation. *Camb Q Healthc Ethics*. 30:623-630, 2021.
- Dasgupta, I., Schönau, A., Brown, T., Klein, E., Goering, S. (2021). Does Closed-Loop DBS for Treatment of Psychiatric Disorders Raise Salient Authenticity Concerns?. In: Jotterand, F., Ienca, M. (eds) *Artificial Intelligence in Brain and Mental Health: Philosophical, Ethical & Policy Issues*. *Advances in Neuroethics*. Springer, Cham. https://doi.org/10.1007/978-3-030-74188-4_14

2022

- Goering, S., Brown, T.E., McCusker, D., Montes, N., Schönau, A., Versalovic, E. and Klein, E., Integrating equity work throughout bioethics, *Amer. J. Bioethics*, 22:1, 26-27, 2022.
- Versalovic, E., Goering, S. and Klein, E. Data, privacy, and agency: Beyond transparency to empowerment. *Am J Bioeth*. 2022 Jul;22(7):63-65. doi: 10.1080/15265161.2022.2075975. PMID: 35737483.
- Schönau, A. Agency in augmented reality: exploring the ethics of Facebook's AI-powered predictive recommendation system. *AI Ethics* (2022). <https://doi.org/10.1007/s43681-022-00158-4>
- Goering, S., Versalovic, E. and Brown, T. Ambiguous agency as a frame on neural device user experience. *AJOB Neurosci.*, 14:50-52,2023.

Ann Graybiel

2017

- Bloem, B., Huda, R., Sur, M. and Graybiel, A.M. Two-photon imaging in mice shows striosomes and matrix have overlapping but differential reinforcement-related responses. *Elife*. 2017 Dec 18;6. pii: e32353. doi: 10.7554/eLife.32353.
- Schwerdt, H.N., Shimazu, H., Amemori, K.I., Amemori, S., Tierney, P.L., Gibson, D.J., Hong, S., Yoshida, T., Langer, R., Cima, M.J. and Graybiel, A.M. Long-term dopamine neurochemical monitoring in primates. *Proc Natl Acad Sci U S A.*, 114:13260-13265, 2017, doi: 10.1073/pnas.1713756114.
- Friedman, A., Homma, D., Bloem, B., Gibb, L.G., Amemori, K.I., Hu, D., Delcasso, S., Truong, T.F., Yang, J., Hood, A.S., Mikofalvy, K.A., Beck, D.W., Nguyen, N., Nelson, E.D, Toro Arana, S.E., Vorder Bruegge, R.H., Goosens, K.A. and Graybiel, A.M. Chronic stress alters striosome-circuit dynamics, leading to aberrant decision-making. *Cell*. 171:1191-1205, 2017, doi: 10.1016/j.cell.2017.10.017.
- Spencer, K.C., Sy, J.C., Ramadi, K.B., Graybiel, A.M., Langer, R. and Cima, M.J. Characterization of mechanically matched hydrogel coatings to improve the biocompatibility of neural implants. *Sci Rep*. 16;7(1):1952, 2017, doi: 10.1038/s41598-017-02107-2. Erratum in: *Sci Rep*. 2017 Oct 9;7(1):12812.
- Crittenden, J.R., Lacey, C.J., Weng, F.J., Garrison, C.E., Gibson, D.J., Lin, Y. and Graybiel, A.M. Striatal cholinergic interneurons modulate spike-timing in striosomes and matrix by an amphetamine-sensitive mechanism. *Front Neuroanat*. 2017 Mar 21;11:20. doi: 10.3389/fnana.2017.00020. eCollection 2017.
- Yamanaka, K., Hori, Y., Minamimoto, T., Yamada, H., Matsumoto, N., Enomoto, K., Aosaki, T. and Graybiel, A.M. Kimura M. Roles of centromedian parafascicular nuclei of thalamus and cholinergic interneurons in the dorsal striatum in associative learning of environmental events. *J Neural Transm (Vienna)*. 2018 Mar;125(3):501-513. doi: 10.1007/s00702-017-1713-z. Epub 2017 Mar 21.

- Schwerdt, H.N., Kim, M.J., Amemori, S., Homma, D., Yoshida, T., Shimazu, H., Yerramreddy, H., Karasan, E., Langer, R., Graybiel, A.M. and Cima, M.J. Subcellular probes for neurochemical recording from multiple brain sites. *Lab Chip*. 7(6):1104-1115, 2017, doi: 10.1039/c6lc01398h.

2018

- Nakamura, T., Nagata, M., Yagi, T., Graybiel, A.M., Yamamori, T. and Kitsukawa, T. Learning new sequential stepping patterns requires striatal plasticity during the earliest phase of acquisition. *Eur J Neurosci*. 45:901-911, 2018, doi: 10.1111/ejn.13537.
- Schwerdt, H.N., Zhang, E., Kim, M.J., Yoshida, T., Stanwicks, L., Amemori, S., Dagdeviren, H.E., Langer, R., Cima, M.J. and Graybiel, A.M. Cellular-scale probes enable stable chronic subsecond monitoring of dopamine neurochemicals in a rodent model, *Communications Biology*, <https://doi.org/10.1038/s42003-018-0147-y>; 10.1038/s42003-018-0147-y
- Martiros, N., Burgess, A.A. and Graybiel, A.M. Inversely active striatal projection neurons and interneurons selectively delimit useful behavioral sequences. *Curr Biol*. 28(4):560-573, 2018, doi: 10.1016/j.cub.2018.01.031.
- Dagdeviren, C., Ramadi, K.B., Joe, P., Spencer, K., Schwerdt, H.N., Shimazu, H., Delcasso, S., Amemori, K.I., Nunez-Lopez, C., Graybiel, A.M., Cima, M.J. and Langer, R. Miniaturized neural system for chronic, local intracerebral drug delivery. *Sci Transl Med*. 2018 Jan 24;10(425). pii: eaan2742. doi: 10.1126/scitranslmed.aan2742.
- Amemori, K.I., Amemori, S., Gibson, D.J. and Graybiel, A.M. Striatal microstimulation induces persistent and repetitive negative decision-making predicted by striatal beta-band oscillation. *Neuron*. 99(4):829-841, 2018, e6. doi: 10.1016/j.neuron.2018.07.022.
- Kelly, S.M., Raudales, R., He, M., Lee, J.H., Kim, Y., Gibb, L.G., Wu, P., Matho, K., Osten, P., Graybiel, A.M. and Huang, Z.J. Radial glial lineage progression and differential intermediate progenitor amplification underlie striatal compartments and circuit organization. *Neuron*. 99(2):345-361, 2018, doi: 10.1016/j.neuron.2018.06.021.
- Ramadi, K.B., Dagdeviren, C., Spencer, K.C., Joe, P., Cotler, M., Rousseau, E., Nunez-Lopez, C., Graybiel, A.M., Langer, R. and Cima, M.J. Focal, remote-controlled, chronic chemical modulation of brain microstructures. *Proc Natl Acad Sci U S A*. 115(28):7254-7259, 2018, doi: 10.1073/pnas.1804372115.
- Delcasso, S., Denagamage, S., Britton, Z. and Graybiel, A.M. HOPE: Hybrid-drive Combining optogenetics, Pharmacology and Electrophysiology. *Front Neural Circuits*. 2018 May 16;12:41. doi: 10.3389/fncir.2018.00041. eCollection 2018.

2020

- Ramadi, K.B., Dagdeviren, C., Bhagchandani, B., Nunez-Lopez, C., Kim, M.J., Langer, R., Graybiel, A.M. and Cima, M.J. Simultaneous recording and marking of brain microstructures *J. Neural Engineering*, 2020, 17 044001
- Schwerdt, H.N., Amemori, K., Gibson, D.J., Stanwicks, L.L., Yoshida, T., Bichot, N.P., Amemori, S., Desimone, R., Langer, R., Cima, M.J. and Graybiel, A.M. Dopamine and beta-band oscillations differentially link to striatal value and motor control. *Science Advances*, 25 Sep 2020: eabb9226.

2012

- Stein, R.B., Everaert, D.G., Abrams, G.M., Elovic, E.P., Francisco, G.E., Hafner, B.J., Huskey, T., Munin, M.C., Nolan, J.K. and Kufta, C. Multicenter randomized controlled trial comparing walking with a foot drop stimulator and ankle-foot orthosis after stroke. Proceedings of the 17th Annual International FES Society Conference. Banff, Canada. September 9-12, 2012.

2013

- Sawers, A.B. and Hafner, B.J. Outcomes associated with the use of microprocessor-controlled prosthetic knees among individuals with unilateral transfemoral limb loss: a systematic review. *J Rehabil Res Dev*, 50:273-314, 2013.
- Halsne, E.G., Waddingham, M.G. and Hafner, B.J. Long-term activity in and among persons with transfemoral amputation. *J Rehabil Res Dev*, 50:515-530, 2013.
- Everaert, D.G., Stein, R.B., Abrams, G.M., Dromeric, A.W., Francisco, G.E., Hafner, B.J., Huskey, T., Munin, M.C., Nolan, J.K. and Kufta, C. Effect of a foot drop stimulator and ankle-foot orthosis on walking ability after stroke: a multicenter randomized controlled trial. *Neurorehabil Neural Repair*, 27:579-591, 2013.
- Redfield, M., Cagle, J., Hafner, B.J. and Sanders, J.E. Classifying prosthetic use via accelerometry in people with trans-tibial amputations. *J Rehabil Res Dev*, 50:1201-1212, 2013.
- Morgan, S.J., Kelly, V.E. and Hafner, B.J. The impact of transfemoral amputation on the cognitive load associated with walking. Proceedings of the 14th World Congress of the International Society of Prosthetics and Orthotics, Hyderabad, India, February 4-7, 2013.

2014

- Fiedler, G., Slavens, B., Smith, R.O., Briggs, D. and Hafner, B.J. Criterion and construct validity of prosthesis-integrated measurement of joint movement data in persons with trans-tibial amputation. *J. Appl. Biomech.*, March 4, 2014.
- Hafner, B.J. and Sanders, J.E. Considerations for development of sensing and monitoring tools to facilitate treatment and care of persons with lower-limb loss: A review. *J Rehabil Res Dev*. 51:1-14, 2014.

Blake Hannaford

2012

- Naerum, E., Elle, O.J. and Hannaford, B. The effect of interaction force estimation on performance in bilateral teleoperation. *IEEE Transactions on Haptics*, VOL. 5, NO. 2, April-June 2012.
- Hannaford, B., Rosen, J., Friedman, D., King, H., Roan, P., Cheng, L., Glozman, D., Ma, J., Nia Kosari, S. and White, L. Raven-II: an open platform for surgical robotics research. *IEEE Trans Biomed Eng*, 60:954-959, 2012.
- Friedman, D.C., Lendvay, T.S. and Hannaford, B. Instrument failures for the da Vinci surgical system: a Food and Drug Administration MAUDE database study. *Surg Endosc*, 27:1503-1508, 2013.

- Nia Kosari, S., Ramadurai, S., Chizeck, H.J. and Hannaford, B. Robotic compression of soft tissue. 2012 IEEE International Conference on Robotics and Automation, RiverCentre, Saint Paul, Minnesota, USA, May 14-18, 2012.
- Velasquez, C.A., King, H., Hannaford B. and Yoon, W.J. Development of a flexible imaging probe integrated to a surgical telerobot system: Preliminary remote control test and probe design. The Fourth IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics, Roma, Italy, June 24-27, 2012.

2013

- Lendvay, T.S., Hannaford, B., and Satava, R.M. Future of robotic surgery. *Cancer J.*, 19:109-119, 2013.
- Jiang, I., Ishikawa, Y., Lindsay, J., and Hannaford, B. Design and optimization of support structures for tactile feedback. *IEEE World Haptics Conference 2013*, pp. 485-490.
- Lindsay, J., Adams, R. and Hannaford, B. Improving tactile feedback with an impedance adapter. *IEEE World Haptics Conference 2013*, p. 485-490.
- Lendvay, T.S., Brand, T.C., White, L., Kowalewski, T., Jonnadula, S., Mercer, L.D., Khorsand, D., Andros, J., Hannaford, B. and Satava, R.M. Virtual reality robotic surgery warm-up improves task performance in a dry laboratory environment: A prospective randomized controlled study. *J Am Coll Surg*, 216:1181-1192, 2013.

Jeffrey Herron

2021

- Fraczek, T.M., Ferleger, B.I., Brown, T.E., Thompson, M.C., Haddock, A.J., Houston, B.C., Ojemann, J.G., Ko, A.L., Herron, J.A. and Chizeck, H.J. Closing the loop with cortical sensing: The development of adaptive deep brain stimulation for essential tremor using the Activa PC+S. *Front Neurosci.* 2021 Dec 8;15:749705. doi: 10.3389/fnins.2021.749705.

2022

- Paschall, C.J., Rao, R.P.N., Hauptmann, J, Ojemann, J.G. and J. Herron, "An immersive virtual reality platform integrating human ECOG & sEEG: Implementation & noise analysis," 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2022, pp. 3105-3110, doi: 10.1109/EMBC48229.2022.9871754.

2023

- West, J., Bozorgi, Z.D., Herron, J., Chizeck, H.J., Chambers, J.D. and Li, L. Machine learning seizure prediction: one problematic but accepted practice. *J. Neural Eng.*, 20 016008, DOI 10.1088/1741-2552/acae09, 2023.

Ke Huang

2016

- Agrawal, M., Vidyashankar, S. and Huang, K. On-chip implementation of ECOG signal data decoding in brain-computer interface. 2016 IEEE 21st International Mixed-Signal Testing Workshop (IMSTW), 2016, Pages: 1 - 6, DOI: 10.1109/IMS3TW.2016.7524225.

2017

- Agrawal, M., Vidyashankar, S. and Huang, K. On Decoding Brain Electroencephalography Data for Volitional Movement Intention Prediction: Theory and On-Chip Implementation, in *Advances in Statistical Methodologies and Their Application to Real Problems*, edited by Tsukasa Hokimoto, 2017.

Judy Illes

2012

- Bubela, T., Reshef, A., Li, M.D., Atkins, H., Caulfield, T., Culme-Seymour, E., Gold, E.R., Illes, J., Isasi, R., McCabe, C., Ogbogu, U., Piret, J. and Mason, C. Enabling advanced cell therapies (EnACT): invitation to an online forum on resolving barriers to clinical translation. *Regen Med*, 7:735-740, 2012.
- Kwon, B.K., Ghag, A., Dvorak, M.F., Tetzlaff, W. and Illes, J. Expectations of benefit and tolerance to risk of individuals with spinal cord injury regarding potential participation in clinical trials. *J Neurotrauma*, 29:2727-2737, 2012.
- Anderson, J.A., Eijkholt, M. and Illes, J. Research accountability: Mandate ethics methods in papers. *Nature*, 487:432, 2012.
- Eijkholt, M., Kwon, B.K., Mizgalewicz, A. and Illes, J. Decision-making in stem cell trials for spinal cord injury: the role of networks and peers. *Regen Med*, 7:513-522, 2012.
- Kwon, B.K., Ghag, A., Reichl, L., Dvorak, M.F., Illes, J. and Tetzlaff, W. Opinions on the preclinical evaluation of novel therapies for spinal cord injury: A comparison between researchers and spinal cord-injured individuals. *J Neurotrauma*, 29:2367-2374, 2012.
- Borgelt, E.L., Buchman, D.Z., Weiss, M. and Illes, J. In search of anything that would help: Parent perspectives on emerging neurotechnologies. *J Atten Disord*, May 22, 2012.
- Di Pietro, N.C., Whiteley, L., Mizgalewicz, A. and Illes, J. Treatments for neurodevelopmental disorders: evidence, advocacy, and the internet. *J Autism Dev Disord*, 43:122-133, 2013.
- Buchman, D.Z., Borgelt, E.L., Whiteley, L. and Illes, J. Neurobiological narratives: experiences of mood disorder through the lens of neuroimaging. *Sociol. Health Illn*, 35:66-81, 2013.
- Wolf, S.M., Crock, B.N., Van Ness, B., Lawrenz, F., Kahn, J.P., Beskow, L.M., Cho, M.K., Christman, M.F., Green, R.C., Hall, R., Illes, J., Keane, M., Knoppers, B.M., Koenig, B.A., Kohane, I.S., Leroy, B., Maschke, K.J., McGeeveran, W., Ossorio, P., Parker, L.S., Petersen, G.M., Richardson, H.S., Scott, J.A., Terry, S.F., Wilfond, B.S. and Wolf, W.A. Managing incidental findings and research results in genomic research involving biobanks and archived data sets. *Genet Med*, 14:361-384, 2012.
- Scott, N.A., Murphy, T.H. and Illes, J. Incidental findings in neuroimaging research: a framework for anticipating the next frontier. *J Empir Res Hum Res Ethics*, 7:53-57, 2012.
- Scott, C.T., Caulfield, T., Borgelt, E. and Illes, J. Personal medicine—the new banking crisis. *Nat Biotechnol*, 30:141-147, 2012.
- Eijkholt, M., Anderson, J.A. and Illes, J. Picturing neuroscience research through a human rights lens: imaging first-episode schizophrenic treatment-naive individuals. *Int J Law Psychiatry*, 35:146-152, 2012.

- Borgelt, E.L., Buchman, D.Z. and Illes, J. Neuroimaging in mental health care: voices in translation. *Front Hum Neurosci*, 6:293, 2012.
- Peters, K.R., Beattie, B.L., Feldman, H.H. and Illes, J. A conceptual framework and ethics analysis for prevention trials of Alzheimer disease. *Prog Neurobiol*, 110:114-123, 2013.

2013

- Borgelt, E., Anderson, J.A. and Illes, J. Managing incidental findings: lessons from neuroimaging. *Am J Bioeth*, 13:46-47, 2013.
- Anderson, J.A., Eijkholt, M. and Illes, J. Ethical reproducibility: towards transparent reporting in biomedical research. *Nature Methods* 10:843-845, 2013.

Mehrdad Jazayeri

2015

- de Lafuente, V., Jazayeri, M. and Shadlen, M.N. Representation of accumulating evidence for a decision in two parietal areas. *J Neurosci*, 35:4306-4318, 2015.
- Remington, E. and Jazayeri, M. Sensory measurement and motor planning are not separable in interval timing. *J Vision*, 15(12):977, 2015.
- Finnerty, G.T., Shadlen, M.N., Jazayeri, M., Nobre, A.C. and Buonomano, D.V. Time in cortical circuits. *J Neurosci*. 35:13912-13916, 2015.
- Jazayeri, M. and Shadlen, M.N. A neural mechanism for sensing and reproducing a time interval. *Current Biology*, 25:2599-2609, 2015.
- Remington, E.D., Hosseini, E. and Jazayeri, M. Sensory measurement and motor planning are not separable in interval timing. *Society for Neuroscience*, 2015.
- Egger, S.W., Chang, C.J. and Jazayeri, M. Response of neurons in the medial prefrontal cortex during a time interval integration task. *Society for Neuroscience*, 2015.
- Remington, E.D. and Jazayeri, M. Sensory measurement and motor planning are not separable in interval timing. *Vision Sciences Society*, 2015.

2017

- Jazayeri, M. and Afraz, A. Navigating the neural space in search of the neural code. *Neuron*. 2017 Mar 8;93(5):1003-1014. doi: 10.1016/j.neuron.2017.02.019.
- Remington, E. and Jazayeri, M. Late Bayesian inference in sensorimotor behavior. *bioRxiv* 130062; doi: <https://doi.org/10.1101/130062>.
- Wang, J., Narain, D., Hosseini, E. and Jazayeri, M. Flexible control of speed of cortical dynamics. *bioRxiv* 155390; doi: <https://doi.org/10.1101/155390>

- Jazayeri, M. Zooming out of single neurons reveals structure in mnemonic representations. *Neuron*, 96:1210-1212, 2017.
- Wang, J., Narain, D., Hosseini, E.A., and Jazayeri, M. Flexible timing by temporal scaling of cortical responses. *Nature Neuroscience* 21: 102–110, 2017.

2018

- Narain, D., Remington, E.D., Zeeuw, C.I. and Jazayeri, M. A cerebellar mechanism for learning prior distributions of time intervals. *Nat Commun.* 2018 Feb 1;9(1):469. doi: 10.1038/s41467-017-02516-x.
- Remington, E.D., Narain, D., Hosseini, E.A. and Jazayeri, M. Flexible sensorimotor computations through rapid reconfiguration of cortical dynamics. *Neuron*, 98:1005-1019, 2018.
- Remington, E.D., Egger, S.W., Narain, D., Wang, J., and Jazayeri, M. A dynamical systems perspective on flexible motor timing. *Trends in Cognitive Sci.*, 22:P938-952, 2018.

2019

- Sohn, H., Narain, D., Meirhaeghe, N. and Jazayeri, M. Bayesian computation through cortical latent dynamics. *Neuron*, 2019 Jul 4. pii: S0896-6273(19)30562-8. doi: 10.1016/j.neuron.2019.06.012.
- Egger, S.W., Remington, E.D., Chang, C.J. and Jazayeri, M. Internal models of sensorimotor integration regulate cortical dynamics. *Nat Neurosci.* 2019 Oct 7. doi: 10.1038/s41593-019-0500-6.

2020

- Pollock, E. and Jazayeri, M. Engineering recurrent neural networks from task-relevant manifolds and dynamics. *PLoS Comput Biol* 16(8): e1008128. <https://doi.org/10.1371/journal.pcbi.1008128>.
- Egger, S.W., Le, N.M. and Jazayeri, M. A neural circuit model for human sensorimotor timing. *Nat Commun.* 2020;11(1):3933. Published 2020 Aug 7. doi:10.1038/s41467-020-16999-8
- Wang, J., Hosseini, E., Meirhaeghe, N., Akkad, A. and Jazayeri, M. Reinforcement regulates timing variability in thalamus. *Elife.* 2020;9:e55872. Published 2020 Dec 1. doi:10.7554/eLife.55872
- Sohn, H., Meirhaeghe, N., Rajalingham, R. and Jazayeri M. A Network perspective on sensorimotor learning. *Trends Neurosci.* 2020 Dec 18:S0166-2236(20)30272-1. doi: 10.1016/j.tins.2020.11.007.
- Balasubramaniam, R., Haegens, S., Jazayeri, M., Merchant, H., Sternad, D. and Song, J.H. Neural encoding and representation of time for sensorimotor control and learning. *J Neurosci.* 2020 Dec 21:JN-SY-1652-20. doi: 10.1523/JNEUROSCI.1652-20.2020.

2021

- Sohn, H. and Jazayeri, M. Validating model-based Bayesian integration using prior-cost metamers. *Proc Natl Acad Sci U S A.* 22;118(25). 2021.
- Meirhaeghe, N., Sohn, H. and Jazayeri, M. A precise and adaptive neural mechanism for predictive temporal processing in the frontal cortex. *Neuron*, 109:2995-3011, 2021. <https://doi.org/10.1016/j.neuron.2021.08.025>.

2022

- Barri, A., Wiechert, M.T., Jazayeri, M. and DiGregorio, D.A. Synaptic basis of a sub-second representation of time in a neural circuit model. *Nat Commun.* 2022 Dec 22;13(1):7902. doi: 10.1038/s41467-022-35395-y.

Lise Johnson

2012

- Johnson, L.A., Blakely, T., Hermes, D., Hakimian, S., Ramsey, N.F. and Ojemann, J.G. Sleep spindles are locally modulated by training on a brain-computer interface. *Proc Natl Acad Sci U S A*, 109:18583-18588, 2012.

2013

- Johnson, L.A., Wander, J.D., Sarma, D., Su, D.K., Fetz, E.E. and Ojemann, J.G. Direct electrical stimulation of the somatosensory cortex in humans using electrocorticography electrodes: a qualitative and quantitative report. *J. Neural Eng.*, 10:036021, 2013.

Sam Kassegne

2013

- Kassegne, S. Graphite-based flexible microelectrode array for neural recording and sensing. 224th ECS Meeting, San Francisco, October, 2013.
- Hirabayashi, M., Mehta, B., Vahidi, N., Khosla, A., and Kassegne, S. Functionalization and characterization of pyrolyzed polymer based carbon microstructures for bionanoelectronics platforms. *Journal of Micromechanics and Microengineering*, 23:115001, 2013.

2014

- Vahidi, N., Hirabayashi, M., Mehta, B., Khosla, A., and Kassegne, S. Bionanoelectronics platform with DNA molecular wires attached to high aspect-ratio 3D metal microelectrodes. *ECS Journal of Solid State Science and Technology* 3:Q29-Q36, 2014.
- Kassegne, S., Khosla, A., Patel, D., Paramesh, N., Harwood, N. and Arya, B. Coriolis force for facilitating DNA molecular migration and hybridization in compact disk microfluidic platforms. *Journal of Microsystem Technologies*, Springer, DOI: 10.1007/s00542-014-2087-x, 2014.

2015

- Kassegne, S., Vomero, M., Gavuglio, R., Hirabayashi, M., Ozyilmaz, E., Nguyen, S., Rodriguez, J., Ozyilmaz, E., van Niekerk, P., Khosla, A. Electrical impedance, electrochemistry, mechanical stiffness, and hardness tunability in glassy carbon MEMS ECoG electrodes. *J Microelectronics Engineering*, 133:36-44, 2015.
- Kassegne, S.K., van Niekerk, P., Vomero, M., and Perlmutter, S. New generation of neural prosthetic ECoG arrays using glassy carbon based micromachined microelectrodes. *Microfluidics, BioMEMS, and Medical Microsystems XIII*, SPIE West Photonics, Paper No 9320-9322, San Francisco, CA, February 2015.
- Kassegne, S.K. and Vomero, M. Glassy carbon-based microelectrodes for neural signal sensing and stimulation. Invited Book Chapter, *C-MEMS Handbook*, Momentum Press, March 2015.

- Kassegne, S., Wibowo, D., Chi, J., Ramesh, V., Narenji, A., Khosla, A. and Mokili, J. AC electrical characterisation and insight to charge transfer mechanisms in DNA molecular wires through temperature and UV effects. IET Nanobiotechnol. 2015 Jun;9(3):153-63. doi: 10.1049/iet-nbt.2014.0044.

2016

- Vomero, M., van Niekerk, P., Nguyen, V., Gong, N., Hirabayashi, M., Cinopri, A., Logan, K., Moghadasi, A., Varma, P. and Kassegne, S. A novel pattern transfer technique for mounting glassy carbon microelectrodes on polymeric flexible substrates. J Micromech Microengineering, Vol 26(2), 2016.
- Kassegne, S., Vomero, M., van Niekerk and Hirabayashi, M. Glassy carbon microelectrodes for neural signal sensing and stimulation. In Carbon: The Next Silicon. Book 2-Applications, edited by M.J. Madou, V.H. Perez-Gonzalez and B. Pramanick, New York: Momentum Press, LLC., pages 101-122, 2016.
- Goshi, N., Vomero, M., Dryg, I., Seidman, S. and Kassegne, S. Modeling and characterization of tissue/electrode interface in capacitive μ ECOG glassy carbon electrodes. 229th ECS Meeting, San Diego, CA, May 31, 2016.
- Hirabayashi, M., Kassegne, S., Ievins, A., Huynh, N.U., Witsell, S. and Seidman, S. Notes on neuroplasticity investigation using coupled electrical and electrochemical sensing through carbon electrodes. 229th ECS Meeting, San Diego, CA, May 31, 2016.
- Vomero, M., Dryg, I., Maxfield, T., Shain, W., Perlmutter, S. and Kassegne, S. *In-vivo* characterization of glassy carbon μ -electrodes and histological analysis of brain tissue after chronic implants. 229th ECS Meeting, San Diego, CA, May 31, 2016.
- Golkar Narenji, A., Goshi, N., Coste, M., Burns, D., Lee, R., Ngo, K., Purse, B., and Kassegne, S. Electrochemical characterization of synthetic hybrid DNA molecular wires. 229th ECS Meeting, San Diego, CA, May 31, 2016.

2017

- Vomero, M., Castagnola, E., Ciarpella, F., Maggiolini, E., Goshi, N., Zucchini, E., Carli, S., Fadiga, L., Kassegne, S. and Ricci, D. Highly stable glassy carbon interfaces for long-term neural stimulation and low-noise recording of brain activity. Sci. Rep. 7, 40332; doi: 10.1038/srep40332 (2017).
- Hirabayashi, M., Huynh, N.U., Witsell, S., Perez Jr., A., Sandoval, L., Yamada, N. and Kassegne, S. In-vitro real-time coupled electrophysiological and electrochemical signals detection with glassy carbon microelectrodes. J. Electrochem Soc. 164 (5) B3113-B3121 (2017) B3113.
- Vomero, M., Castagnola, E., Ordonez, J.S., Carli, S., Zucchini, E., Maggiolini, E., Gueli, C., Goshi, N., Fadiga, L., Ricci, D., Kassegne, S. and Stieglitz, T. Improved long-term stability of thin-film glassy carbon electrodes through the use of silicon carbide and amorphous carbon, 8th International IEEE EMBS Conference on Neural Engineering, Shanghai, China, May 25-28, 2017.
- Castagnola, E., Carli, S., Vomero, M., Scarpellini, A., Prato, M., Goshi, N., Fadiga, L., Kassegne, S. and Ricciless, D. Multilayer poly(3,4-ethylenedioxythiophene)-dexamethasone and poly(3,4-ethylenedioxythiophene)-polystyrene sulfonate-carbon nanotubes coatings on glassy carbon microelectrode arrays for controlled drug release, Biointerphases 12, 031002 (2017); <http://doi.org/10.1116/1.4993140>
- Vomero, M., Castagnola, E., Ordonez, J.S., Carli, S., Zucchini, E., Maggiolini, E., Gueli, C., Goshi, N., Ciarpella, F., Cea, C., Fadiga, L., Ricci, D., Kassegne, S., and Stieglitz, T. Incorporation of silicon carbide and diamond-like

carbon as adhesion promoters improves in vitro and in vivo stability of thin-film glassy carbon electrocorticography arrays, *Adv. Biosys.* 2017, <https://doi.org/10.1002/adbi.201700081>

2018

- Castagnola, E., Winchester Vahidi, N., Nimbalkar, S., Rudraraju, S., Thielk, M., Zucchini, E., Cea, C., Carli, S., Gentner, T.Q, Ricci, D., Fadiga, L and Kassegne, S. *In vivo* dopamine detection and single unit recordings using intracortical glassy carbon microelectrode arrays. *MRS Advances*, 1-6. doi:10.1557/adv.2018.98, 2018.
- Goshi, N., Castagnola, E., Vomero, M., Gueli, C., Cea, C., Zucchini, E., Bjanes, D., Maggiolini, E., Moritz, C. and Kassegne, S. Glassy carbon MEMS for novel origami-styled 3D integrated intracortical and epicortical neural probes. *Journal of Micromechanics and Microengineering*, in press.
- Nimbalkar, S., Castagnola, E., Balasubramani, A., Scarpellini, A., Samejima, S., Khorasani, A., Boissenin, A., Thongpang, S., Moritz, C. and Kassegne, S. Ultra-capacitive carbon neural probe allows simultaneous long-term electrical stimulations and high-resolution neurotransmitter detection, *Scientific Reports*, 8: 6958 (2018), doi:10.1038/s41598-018-25198-x

2019

- Burks, R., Walker, Z., O'Neill, C. and Kassegne, S. Microfabrication of multi-layer glassy carbon microstructures through dye-doped negative photoresists, *J Micromechanics and Microengineering*, <http://iopscience.iop.org/10.1088/1361-6439/ab483d>

2020

- Huynh, N.U., Kassegne, S. and Youssef, G. Comparative study of tuning of microfabrication parameters for improving electrochemical performance of platinum and glassy carbon microelectrodes in neural prosthetics. *Microsyst Technol* 26, 775–785, 2020.
- Vahidi, N.W., Rudraraju, S., Castagnola, E., Cea, C., Nimbalkar, S., Hanna, R., Arvizu, R., Dayeh, S.A., Gentner, T.Q. and Kassegne, S. Epi-Intra neural probes with glassy carbon microelectrodes help elucidate neural coding and stimulus encoding in 3D volume of tissue, *J. Neural Eng.*, 2020 *J. Neural Eng.* 17 046005.

2021

- Amirghasemi, F. and Kassegne, S. Effects of RF magnetron sputtering deposition power on crystallinity and thermoelectric properties of antimony telluride and bismuth telluride thin films on flexible substrates. *J. Elec Materi* (2021). <https://doi.org/10.1007/s11664-020-08681-y>
- Castagnola, E., Thongpang, S., Hirabayashi, M., Nava, G., Nimbalkar, S., Nguyen, T., Lara, S., Oyawale, A., Bunnell, J., Moritz, C. and Kassegne S. Glassy carbon microelectrode arrays enable voltage-peak separated simultaneous detection of dopamine and serotonin using fast scan cyclic voltammetry. *Analyst*. 2021 May 14. doi: 10.1039/d1an00425e. Epub ahead of print. PMID: 33988202.
- Montgomery-Walsh, R., Nimbalkar, S., Bunnell, J., Galindo, S.L., and Kassegne, S. Molecular dynamics simulation of evolution of nanostructures and functional groups in glassy carbon under pyrolysis, *Carbon*, 184: 627-640, 2021.

- Nimbalkar, S.R., Samejima, S., Dang, V., Hunt, T., Nunez, O., Moritz, C. and Kassegne, S., Graphene on glassy carbon microelectrodes demonstrate long-term structural and functional stability in neurophysiological recording and stimulation. *Journal of Neural Engineering*, 2021 Sep 22;18(5). doi: 10.1088/1741-2552/ac245a.
- Devi, M., Vomero, M., Fuhrer, E., Castagnola, E., Gueli, C., Nimbalkar, S., Hirabayashi, M., Kassegne, S., Stieglitz, T. and Sharma, S., Carbon-based neural electrodes: promises and challenges, *J. Neural Eng.* 18 041007, 2021.

Eran Klein

2013

- Klein, E.P. The ability to consent to Parkinson disease research. *Neurology*, 81: e62-e64, 2013.
- Klein, E.P. and Kaye, J. Dementia specialists and early adoption of amyloid imaging. *J Alzheimers Dis.*, 33:445-450, 2013.
- Klein, E.P. and Bourdette, D. Postmarketing adverse drug reactions: A duty to report? *Neurology: Clinical Practice*, 3:288–294, 2013.
- Solomon, A. and Klein, E.P. Disclosing a misdiagnosis of multiple sclerosis: Do no harm? *Continuum: Lifelong Learning in Neurology*, 19:1087-1091, 2013.

2014

- Klein, E.P. Patient health incentives: ethical challenges and frameworks. *Int J Behav Med.*, 21:995-1004, 2014.

2015

- Solomon A.J., Klein, E.P., Corboy, J.R. and Bernat, J.L. Patient perspectives on physician conflict of interest in industry-sponsored clinical trials for multiple sclerosis therapeutics. *Mult Scler.*, 2015 Oct;21(12):1593-9. doi: 10.1177/1352458515569101. Epub 2015 Feb 25.
- Klein, E., Brown, T., Sample, M., Truitt, A.R. and Goering, S. Engineering the brain: Ethical issues and the introduction of neural devices. *Hastings Center Report* 45, 6: 26-35, 2015
- Klein, E. Are brain-computer interface devices (BCI) a form of internal coercion? *AJOB Neuroscience* 6(4): 32-34, 2015.
- Klein, E. Models of the patient-machine-clinician relationship in closed-loop machine neuromodulation. *Machine Medical Ethics*, 273–290, 2015.

2016

- Klein, E., Solomon, A.J., Corboy, J. and Bernat, J. Physician compensation for industry-sponsored clinical trials in multiple sclerosis influences patient trust. *Multiple Sclerosis and Related Disorders*, 8:4-8, 2016
- Klein, E. and Ojemann, J. Informed consent in implantable BCI research: identification of research risks and recommendations for development of best practices. *Journal of Neural Engineering*, 2016 Aug;13(4):043001. doi: 10.1088/1741-2560/13/4/043001. Epub 2016 Jun 1.

- Klein, E., Goering, S., Gagne, J., Shea, C.V., Franklind, R., Zorowitz, S., Dougherty, D.D. and Widge, A.S. Brain-computer interface-based control of closed-loop brain stimulation: attitudes and ethical considerations. *Brain-Computer Interfaces*, 2016, <http://dx.doi.org/10.1080/2326263X.2016.1207497>
- Klein, E. and Nam, C.S. Neuroethics and brain-computer interfaces. *Brain-Computer Interfaces*, 3:123-125, 2016.
- Klein, E. Informed consent in implantable BCI research: Identifying risks and exploring meaning. *Science and Engineering Ethics*. 5:1299-1317, 2016.

2017

- Klein, E. Neuromodulation ethics: Preparing for brain-computer interface medicine, in *Neuroethics. Anticipating the Future*, edited by Judy Illes, Oxford: Oxford University Press, pp. 123-143, 2017.
- Klein, E. Who invited the clinical neuroethicist?, *Journal of Hospital Ethics*, 4:60-64, 2017.
- Klein, E. and Pratt, K. Helping or hacking? Engineers and ethicists must work together on brain-computer interface technology, *The Conversation*, June 13, 2017, <http://theconversation.com/helping-or-hacking-engineers-and-ethicists-must-work-together-on-brain-computer-interface-technology-77759>.

2018

- Pham, M., Goering, S., Sample, M., Huggins, J.E. and Klein, E. Asilomar survey: researcher perspectives on ethical principles and guidelines for BCI research, *Brain-Computer Interfaces*, DOI: 10.1080/2326263X.2018.1530010, 2018.

2019

- Klein, E. Informed consent for next generation DBS in psychiatric research: Engaging end users to understand risks and improve practice in *Research Involving Participants with Cognitive Disabilities and Differences: Ethics, Autonomy, Inclusion, and Innovation*, eds Racine, E and Cascio, A., Oxford: Oxford University Press. 149-160, 2019.

2020

- Naufel, S. and Klein, E. Brain-computer interface (BCI) researcher perspectives on neural data ownership and privacy, *J. Neural Eng.*, 17 016039, 2020.
- Naufel, S. and Klein, E. Citizen neuroscience: Brain-computer interface researcher perspectives on Do-It-Yourself brain research. *Sci Eng Ethics*, 26:2769-2790, 2020.
- Versalovic, E, Diamond, M, and Klein, E. "Re-identifying yourself": A qualitative study of veteran views on implantable BCI for mobility and communication in ALS. *Disability and Rehabilitation: Assistive Technology*, 2020 PMID: 32940119. DOI: 10.1080/17483107.2020.1817991
- Versalovic, E. and Klein, E. "Who Will I Be?": Relational identity, living with ALS, and future-oriented decision-making. *Cambridge Quarterly of Healthcare Ethics*. 4:617-29, 2020. PMID: 32892772. DOI: 10.1017/S0963180120000365

2021

- MacDuffie, K.E., Ransom, S. and Klein, E. (2021) Neuroethics inside and out: A comparative survey of neural device industry representatives and the general public on ethical issues and principles in neurotechnology. *AJOB Neuroscience*, DOI: 10.1080/21507740.2021.1896596

2022

- Klein, E. Relational autonomy and the clinical relationship in dementia care. *Theor Med Bioeth* (2022). <https://doi.org/10.1007/s11017-022-09580-5>.
- Schönau, A., Goering, S., Versalovic, E., Montes, N., Brown, T., Dasgupta, I. and Klein E. Asking questions that matter - Question prompt lists as tools for improving the consent process for neurotechnology clinical trials. *Front Hum Neurosci*. 2022 Jul 29;16:983226. doi: 10.3389/fnhum.2022.983226. PMID.
- Vansteensel, M.J., Klein, E., van Thiel, G. et al. Towards clinical application of implantable brain–computer interfaces for people with late-stage ALS: medical and ethical considerations. *J Neurol* (2022). <https://doi.org/10.1007/s00415-022-11464-6>.

Andrew Ko

2018

- Kuo, C-H., White-Dzuro, G.A. and Ko, A.L. Approaches to closed-loop deep brain stimulation for movement disorders. *Neurosurgical Focus*, 45 (2): E2, 2018, DOI: 10.3171/2018.5.FOCUS18173.

2022

- Jecker, N.S. and Ko, A. Brain-computer interfaces could allow soldiers to control weapons with their thoughts and turn off their fear – but the ethics of neurotechnology lags behind the science. *The Conversation*, December 2, 2022.

Nathan Kutz

2017

- Morrison, M., Maia, P.D. and Kutz, J.N. Preventing neurodegenerative memory loss in Hopfield neuronal networks using cerebral organoids or external microelectronics, *Computational and Mathematical Methods in Medicine*, Article ID 6102494, 13 pages, 2017. doi:10.1155/2017/6102494

Jeffery Lang

2011

- Fernandez, V.I., Dusek, J., Schulmeister, J., Maertens, A., Hou, S., Srivatsa, K., Dahl, J, Lang, J.H. and Triantafyllou, M.S. Pressure sensor arrays to optimize high-speed performance of ocean vehicles. *Proceedings: 11th International Conference of Fast Sea Transportation (FAST 2011)*, 1-8, Honolulu, HI, September 26-29, 2011.

2012

- Murarka, A., Paydavosi, S., Andrew, T.L., Wang, A.I., Lang, J.H. and Bulovic, V. Printed MEMS membranes on silicon. *Proceedings: IEEE Workshop on Micro Electro Mechanical Systems*, 309-312, Paris, France, January 29 - February 2, 2012.

- Yaul, F.M., Bulovic, V. and Lang, J.H. A flexible underwater pressure sensor array using a conductive elastomer strain gauge. Proceedings: IEEE Workshop on Micro Electro Mechanical Systems, 500-503, Paris, France, January 29 - February 2, 2012.
- Yaul, F.M., Bulovic, V. and Lang, J.H. A flexible underwater pressure sensor array using a conductive elastomer strain gauge. IEEE/ASME Journal of Microelectromechanical Systems, 21:897-907, 2012.
- Dusek, J., Kottapalli, A.G.P., Asadnia, M., Woo, M.E., Triantafyllou, M., Lang, J.H., Miao, J. Development and testing of bio-inspired MEMS pressure sensor arrays for increased situational awareness by marine vehicles. Smart Mater. Struct. 22 (2013) 014002, doi:10.1088/0964-1726/22/1/014002.

2014

- Niroui, F., Deotare, P.B., Sletten, E.M., Wang, A.I., Yablonovitch, E., Swager, T.M., Lang, J.H. and Bulovic, V. Nanoelectromechanical tunneling switches based on self-assembled molecular layers. 2014 IEEE 27th International Conference on Micro Electro Mechanical Systems (MEMS), 2014: 1103-1106.
- Wang, A., Chang, W., Murarka, A., Lang, J.H. and Bulovic, V. Transfer-printed composite membranes for electrically-tunable organic optical microcavities. 2014 IEEE 27th International Conference on Micro Electro Mechanical Systems (MEMS), 2014: 1217 – 1220.
- Chen, M., Araghchini, M., Afridi, K.K., Lang, J.H., Sullivan, C.R. and Perreault, D.J. A systematic approach to modeling impedances and current distribution in planar magnetics. 2014 IEEE 15th Workshop on Control and Modeling for Power Electronics (COMPEL), 2014: 1-17.
- Dusek, J., Triantafyllou, M.S., Woo, M.E. and Lang, J.H. Carbon black - PDMS composite conformal pressure sensor arrays for near-body flow detection. Proceedings: IEEE/MTS Oceans Conference, 1-7, Taipei, Taiwan, April 7-10, 2014; also online publication doi:10.1109/OCEANS-TAIPEI.2014.6964479
- Murarka, A., Wang, A.I., Jean, J., Lang, J.H. and Bulovic, V. Printed MEMS membrane electrostatic microspeakers. Proceedings: Solid-State Sensors, Actuators and Microsystems Workshop, 311-314, Hilton Head Island, SC, June 8-12, 2014.

2015

- Niroui, F., Wang, A.I., Sletten, E.M., Song, Y., Kong, J., Yablonovitch, E., Swager, T.M., Lang, J.H., and Bulović, V. Tunneling nanoelectromechanical switches based on compressible molecular thin films. ACS Nano, 9:7886–7894, 2015.
- Niroui, F., Sletten, E.M., Deotare, P.B., Wang, A.I., Swager, T.M., Lang, J.H. and Bulovic, V. Controlled fabrication of nanoscale gaps using stiction. Proceedings: IEEE MEMS Workshop, Online publication doi: 10.1109/MEMSYS.2015.7050892}, Estoril, Portugal, January 18-22, 2015.
- Chang, W., Murarka, A., Wang, A., Bulovic, V. and Lang, J.H. Electrically tunable organic vertical-cavity surface-emitting laser. Proceedings: CLEO 2015; Online publication doi: 10.1364/CLEOSI.2015.SW1F.8, San Jose, CA, May 10-15, 2015.
- Niroui, F., Sletten, E.M., Song, Y., Kong, J., Swager, T.M., Lang, J.H. and Bulovic, V. Tunneling nano-electromechanical switches. Proceedings: 4th Berkeley Symposium on Energy Efficient Electronic Systems, Online publication {doi: 10.1109/E3S.2015.7336790}, Berkeley, CA, October 1-2, 2015.

- Ong, W.J., Sletten, E.M., Niroui, F., Lang, J.H., Bulovic, V. and Swager, T.M. Electromechanically actuating molecules. Proceedings: 4th Berkeley Symposium on Energy Efficient Electronic Systems, Online publication doi: 10.1109/E3S.2015.7336809, Berkeley, CA, October 1-2, 2015.

2016

- Murarka, A., Lang, J.H. and Bulovic, V. Printed membrane electrostatic MEMS microspeakers. Proceedings: IEEE MEMS Workshop, Shanghai, China, January 24-28, January 2016.
- D'Asaro, M.E., Sheen, D.B. and Lang, J.H. Thin flexible and stretchable tactile sensor based on a deformable microwave transmission line. Proceedings: Hilton Head Sensors, Actuators and Microsystems Workshop, 278--281, Hilton Head, SC, June 5-9, 2016.
- D'Asaro, M.E., Sheen, D.B. and Lang, J.H. A fully-shielded flexible and stretchable microwave transmission-line tactile pressure sensor. Proceedings: Sensors Conference, 144-146, Orlando, FL, October 30 - November 2, 2016.

2017

- D'Asaro, M.E., Otten, M.S., Chen, S. and Lang, J.H. Multi-dimensional characterization of piezoresistive carbon black silicon rubber composites. Applied Polymer Science, January 6, 2017, DOI: 10.1002/app.44773

Karen May-Newman

2012

- May-Newman, K. and Cornwall, G.B. Teaching medical device design using design control. Expert Rev Med Devices, 9:7-14, 2012.

Kee Moon

2012

- Moon, K.S., Morsi, K., Kassegne, S.K. and Lee, S.Q. Mechanical vibration induced electrospinning of polyvinylidene difluoride. SPIE paper 8342-8380, SPIE Smart Structures/NDE, San Diego, California, USA, March 11-15, 2012.

2013

- Numula, A., El-Desouky, A., Moon, K.S., Kassegne, S.K. and Morsi, K. Reactive current activated tip-based sintering of Ni-Al intermetallics. Metallography, Microstructure, and Analysis 2:148–155, 2013.
- El Desouky, A., Moon, K.S., Kassegne, S.K. and Morsi, K. Green compact temperature evolution during current-activated tip-based sintering (CATS) of nickel. Metals, 3:178-187, 2013.
- El Desouky, A., Kassegne, S., Moon, K.S., McKittrick, J. and Morsi, K. Rapid processing and characterization of micro-scale functionally graded porous materials. J. Materials Processing Technol., 213:1251-1257, 2013.

2014

- Lee, S.Q., Youm, W., Hwang, G., Moon, K.S. and Ozturk, Y. Resonant ultrasonic wireless power transmission for bio-implants. Proc. SPIE 9057, Active and Passive Smart Structures and Integrated Systems 2014, 90570J (10 March 2014); doi:10.1117/12.2046600
- Zhao, S., Ozturk, Y. and Moon, K.S. Wireless photoplethysmograph knuckle sensor system for measuring finger motions. Proceedings of International Symposium on Optomechanronic Technologies, Seattle, Washington, USA, November 5-7, pp. 205-209, 2014.

Samira Moorjani

2016

- Moorjani, S. Miniaturized technologies for enhancement of motor plasticity. Front. Bioeng. Biotechnol., 4:1-13, 2016.

2020

- Moorjani, S., McPherson, J.G. and Perlmutter S.I. (2020) Electrical Conditioning for Spike-Timing-Dependent Plasticity of Neural Circuits. In: Jaeger D., Jung R. (eds) Encyclopedia of Computational Neuroscience. Springer, New York, NY.

2022

- Moorjani, S., Walvekar, S., Fetz, E.E., and Perlmutter, S.I. Movement-dependent electrical stimulation for volitional strengthening of cortical connections in behaving monkeys. Proc Natl Acad Sci U S A. 2022 Jul 5;119(27):e2116321119. doi: 10.1073/pnas.2116321119. Epub 2022 Jun 27. PMID: 35759657; PMCID: PMC9271159.

Chet Moritz

2012

- Matlack, C., Moritz, C. and Chizeck, H. Applying best practices from digital control systems to BMI implementation. Conf Proc IEEE Eng Med Biol Soc. 2012:1699-1702, Aug, 2012.
- Matlack, C., Chizeck, H.J. and Moritz, C.T. Improving BMI performance metrics via ensemble chance simulations and Fitts' Law. DARPA RE-NET PI Meeting, New Orleans, Nov 12-14, 2012.

2013

- Sunshine, M.D., Cho, F.S., Lockwood, D.F., Fechko, A.S., Kasten, M.R., and Moritz, C.T. Cervical intraspinal stimulation evokes robust forelimb movements before and after injury. Journal of Neural Engineering, 10:036001, 2013.
- Rios, D.C., Gilbertson, T., McCoy, S.W., Price, R., Gutman, K., Miller, K.E.F. and Moritz, C.T. NeuroGame therapy to improve wrist control in children with cerebral palsy: A case series. Devel. Neurorehab., 16:398-409, 2013.
- Kasten, M.R., Sunshine, M.D., Secrist, E.S., Horner, P.J. and Moritz, C.T. Therapeutic intraspinal microstimulation improves forelimb function after cervical contusion injury. J. Neural Eng., 10:044001, 2013.

- Nutt, S.E., Chang, E.A., Suhr, S.T., Schlosser, L.O., Mondello, S.E., Moritz C.T., Cibelli, J.B. and Horner, P.J. Caudalized human iPSC-derived neural progenitor cells produce neurons and glia but fail to restore function in an early chronic spinal cord injury model. *Exp Neurol.*, 248:491-503, 2013.

2014

- Mehić, E., Xu, J.M., Caler, C.J., Coulson, N.K., Moritz, C.T. and Mourad, P.D. Increased anatomical specificity of neuromodulation via modulated focused ultrasound. *PLoS One*, 9:e86939, 2014.
- Mondello, S.E., Kasten, M.R., Horner, P.J, and Moritz, C.T. Therapeutic intraspinal stimulation to generate activity and promote long-term recovery. *Front Neurosci.*, 8:21, 2014.
- Widge, A.S. and Moritz, C.T. Pre-frontal control of closed-loop limbic neurostimulation by rodents using a brain-computer interface. *J Neural Eng.*, 11:024001, 2014.
- Donoso Brown, E.V., Westcott McCoy, S., Fechko, A.S., Price, R., Gilbertson, T. and Moritz, C.T. A preliminary investigation of an electromyography-controlled video game as a home program for persons in the chronic phase of stroke recovery. *Arch Phys Med Rehabil.*, 95:1461-1469, 2014.
- Widge, A.S., Dougherty, D.D. and Moritz, C.T. Affective brain-computer interfaces as enabling technology for responsive psychiatric stimulation. *Brain Comput Interfaces (Abingdon)*. 1:126-136, 2004.

2015

- Donoso Brown, E.V., Dudgeon, B.J., Gutman, K., Moritz, C.T., McCoy, S.W. Understanding upper extremity home programs and the use of gaming technology for persons after stroke. *Disabil Health J.*, 8:507-513, 2015.
- Mondello, S.E., Sunshine, M.D., Fishedick, A.E., Moritz, C.T., Horner, P.J. A cervical hemi-contusion spinal cord injury model for the investigation of novel therapeutics targeting proximal and distal forelimb functional recovery. *J Neurotrauma*. 2015 May 1.
- Kasten, M R., Ievins, A.M., and Moritz, C.T. (January 2015). Neural prostheses. In: eLS. John Wiley and Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0024011
- Milovanovic, I., Robinson, R., Fetz, E.E. and Moritz, C.T. Simultaneous and independent control of a brain-computer interface and contralateral limb movement, *Brain-Computer Interfaces*, 2015, <http://dx.doi.org/10.1080/2326263X.2015.1080961>.

2016

- Moritz, C.T., Ruther, P., Goering, S., Stett, A., Ball, T., Burgard, W., Chudler, E.H. and Rao, R.P.N. New perspectives on neuroengineering and neurotechnologies: NSF-DFG workshop report. *IEEE Transactions on Biomedical Engineering*, 7:1354-1367, 2016.

2017

- Lansdell, B., Milovanovic, I., Mellema, C., Fetz, E.E., Fairhall, A.L. and Moritz, C.T. Reconfiguring motor circuits for a joint manual and BCI task, *Neurons and Cognition (q-bio.NC)*, arXiv:1702.07368, 2017.
- Moritz, C.T., and Ambrosio, F. Regenerative rehabilitation: Combining stem cell therapies and activity-dependent stimulation, *Pediatric Physical Therapy*. 29:S10–S15, 2017.

■ Bjanes, D.A. and Moritz, C.T. Automated center-out rodent behavioral trainer (ACRoBaT), an automated device for training rats to perform a modified center out task, *Behav Brain Res.* 2017 Nov 28. pii: S0166-4328(17)31466-3. doi: 10.1016/j.bbr.2017.11.031.

■ levins, A. and Moritz, C.T. Therapeutic stimulation for restoration of function after spinal cord injury, *Physiology*, 32:391-398, 2017.

2018

■ Sunshine, M.D., Ganji, C.N., Reier, P.J., Fuller, D.D. and Moritz, C.T. Intraspinal microstimulation for respiratory muscle activation. *Exp Neurol.* 2018 Jan 2. pii: S0014-4886(17)30349-7. doi: 10.1016/j.expneurol.2017.12.014.

■ Mondello, S.E., Sunshine, M.D., Fishedick, A.E., Dreyer, S.J., Horwitz, G.D., Anikeeva, P., Horner, P.J. and Moritz, C.T. Optogenetic surface stimulation of the rat cervical spinal cord. *J Neurophysiol.* 120:795-811, 2018, doi: 10.1152/jn.00461.2017.

■ Inanici, F., Samejima, S., Gad, P., Edgerton, V.R., Hofstetter, C.P. and Moritz, C.T. Transcutaneous electrical spinal stimulation promotes long-term recovery of upper extremity function in chronic tetraplegia. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 26:1272-1278, 2018.

■ Moritz, C.T. Now is the critical time for engineered neuroplasticity. *Neurotherapeutics*, 15:628-634, 2018.

2019

■ Bjånes, D.A. and Moritz, C.T. A robust encoding scheme for delivering artificial sensory information via direct brain stimulation, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 27:1994-2004, 2019.

■ Ereifej, E.S., Shell, C., Schofield, J.S., Charkhkar, H., Cuberovic, I., Dorval, A.C., Graczyk, E.L., Kozai, T.D.Y., Otto, K.J., Tyler, D.J., Welle, C.G., Widge, A.S., Zariffa, J., Moritz, C., Bourbeau, D. and Marasco, P. Neural engineering: the process, applications, and its role in the future of medicine, *J. Neural Eng.*, 2019, 16 063002.

■ Lansdell, B., Milovanovic, I., Mellemam C., Fetz, E.E., Fairhall, A.L and Moritz, C.T. Reconfiguring motor circuits for a joint manual and BCI task. *IEEE Trans Neural Syst Rehabil Eng.* 2019 Sep 27.

■ Sunshine, M.D., Ganji, C.N., Fuller, D.D. and Moritz, C.T. Respiratory resetting elicited by single pulse spinal stimulation, *Respir Physiol Neurobiol.* 2019 Nov 14;:103339

■ Ereifej, E.S., Shell, C.E., Schofield, J.S., Charkhkar, H., Cuberovic, I., Dorval, A.D., Graczyk, E.L., Kozai, T.D.Y., Otto, K.J., Tyler, D.J., Welle, C.G., Widge, A.S., Zariffa, J., Moritz, C.T., Bourbeau, D.J., and Marasco, P.D. Neural engineering: the process, applications, and its role in the future of medicine, *J. Neural Engineering*, Volume 16, Number 6, December, 2019.

■ Ranganathan, V., Nakahara, J., Samejima, S., Tolley, N., Khorasani, A., Moritz, C. and Smith, J.R. NeuralCLIP: A modular FPGA-based neural interface for closed-loop operation. 9th International IEEE EMBS Neural Engineering Conference. San Francisco, CA. March 20-23, 2019.

2021

- Inanici, F., Brighton, L.N., Samejima, S., Hofstetter, C.P. and Moritz, C.T. Transcutaneous spinal cord stimulation restores hand and arm function after spinal cord injury. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 29, pp. 310-319, 2021, doi: 10.1109/TNSRE.2021.3049133.
- Mondello, S.E., Pedigo, B.D., Sunshine, M.D., Fishedick, A.E., Horner, P.J. and Moritz, C.T. A micro-LED implant and technique for optogenetic stimulation of the rat spinal cord. *Experimental Neurology*. Volume 335, 2021, 113480, ISSN 0014-4886, <https://doi.org/10.1016/j.expneurol.2020.113480>.
- Khorasani, A., Samejima, S., Shalchyan, V., Daliri, M.R. and Moritz, C. Combining generalized Eigenvalue decomposing with Laplacian filtering to improve cortical decoding performance, 2021 10th International IEEE/EMBS Conference on Neural Engineering (NER), 2021, pp. 1140-1143, doi: 10.1109/NER49283.2021.9441165.
- Samejima, S., Khorasani, A., Ranganathan, V., Nakahara, J., Tolley, N.M., Boissenin, A., Shalchyan, V., Reza Daliri, M., Smith, J.R. and Moritz, C.T. Brain-computer-spinal interface restores upper limb function after spinal cord injury. *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*, 29:1233-1242, 2021.

2022

- Samejima, S., Henderson, R., Pradarelli, J., Mondello, S.E. and Moritz, C.T. Activity-dependent plasticity and spinal cord stimulation for motor recovery following spinal cord injury. *Exp Neurol*. 357, 2022, 114178, ISSN 0014-4886, <https://doi.org/10.1016/j.expneurol.2022.114178>.
- Samejima, S., Caskey, C.D., Inanici, F., Shrivastav, S.R., Brighton, L.N., Pradarelli, J., Martinez, V., Steele, K.M., Saigal, R. and Moritz CT. Multisite transcutaneous spinal stimulation for walking and autonomic recovery in motor-incomplete tetraplegia: A single-subject design. *Phys Ther*. 2022 Jan 1;102(1):pzab228. doi: 10.1093/ptj/pzab228. PMID: 35076067; PMCID: PMC8788019.
- Samejima, S., levins, A.M., Boissenin, A., Tolley, N.M., Khorasani, A., Mondello, S.E. and Moritz, C.T. Automated lever task with minimum antigravity movement for rats with cervical spinal cord injury. *J Neurosci Methods*. 2022 Jan 15;366:109433. doi: 10.1016/j.jneumeth.2021.109433. Epub 2021 Dec 1. PMID: 34863839.

2023

- Samejima, S., Shackleton, C., Miller, T., Moritz, C.T., Kessler, T.M., Krogh, K., Sachdeva, R. and Krassioukov, A.V. Mapping the iceberg of autonomic recovery: Mechanistic underpinnings of neuromodulation following spinal cord injury. *Neuroscientist*. 2023 Jan 11:10738584221145570. doi: 10.1177/10738584221145570.

Khaled Morsi

2012

- Morsi, K. The diversity of combustion synthesis processing: A review. *Journal of Materials Science*, invited paper, part of the Journal's 45th Anniversary reviews. 47:68-92, 2012.

Jeff Ojemann

2011

- Wray, C.D., Kraemer, D.L., Yang, T., Poliachik, S.L., Ko, A.L., Poliakov, A., Hebb, A.O., Novotny, E.J. and Ojemann, J.G. Freehand placement of depth electrodes using electromagnetic frameless stereotactic guidance. *J Neurosurg Pediatr.*, 8:464-467, 2011.

2012

- Yang, T., Temkin, N., Barber, J., Geyer, J.R., Leary, S., Browd, S., Ojemann, J.G. and Ellenbogen, R.G. Gross-total resection correlates with long-term survival in pediatric patients with glioblastoma. *World Neurosurg.*, 79:537-544, 2013.
- Miller, K.J., Hermes, D., Honey, C.J., Hebb, A.O., Ramsey, N.F., Knight, R.T. and Ojemann, J.G., Fetz, E.E. Human motor cortical activity is selectively phase-entrained on underlying rhythms. *PLoS Comput Biol.*, 8:e1002655, 2012.
- Ojemann, J.G., Hersonskey, T.Y., Abeshaus, S., Geyer, J.R., Saneto, R.P., Novotny, E.J., Kollros, P., Leary, S. and Holmes, M.D. Epilepsy surgery after treatment of pediatric malignant brain tumors. *Seizure*, 21:624-630, 2012.
- Solovey, G., Miller, K.J., Ojemann, J.G., Magnasco, M.O. and Cecchi, G.A. Self-regulated dynamical criticality in human ECoG. *Front Integr Neurosci.*, 6:44, 2012.
- Drane, D.L., Ojemann, J.G., Phatak, V., Loring, D.W., Gross, R.E., Hebb, A.O., Silbergeld, D.L., Miller, J.W., Voets, N.L., Saindane, A.M., Barsalou, L., Meador, K.J., Ojemann, G.A. and Tranel, D. Famous face identification in temporal lobe epilepsy: Support for a multimodal integration model of semantic memory. *Cortex*, 49:1648-1667, 2013.
- Drane, D.L., Roraback-Carson, J., Hebb, A.O., Hersonskey, T., Lucas, T., Ojemann, G.A., Lettich, E., Silbergeld, D.L., Miller, J.W. and Ojemann, J.G. Cortical stimulation mapping and Wada results demonstrate a normal variant of right hemisphere language organization. *Epilepsia*, 53:1790-1798, 2012.
- Levitt, M.R., O'Neill, B.R., Ishak, G.E., Khanna, P.C., Temkin, N.R., Ellenbogen, R.G., Ojemann, J.G. and Browd, S.R. Image-guided cerebrospinal fluid shunting in children: catheter accuracy and shunt survival. *J Neurosurg Pediatr.*, 10:112-117, 2012.
- Wray, C.D., Blakely, T.M., Poliachik, S.L., Poliakov, A., McDaniel, S.S., Novotny, E.J., Miller, K.J. and Ojemann, J.G. Multimodality localization of the sensorimotor cortex in pediatric patients undergoing epilepsy surgery. *J Neurosurg Pediatr.*, 10:1-6, 2012.
- Wray, C.D., McDaniel, S.S., Saneto, R.P., Novotny, E.J. Jr. and Ojemann, J.G. Is postresective intraoperative electrocorticography predictive of seizure outcomes in children? *J Neurosurg Pediatr.*, 9:546-551, 2012.
- Hatlen, T.J., Shurtleff, D.B., Loeser, J.D., Ojemann, J.G., Avellino, A.M. and Ellenbogen, R.G. Nonprogrammable and programmable cerebrospinal fluid shunt valves: a 5-year study. *J Neurosurg Pediatr.*, 9:462-467, 2012.
- Ishak, G.E., Poliakov, A.V., Poliachik, S.L., Saneto, R.P., Novotny, E.J. Jr., McDaniel, S., Ojemann, J.G., Shaw, D.W. and Friedman, S.D. Tract-based spatial statistical analysis of diffusion tensor imaging in pediatric patients with mitochondrial disease: Widespread reduction in fractional anisotropy of white matter tracts. *AJNR Am J Neuroradiol.*, 33:1726-1730, 2012.
- Levitt, M.R., Niazi, T.N., Hopper, R.A., Ellenbogen, R.G. and Ojemann, J.G. Resolution of syndromic craniosynostosis-associated Chiari malformation Type I without suboccipital decompression after posterior cranial vault release. *J Neurosurg Pediatr.*, 9:111-115, 2012.

- D'Ambrosio, R., Eastman, C.L., Darvas, F., Fender, J.S., Verley, D.R., Farin, F.M., Wilkerson, H.W., Temkin, N.R., Miller, J.W., Ojemann, J., Rothman, S.M. and Smyth, M.D. Mild passive focal cooling prevents epileptic seizures after head injury in rats. *Ann Neurol.*, 73:199-209, 2013.

2013

- Ojemann, G.A., Ojemann, J. and Ramsey, N.F., Relation between functional magnetic resonance imaging (fMRI) and single neuron, local field potential (LFP) and electrocorticography (ECoG) activity in human cortex. *Front Hum Neurosci.*, 7:34, 2013.
- Su, D.K. and Ojemann, J.G. Electrocorticographic sensorimotor mapping. *Clin Neurophysiol.*, 124:1044-1048, 2013.
- Weaver, K.E., Chaovalitwongse, W.A., Novotny, E.J., Poliakov, A., Grabowski, T.J. and Ojemann, J.G. Local functional connectivity as a pre-surgical tool for seizure focus identification in non-lesion, focal epilepsy. *Front Neurol.*, 4:43, 2013.
- Minkina, I., Ojemann, J.G., Grabowski, T.J., Silkes, J.P., Phatak, V. and Kendall, D.L. Treatment of proper name retrieval deficits in an individual with temporal lobe epilepsy. *Am J Speech Lang Pathol.*, 22:S250-255, 2013.
- James, G.A., Tripathi, S.P., Ojemann, J.G., Gross, R.E. and Drane, D.L. Diminished default mode network recruitment of the hippocampus and parahippocampus in temporal lobe epilepsy. *J Neurosurg.*, 119:288-300, 2013.
- Wander, J.D., Blakely, T., Miller, K.J., Weaver, K.E., Johnson, L.A., Olson, F.D., Fetz, E.E., Rao R.P.N. and Ojemann, J.G. Distributed cortical adaptation during learning of a brain-computer interface task. *PNAS* 110:10818-10823, 2013.
- Miller, K.J., Honey, C.J., Hermes, D., Rao, R.P., Dennijs, M. and Ojemann, J.G. Broadband changes in the cortical surface potential track activation of functionally diverse neuronal populations. *Neuroimage*, 85 Pt. 2:711-721, 2014.
- Ko, A.L., Weaver, K.E., Hakimian, S. and Ojemann, J.G. Identifying functional networks using endogenous connectivity in gamma band electrocorticography. *Brain Connect*, 3:491-502, 2013.

2014

- Loring D.W., Gaillard, W.D., Bookheimer, S.Y., Meador, K.J. and Ojemann, J.G. Cortical cartography reveals political and physical maps. *Epilepsia*. 55:633-637, 2014.
- Blakely, T., Ojemann, J.G. and Rao, R.P. Short-time windowed covariance: a metric for identifying non-stationary, event-related covariant cortical sites. *J Neurosci Methods*. 222:24-33, 2014.
- Miller, K.J., Honey, C.J., Hermes, D., Rao, R.P., denNijs, M. and Ojemann, J.G. Broadband changes in the cortical surface potential track activation of functionally diverse neuronal populations. *Neuroimage*. 85 Pt 2:711-720, 2014
- Miller, K.J., Ojemann, J.G. and Henderson, J.M. Instantaneous interactions between brain sites can distinguish movement from rest but are relatively poor at resolving different movement types. *Conf Proc IEEE Eng Med Biol Soc.* 2014 Aug;2014:5200-3. doi: 10.1109/EMBC.2014.6944797.

2015

- Sun, H., Blakely, T.M, Darvas, F., Wander, J.D., Johnson, L.A., Su, D.K., Miller, K.J., Fetz, E.E. and Ojemann, J.G. Sequential activation of premotor, primary somatosensory and primary motor areas in humans during cued finger movements. *Clin Neurophysiol.* 2015 Nov;126(11):2150-61. doi: 10.1016/j.clinph.2015.01.005.
- Miller, K.J., Hermes, D., Witthoft, N., Rao, R.P.N., Ojemann, J.G. The physiology of perception in human temporal lobe is specialized for contextual novelty. *J Neurophysiol.*, May 2015, DOI: 10.1152/jn.00131.2015

2016

- Casimo, K., Darvas, F., Wander, J., Ko, A., Grabowski, T., Novotny, E., Poliakov, A., Ojemann, J. and Weaver, K. Regional patterns of cortical phase synchrony in the resting state. *Brain Connect.* 2016 Mar 28.
- Ojemann, J. Editorial: Noninvasive biomarkers: are we there yet? *J Neurosurg Pediatr.*, 17:1-3, 2016.
- Kellis, S., Sorensen, L., Darvas, F., Sayres, C., O'Neill III, K., Brown, R.B., House, P., Ojemann, J. and Greger, B. Multi-scale analysis of neural activity in humans: Implications for micro-scale electrocorticography. *Clinical Neurophysiology*, 127:591-601, 2016.

2017

- Collins, K.L, Guterstam, A., Cronin, J., Olson, J.D., Ehrsson, H.H. and Ojemann, J.G. Ownership of an artificial limb induced by electrical brain stimulation. *PNAS*, 114 (1) 166-171; 2017, DOI: 10.1073/pnas.1616305114.
- Casimo, K., Weaver, K.E., Wander, J. and Ojemann, J.E. BCI use and its relation to adaptation in cortical networks, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, DOI 10.1109/TNSRE.2017.2681963, 2017.
- Wu, J., Casimo, K., Caldwell, D.J., Rao, R.P.N. and Ojemann, J.G. Electrocorticographic Dynamics Predict Visually Guided Motor Imagery of Grasp Shaping, 8th International IEEE EMBS Conference on Neural Engineering, arXiv:1702.06251, 2017.
- Casimo, K., Levinson, L.H., Zanos, S., Gkogkidis, C.A., Ball, T., Fetz, E., Weaver, K.E. and Ojemann, J.G. An interspecies comparative study of invasive electrophysiological functional connectivity. *Brain Behav.* 2017;e00863. <https://doi.org/10.1002/brb3.863>

2018

- Weaver, K.E., Poliakov, A., Novotny, E.J., Olson, J.D., Grabowski, T.J. and Ojemann, J.G. Electrocorticography and the early maturation of high-frequency suppression within the default mode network, *J. Neurosurg: Pediatrics*, 21:133-140, 2018.
- Guler, S., Dannhauer, M., Roig-Solvas, B., Gkogkidis, A., Macleod, R., Ball, T., Ojemann J.G. and Brooks, D.H. Computationally optimized ECoG stimulation with local safety constraints. *Neuroimage*, 173:35-48, 2018.
- Casimo, K., Grassia, F., Poliachik, S.L., Novotny, E., Poliakov, A. and Ojemann, J.G. Preservation of electrophysiological functional connectivity after partial corpus callosotomy: case report. *J Neurosurg Pediatr.* 2018 May 18:1-6. doi: 10.3171/2018.2.PEDS17549.

- Grassia, F., Poliakov, A.V., Poliachik, S.L., Casimo, K., Friedman, S.D., Shurtleff, H., Giussani, C., Novotny, E.J., Jr., Ojemann, J.G. and Hauptman, J.S. Changes in resting-state connectivity in pediatric temporal lobe epilepsy. *J Neurosurg Pediatr.* 2018 Jun 22:1-6. doi: 10.3171/2018.3.PEDS17701.
- Kuo, C.H., McGrath, L.B., Carnevale, J.A., Marupudi, N.I., Ojemann, J.G., Ellenbogen, R.G. and Wang, A.C. Atypical presentation of giant aneurysm in pediatric patient with Duane Syndrome. *World Neurosurg.*, 116:25-28, 2018.

2019

- Collins, K.L., Sarma, D., Hakimian, S., Tsai, J.J. and Ojemann, J.G. Preserved evoked conscious perception of phosphenes with direct stimulation of deafferented primary visual cortex. *Epilepsy Behav Case Rep.*, 11:84–86, 2019.
- Caldwell, D.J., Cronin, J.A., Wu, J., Weaver, K.E., Ko, A.L., Rao, R.P.N. and Ojemann, J.G. Direct stimulation of somatosensory cortex results in slower reaction times compared to peripheral touch in humans, *Scientific Reports*, 9, Article number: 3292 (2019)
- Guterstam, A., Collins, K.L., Cronin, J.A., Zeberg, H., Darvas, F., Weaver, K.E., Ojemann, J.G. and Ehrsson, H.H. Direct electrophysiological correlates of body ownership in human cerebral cortex, *Cerebral Cortex*, 29:1328-1341, 2019.
- Casimo, K., Madhyastha, T.M., Ko, A., Brown, A.B., Grassia, F., Ojemann, J. and Weaver K. Spontaneous variation in electrocorticographic resting state connectivity. *Brain Connect.* 2019 Apr 19. doi: 10.1089/brain.2018.0596.
- Kuo, C.H., Blakely, T.M., Wander, J.D., Sarma, D., Wu, J., Casimo, K., Weaver, K.E. and Ojemann, J.G. Context-dependent relationship in high-resolution micro-ECOG studies during finger movements. *J Neurosurg.* 2019 Apr 26;:1-9.
- Kogan, M., Caldwell, D.J., Hakimian, S., Weaver, K.E., Ko, A.L. and Ojemann, J.G. Differentiation of epileptic regions from voluntary high-gamma activation via interictal cross-frequency windowed power-power correlation. *J Neurosurg.* 2019 May 10:1-11. doi: 10.3171/2019.2.JNS181991.

2020

- Caldwell, D.J., Cronin, J.A., Rao, R.P.N., Collins, K.L., Weaver, K.E., Ko, A.L., Ojemann, J.G., Kutz, J.N. and Brunton, B.W. Signal recovery from stimulation artifacts in intracranial recordings with dictionary learning, *J. Neural Eng.*, Volume 17, Number 2, 2020, <https://doi.org/10.1088/1741-2552/ab7a4f>
- Unterweger, J., Seeber, M., Zanos, S., Ojemann, J.G. and Scherer, R. ECoG beta suppression and modulation during finger extension and flexion. *Front Neurosci.* 2020 Feb 13;14:35. doi: 10.3389/fnins.2020.00035. eCollection 2020.
- Weaver, K.E., Caldwell, D.J., Cronin, J.A., Kuo, C.-H., Kogan, M., Houston, B., Sanchez, V., Martinez, V., Ojemann, J.G., Rane, S. and Ko, A.L. (2020), Concurrent deep brain stimulation reduces the direct cortical stimulation necessary for motor output. *Mov Disord.* doi:10.1002/mds.28255

2021

- Levinson, L.H., Caldwell, D.J., Cronin, J.A., Houston, B., Perlmutter, S.I., Weaver, K.E., Herron, J.A., Ojemann, J.G. and Ko, A.L. (2021). Intraoperative characterization of subthalamic nucleus-to-cortex evoked potentials in Parkinson's disease deep brain stimulation. *Front. Hum. Neurosci.* 15:590251. doi: 10.3389/fnhum.2021.590251

- Charlebois, C.M., Caldwell, D.J., Rampersad, S.M., Janson, A.P., Ojemann, J.G., Brooks, D.H., MacLeod, R.S., Butson, C.R. and Dorval, A.D. Validating patient-specific finite element models of direct electrocortical stimulation. *Front Neurosci.* 2021 Aug 2;15:691701. doi: 10.3389/fnins.2021.691701. PMID: 34408621

2022

- Kuo, C.H., Casimo, K., Wu, J., Collins, K., Rice, P., Chen, B.W., Yang, S.H., Lo, Y.C., Novotny, E.J., Weaver, K.E., Chen, Y.Y. and Ojemann, J.G. Electrocorticography to investigate age-related brain lateralization on pediatric motor inhibition. *Front Neurol.*, 7;13:747053. doi: 10.3389/fneur.2022.747053. PMID: 35330804; PMCID: PMC8940229.

Jared Olson

2016

- Olson, J.D., Wander, J.D., Johnson, L., Sarma, D., Weaver, K., Novotny, E.J., Ojemann, J.G. and Darvas, F. Comparison of subdural and subgaleal recordings of cortical high-gamma activity in humans. *Clin Neurophysiol.* 127:277–284, 2016.

2017

- Olson, J.D., Wander, J.D. and Darvas, F. Demonstration of motor-related beta and high gamma brain signals in subdermal electroencephalography recordings. *Clin Neurophysiol*, 128: 395–396. 2017.

Amy Orsborn

2020

- Chiang, C-H., Won, S.M., Orsborn, A.L., Yu, K.J., Trumpis, M., Bent, B., Wang, C., Xue, Y., Min, S., Woods, V., Yu, C., Kim, B.H., Kim, S.B., Huq, R., Li, J., Seo, K.J., Vitale, F., Richardson, A., Fang, H., Huang, Y., Shepard, K., Pesaran, B., Rogers, J. A. and Viventi, J. (2020). Development of a neural interface for high-definition, long-term recording in rodents and nonhuman primates, *Science Translational Medicine*, Vol. 12, Issue 538, 2020, eaay4682, DOI: 10.1126/scitranslmed.aay4682
- Trumpis, M., Chiang, C.H., Orsborn, A.L., Bent, B., Li, J., Rogers, J.A., Pesaran, B., Cogan, G. and Viventi, J. Sufficient sampling for kriging prediction of cortical potential in rat, monkey, and human μ ECOG. *J Neural Eng.* 2020 Dec 16. doi: 10.1088/1741-2552/abd460.

Yusuf Ozturk

2016

- Paladugu, P., Hernandez, A., Gross, K., Su, Y., Neseli, A., Gombatto, S., Moon, K. and Ozturk, Y. A sensor cluster to monitor body kinematics. 2016 IEEE 13th International Conference on Wearable and Implantable Body Sensor Networks, June 14-17, 2016, DOI: 10.1109/BSN.2016.7516262
- Su, Y., Routhu, S., Moon, K.S., Lee, S.Q., Youm, W. and Ozturk, Y. A wireless 32-channel implantable bidirectional brain machine interface. *Sensors (Basel)*. 2016 Sep 24;16(10). pii: E1582. doi: 10.3390/s16101582.

Steve Perlmutter

2012

- Powers, B.E., Lasiene, J., Plemel, J.R., Shupe, L., Perlmutter, S.I., Tetzlaff, W. and Horner, P.J. Axonal thinning and extensive remyelination without chronic demyelination in spinal injured rats. *J Neurosci.*, 32:5120-5125, 2012.

2013

- Wu, G. and Perlmutter, S.I. Sensitivity of spinal neurons to GABA and glycine during voluntary movement in behaving monkey. *J Neurophysiol.*, 109:193-201, 2013.

2015

- McPherson, J.G., Miller, R.R. and Perlmutter, S.I. Targeted, activity-dependent spinal stimulation produces long-lasting motor recovery in chronic cervical spinal cord injury. *Proc Natl Acad Sci U S A.*, 112:12193-12198, 2015.

2017

- Seeman, S.C., Mogen, B.J., Fetz, E.E. and Perlmutter, S.I. Paired stimulation for spike-timing dependent plasticity in primate sensorimotor cortex, *J Neurosci.*, 37: 1935-1949, 2017.
- Perlmutter, S.I. Reaching again: A glimpse of the future with neuroprosthetics, *The Lancet*, 389:1777-1778, 2017.

2019

- Toossi, A., Everaert, D.G., Perlmutter, S.I. and Mushahwar, V.K. Functional organization of motor networks in the lumbosacral spinal cord of non-human primates, *Scientific Reports*, 9, 13539 (2019) doi:10.1038/s41598-019-49328-1

2021

- Toossi, A., Bergin, B., Marefatallah, M., Parhizi, B., Tyreman, N., Everaert, D.G., Rezaei, S., Seres, P., Gatenby, J.C., Perlmutter, S.I. and Mushahwar, V.K. Comparative neuroanatomy of the lumbosacral spinal cord of the rat, cat, pig, monkey, and human. *Sci Rep.* 2021 Jan 21;11(1):1955. doi: 10.1038/s41598-021-81371-9. PMID: 33479371.
- Kondiles, B.R., Wei, H., Chaboub, L.S., Horner, P.J., Wu, J.Q. and Perlmutter, S.I., Transcriptome of rat subcortical white matter and spinal cord after spinal injury and cortical stimulation, *Sci Data* 8, 175 (2021). <https://doi.org/10.1038/s41597-021-00953-4>

Rajesh Rao

2012

- Wander, J.D., Blakely, T., Johnson, L.A., Darvas, F., Miller, K.J., Rao, R.P.N. and Ojemann, J.G. Dynamics of distributed cortical activity demonstrated over the course of learning to use a brain-computer interface. *Society for Neuroscience meeting*, 2012.

2013

- Huang, Y. and Rao, R.P. Reward optimization in the primate brain: A probabilistic model of decision making under uncertainty. *PLoS One*, 8:e53344, 2013.

- Huang, Y., Friesen, A.L., Hanks, T.D., Shadlen, M.N. and Rao, R.P.N. How prior probability influences decision making: A unifying probabilistic model. *Advances in Neural Information Processing Systems (NIPS)* 26 1277-1285.
- Darvas, F., Rao, R.P. and Murias, M. Localized high gamma motor oscillations respond to perceived biologic motion. *J Clin Neurophysiol.*, 30:299-307, 2013.
- Rao, R.P.N. *Brain-Computer Interfacing: An Introduction*. Cambridge University Press, 2013.
- Bryan, M.J., Martin, S.A., Cheung, W. and Rao, R.P. Probabilistic co-adaptive brain-computer interfacing. *J Neural Eng.*, 10:066008, 2013.

2014

- Smith, M.M., Weaver, K.E., Grabowski, T.J., Rao, R.P. and Darvas, F. Non-invasive detection of high gamma band activity during motor imagery. *Front Hum Neurosci.* 2014;8:817.
- Rao, R.P.N., Stocco, A., Bryan, M., Sarma, D., Youngquist, T.M., Wu, J. and Prat, C.S. A direct brain-to-brain interface in humans. *Plos One*, DOI: 10.1371/journal.pone.0111332, 2014.
- Wander, J.D. and Rao, R.P.N. Brain-computer interfaces: a powerful tool for scientific inquiry. *Current Opinion in Neurobiology*, 25:70–75, 2014.
- Blakely, T.M., Olson, J.D., Miller, K.J., Rao, R.P. and Ojemann, J.G. Neural correlates of learning in an electrocorticographic motor-imagery brain-computer interface. *Brain Comput Interfaces (Abingdon)*, 1:147-157, 2014.
- Stocco, A., Prat, C.S., Losey, D.M., Cronin, J.A., Wu, J., Abernethy, J.A. and Rao, R.P.N. Playing 20 questions with the mind: collaborative problem solving by humans using a brain-to-brain interface. *PLoS ONE* 10(9): e0137303. doi:10.1371/journal.pone.0137303, 2015.

2015

- Chung, M.J., Friesen, A.L., Fox, D., Meltzoff, A.N. and Rao, R.P. A bayesian developmental approach to robotic goal-Based imitation learning. *PLoS One.* 2015;10(11):e0141965.
- Miller, K.J., Schalk, G., Hermes, D., Ojemann, J.G. and Rao, R.P.N. Near-instantaneous classification of perceptual states from cortical surface recordings. In *Brain-Computer Interface Research. A State-of-the-Art Summary*, edited by C. Guger, G. Müller-Putz, B. Allison, New York: Springer, pages 105-114, 2015.

2016

- Miller, K.J., Schalk, G., Hermes, D., Ojemann, J.G. and Rao, R.P.N. Spontaneous decoding of the timing and content of human object perception from cortical surface recordings reveals complementary information in the event-related potential and broadband spectral change. *PLOS Comp Bio*, January 28, 2016, DOI: 10.1371/journal.pcbi.1004660
- Wang, N.X., Olson, J.D., Ojemann, J.G., Rao, R.P., Brunton, B.W. Unsupervised decoding of long-term, naturalistic human neural recordings with automated video and audio annotations. *Front Hum Neurosci.* 2016 Apr 21;10:165. doi: 10.3389/fnhum.2016.00165. eCollection 2016.

- Wu, J., Shuman, B.R., Brunton, B.W., Steele, K.M., Olson, J.D., Rao, R.P.N. and Ojemann, J.G. Multistep model for predicting upper-limb 3D isometric force application from pre-movement electrocorticographic features. 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2016, arXiv:1605.05291 [q-bio.NC].
- Huang, Y. and Rao, R.P. Bayesian inference and online learning in poisson neuronal networks. *Neural Comput.* 2016 Jun 27:1-24.
- Cronin, J., Wu, J., Collins, K., Sarma, D., Rao, R., Ojemann, J. and Olson, J. Task-specific somatosensory feedback via cortical stimulation in humans. *IEEE Trans Haptics.* 2016 Jul 18. 10.1109/TOH.2016.2591952.
- Losey, D.M., Stocco, A., Abernethy, J.A. and Rao, R.P.N. Navigating a 2D virtual world using direct brain stimulation. *Front. Robot. AI*, 16 November 2016 | <http://dx.doi.org/10.3389/frobt.2016.00072>
- Wander, J.D., Sarma, D., Johnson, L.A., Fetz, E.E., Rao, R.P.N., Ojemann, J.G. and Darvas, F. (2016) Cortico-cortical interactions during acquisition and use of a neuroprosthetic skill. *PLoS Comput Biol* 12(8): e1004931. doi:10.1371/journal.pcbi.1004931

2017

- Caldwell, D.J., Wu, J., Casimo, K., Ojemann, J.G. and Rao, R.P.N. Interactive web application for exploring matrices of neural connectivity, *IEEE NER 2017*, arXiv:1702.06405

2018

- Bashford, L., Wu, J., Sarma, D., Collins, K., Rao, R.P.N., Ojemann, J.G. and Mehring, C. Concurrent control of a brain-computer interface and natural overt movements. *J Neural Eng.* 2018 Oct 10;15(6):066021

2019

- Rao, R.P.N. Towards neural co-processors for the brain: combining decoding and encoding in brain-computer interfaces, *Current Opinion in Neurobiology*, 55: 142-151, 2019.
- Jiang, L., Stocco, A., Losey, D.M., Abernethy, J.A., Prat, C.S. and Rao, R.P.N. BrainNet: A multi-person brain-to-brain interface for direct collaboration between brains. *Sci Rep.* 2019 Apr 16;9(1):6115. doi: 10.1038/s41598-019-41895-7.
- Wilson, N.R., Sarma, D., Wander, J.D., Weaver, K.E., Ojemann, J.G. and Rao, R.P.N. Cortical topography of error-related high-frequency potentials during erroneous control in a continuous control brain-computer interface. *Front Neurosci.* 2019 May 22;13:502. doi: 10.3389/fnins.2019.00502. eCollection 2019.
- Caldwell, D.J., Ojemann, J.G. and Rao, R.P.N. Direct electrical stimulation in electrocorticographic brain-computer interfaces: Enabling technologies for input to cortex. *Front Neurosci.* 2019 Aug 7;13:804. doi: 10.3389/fnins.2019.00804.
- Caldwell, D.J., Cronin, J.A., Wu, J., Weaver, K.E., Ko, A.L., Rao, R.P.N. and Ojemann, J.G. Direct stimulation of somatosensory cortex results in slower reaction times compared to peripheral touch in humans. *Sci Rep.* 2019 Mar 1;9(1):3292. doi: 10.1038/s41598-019-38619-2.

- Khalvati, K., Park, S.A., Mirbagheri, S., Philippe, R., Sestito, M., Dreher, J-C. and Rao, R.P.N. Modeling other minds: Bayesian inference explains human choices in group decision-making. *Science Advances* 27 Nov 2019: Vol. 5, no. 11, eaax8783, DOI: 10.1126/sciadv.aax8783

2020

- MacInnes, J.J., Adcock, R.A., Stocco, A., Prat, C.S., Rao, R.P.N. and Dickerson, K.C. Pyneal: Open source real-time fMRI software. *Frontiers in Neuroscience*, 14:900, 2020, doi: 10.3389/fnins.2020.00900.
- Sun, S., Jiang, L.P., Peterson, S.M., Herron, J., Weaver, K., Ko, A., Ojemann, J. and Rao, R.P.N. Unsupervised Sleep and Wake State Identification in Long-Term Electrooculography Recordings. *Annu Int Conf IEEE Eng Med Biol Soc.* 2020 Jul;2020:629-632.

2021

- Peterson, S.M., Steine-Hanson, Z., Davis, N., Rao, R.P.N. and Brunton, B.W. Generalized neural decoders for transfer learning across participants and recording modalities. *J Neural Eng.* 2021 Jan 8. doi: 10.1088/1741-2552/abda0b. Epub ahead of print. PMID: 33418552.
- Singh, S.H., Peterson, S.M., Rao, R.P.N. and Brunton, B.W. Mining naturalistic human behaviors in long-term video and neural recordings. *J Neurosci Methods.* 2021 Apr 25:109199. doi: 10.1016/j.jneumeth.2021.109199.
- Peterson, S.M., Singh, S.H., Wang, N.X.R., Rao, R.P.N. and Brunton, B.W. Behavioral and neural variability of naturalistic arm movements. *eNeuro.* 2021 May 24:ENEURO.0007-21.2021. doi: 10.1523/ENEURO.0007-21.2021.
- Khalvati, K., Kiani, R. and Rao, R.P.N. Bayesian inference with incomplete knowledge explains perceptual confidence and its deviations from accuracy. *Nat Commun* 12, 5704 (2021). <https://doi.org/10.1038/s41467-021-25419-4>.
- Gaudry, K.S., Ayaz, H., Bedows, A., Celnik, P., Eagleman, D., Grover, P., Illes, J., Rao, R.P.N., Robinson, J.T., Thyagarajan, K.; Working Group on Brain-Interfacing Devices in 2040. Projections and the Potential Societal Impact of the Future of Neurotechnologies. *Front Neurosci.* 2021 Nov 15;15:658930. doi: 10.3389/fnins.2021.658930. PMID: 34867139; PMCID: PMC8634831.

2022

- Peterson, S.M., Singh, S.H., Dichter, B., Scheid, M., Rao, R.P.N. and Brunton, B.W. AJILE12: Long-term naturalistic human intracranial neural recordings and pose. *Sci Data.* 2022 Apr 21;9(1):184. doi: 10.1038/s41597-022-01280-y. PMID: 35449141; PMCID: PMC9023453.
- Peterson, S.M., Rao, R.P.N. and Brunton, B.W. Learning neural decoders without labels using multiple data streams. *J Neural Eng.* 2022 Jul 29. doi: 10.1088/1741-2552/ac857c. Epub ahead of print. PMID: 35905727.
- Singh, S.H., van Breugel, F., Rao, R.P.N. and Brunton, B.W. Emergent behaviour and neural dynamics in artificial agents tracking odour plumes. *Nat. Mach. Intell.*, 5:58–70, 2023.

Matt Reynolds

2015

- Lipworth, G., Ensworth, J., Seetharam, K., Lee, J.S., Schmalenberg, P., Nomura, T., Reynolds, M., Smith, D.R. and Urzhumov, Y. Quasi-static magnetic field shielding using longitudinal mu-near-zero metamaterials, *Scientific Reports* 5, 12764 (2015), doi:10.1038/srep12764.
- Cnaan-On, S., Krolik, T.J. and Reynolds, M. Multichannel backscatter communication and ranging for distributed sensing with an FMCW radar. *IEEE Transactions on Microwave Theory and Techniques*, vol. 63, no. 7, pp. 2375-2383 (2015).
- Sleasman, T., Imani, M.F., Xu, W., Hunt, J., Driscoll, T., Reynolds, M. and Smith, D.R. Waveguide-fed tunable metamaterial element for dynamic apertures. *IEEE Antennas and Wireless Propagation Letters*, 2015 (in press).
- Besnoff, J. and Reynolds, M. Single-wire radio frequency transmission lines in biological tissue. *Applied Physics Letters*, 106:1-4, 2015.
- Ensworth, J., Hoang, A. and Reynolds, M. A timer based boost converter for RF energy harvesting. *Proceedings IEEE Wireless Power Transfer Conference*, pp. 1-4, 2015.
- Ensworth, J. and Reynolds, M. Every smartphone is a backscatter reader: Modulated backscatter compatibility with Bluetooth 4.0 low energy (BLE) devices. *Proceedings of IEEE RFID 2015*, pp. 78-85.
- Shao, S., Gudan, K., Hull, J., Ensworth, J. and Reynolds, M. Ultra-low power 2.4GHz RF energy harvesting and storage system with -25dBm sensitivity. *Proceedings of IEEE RFID 2015*, pp. 40-46.

2016

- Ensworth, J. and Reynolds, M. BLE-Backscatter: Ultra-low-power IoT nodes compatible with Bluetooth 4.0 Low Energy (BLE) smartphones and tablets. submitted to *IEEE Transactions on Microwave Theory and Techniques*.
- Sharma, A., Kampianakis, E., and Reynolds, M.S. A dual-band HF and UHF antenna system for implanted neural recording and stimulation devices. *IEEE Antennas and Wireless Propagation Letters*, 2016.
- Gowda, V.R., Yurduseven, O., Lipworth, G., Zupan, T., Reynolds, M.S. and Smith, D.R. Wireless power transfer in the radiative near-field. *IEEE Antennas and Wireless Propagation Letters*, 2016.
- Fu, X., Sharma, A., Kampianakis, E., Pedross-Engel, A., Arnitz, D., and Reynolds, M.S. A low cost 10.0-11.1~GHz X-band microwave backscatter communication testbed with integrated planar wideband antennas. *IEEE RFID 2016*.
- Hoang, F., Nekoogar, K., Coonley, Reynolds, M. A battery-free EPC generation 2 computational RFID tag with fiber-optic tamper detection. *IEEE RFID 2016*.
- Arnitz, D. and Reynolds, M.S. MIMO wireless power transfer for mobile devices. *Pervasive Computing*, Oct-Dec: 36-44, 2016.

2017

- Kampianakis, E., Sharma, A., Arenas, J. and Reynolds, M.S. A dual-band wireless power transfer and backscatter communication approach for implantable neuroprosthetic devices, 2017 *IEEE International Conference on RFID*, 2017.

- Kampianakis, E., Sharma, A., Arenas, J. and Reynolds, M.S. A dual-band wireless power transfer and backscatter communication approach for real-time neural/EMG data acquisition, IEEE J. Radio Frequency Identification, 1:100-107, 2017.
- Kampianakis, E. and Reynolds, M.S. A biosignal analog front-end leveraging frequency translation. IEEE Sensors, DOI: 10.1109/ICSENS.2017.8234411, 2017.

2018

- Rosenthal, J., Kampianakis, E., Sharma, A. and Reynolds, M.S. A 6.25 Mbps 12.4 pJ/bit DQPSK backscatter wireless uplink for the NeuroDisc brain-computer interface. Proc. IEEE Biomed. Circuits Syst. Conf., pp. 1-4, Oct. 2018.

2019

- Dadkhah, A., Rosenthal, J. and Reynolds, M.S. ZeroScatter: Zero-added-component backscatter communication using existing digital I/O Pins. 2019 IEEE Topical Conference on Wireless Sensors and Sensor Networks (WiSNet), 20-23 Jan. 2019.
- Sharma, A., Kampianakis, E., Rosenthal, J., Pike, A., Dadkhah, A. and Reynolds, M.S. Wideband UHF DQPSK backscatter communication in reverberant cavity animal cage environments. IEEE Trans. Antennas Propag., vol. 67, no. 8, pp. 5002-5011, Aug. 2019.
- Rosenthal, J. and Reynolds, M.S. A 158 pJ/bit 1.0 Mbps Bluetooth Low Energy (BLE) compatible backscatter communication system for wireless sensing. 2019 IEEE Topical Conference on Wireless Sensors and Sensor Networks (WiSNet), 20-23 Jan. 2019.
- Rosenthal, J., Pike, A. and Reynolds, M.S. A 1 Mbps 158 pJ/bit Bluetooth Low Energy (BLE) compatible backscatter communication uplink for wireless neural recording in an animal cage environment. 2019 IEEE International Conference on RFID (RFID), 2-4 April 2019.
- Rosenthal, J. and Reynolds, M.S. A 1.0-Mb/s 198-pJ/bit Bluetooth low-energy compatible single sideband backscatter uplink for the NeuroDisc Brain-Computer Interface. IEEE Transactions on Microwave Theory and Techniques, 67:4015-4022, 2019.
- Rosenthal, J., Sharma, A., Kampianakis, E. and Reynolds, M.S. A 25 Mbps, 12.4 pJ/b DQPSK backscatter data uplink for the NeuroDisc Brain-Computer Interface. IEEE Transactions on Biomedical Circuits and Systems, Volume: 13:858-867, 2019.

2020

- Petrie, T., Rosenthal, J. and Reynolds, M., A low-cost 1 Mbps frequency shift keying backscatter receiver and carrier wave generator system for wireless neural recording. Proceedings IEEE RFID 2020 .
- Rosenthal, J. and Reynolds, M., A dual-band shared-hardware 900 MHz 6.25 Mbps DQPSK and 2.4 GHz 1.0 Mbps bluetooth low energy (BLE) backscatter uplink for wireless brain-computer interfaces. Proceedings IEEE RFID 2020 .

2021

- Rosenthal, J.D., Pike, A., Reyes, S., and Reynolds, M.S., Electronic mode stirring for improved backscatter communication link margin in a reverberant cavity animal cage environment. *IEEE Transactions on Antennas and Propagation*, doi: 10.1109/TAP.2021.3102047.

2022

- Moore, G.E., Rosenthal, J.D., Smith, J.R. and Reynolds, M.S. Adaptive Wireless Power Transfer and Backscatter Communication for Perpetual Operation of Wireless Brain–Computer Interfaces, *Proc. IEEE*, vol. 110, no. 1, pp. 89-106, Jan. 2022.

Fred Rieke

2012

- Schwartz, G.W., Okawa, H., Dunn, F.A., Morgan, J.L., Kerschensteiner, D., Wong, R.O. and Rieke, F. The spatial structure of a nonlinear receptive field. *Nat Neurosci.*, 15:1572-1580, 2012.
- Lugo, K., Miao, X., Rieke, F. and Lin, L.Y. Remote switching of cellular activity and cell signaling using light in conjunction with quantum dots. *Biomed Opt Express*, 3:447-454, 2012.

2013

- Cafaro, J. and Rieke, F. Regulation of spatial selectivity by crossover inhibition. *J Neurosci.*, 33:6310-6320, 2013.
- Angueyra, J.M. and Rieke, F. Origin and effect of phototransduction noise in primate cone photoreceptors. *Nat Neurosci.*, 16:1692-1700, 2013.

2014

- Barreiro, A.K., Gjorgjieva, J., Rieke, F. and Shea-Brown, E. When do microcircuits produce beyond-pairwise correlations? *Front. Comput. Neurosci.*, 8:10, 2014.
- Grimes, W.N., Schwartz, G.W. and Rieke F. The synaptic and circuit mechanisms underlying a change in spatial encoding in the retina. *Neuron*, 82:460-473, 2014.
- Grimes, W.N., Hoon, M., Briggman, K.L., Wong, R.O. and Rieke, F. Cross-synaptic synchrony and transmission of signal and noise across the mouse retina. *Elife*. 2014 Sep 1:e03892. doi: 10.7554/eLife.03892.

2016

- Rudd, M.E. and Rieke, F. Brightness in human rod vision depends on slow neural adaptation to quantum statistics of light, *J Vis.* 16:23, 2016.

Chris Rudell

2013

- Bhagavatula, V., Wesson, W.C., Shin, S.K. and Rudell, J.C. A fully integrated, regulatorless CMOS power amplifier for long-range wireless sensor communication. *IEEE Journal of Solid-State Circuits*, 48:1225-1236, 2013.

- Yoo, S.M., Walling, J.S., Degani, O., Jann, B., Sathwani, R., Rudell, J.C. and Allstot, D.J. A class-G switched-capacitor RF power amplifier. *IEEE Journal of Solid-State Circuits*, 48:1212-1224, 2013.
- Bhagavatula, V. and Rudell, J.C. Analysis and design of a transformer-feedback-based wideband receiver. *IEEE Transactions on Microwave Theory and Techniques*, 61:1347-1358, 2013.

2014

- Pepin, E., Micheletti, D., Perlmutter, S. and Rudell, J.C. High-voltage compliant, capacitive-load invariant neural stimulation electronics compatible with standard bulk-CMOS integration 2014 IEEE Biomedical Circuits and Systems Conference (BioCAS), DOI: 10.1109/BioCAS.2014.6981712, 2014: 260-263.

2015

- Zhang, T., Suvarna, A.R., Bhagavatula, V. and Rudell, J.C. An integrated CMOS passive self-interference mitigation technique for FDD radios. *IEEE Journal of Solid-State Circuits*, Year: 2015, Volume: 50, Issue: 5 Pages: 1176-1188, DOI: 10.1109/JSSC.2015.2408324
- Zhang, T., Taghivand, M. and Rudell, J.C. A 55–70GHz two-stage tunable polyphase filter with feedback control for quadrature generation with $<2^\circ$ and $<0.32\text{dB}$ phase/amplitude imbalance in 28nm CMOS process. *European Solid-State Circuits Conference (ESSCIRC)*, ESSCIRC 2015 - 41st, 2015, Pages: 60-63, DOI: 10.1109/ESSCIRC.2015.7313828

2016

- Bhagavatula, V., Zhang, T., Suvarna, A.R., and Rudell, J.C. An ultra-wideband IF millimeter-wave receiver with a 20 GHz channel bandwidth using gain-equalized transformers. *IEEE J. Solid-State Circuits*, 51: 323-331, 2016.
- Pepin, E., Uehlin, J., Micheletti, D., Perlmutter, S.I., and Rudell, J.C. A high-voltage compliant, electrode-invariant neural stimulator front-end in 65nm bulk-CMOS. *European Solid-State Circuits Conference*, 2016.

2018

- Zhang, T., Su, C., Najafi, A. and Rudell, J.C. Wideband dual-injection path self-interference cancellation architecture for full-duplex transceivers, *IEEE Journal of Solid-State Circuits (Early Access)*, 1-14, March 6, 2018, DOI: 10.1109/JSSC.2018.2805874.

2020

- Uehlin, J.P., Smith, W.A., Pamula, V.R., Pepin, E.P., Perlmutter, S., Sathe, V. and Rudell, J.C. A single-chip bidirectional neural interface with high-voltage stimulation and adaptive artifact cancellation in standard CMOS. *IEEE Journal of Solid-State Circuits*, 55:1749-1761, 2020.

Rajiv Saigal

2022

- Huang, J., Yap, N., Walter, M., Green, A., Smith, C., Johnson, J. and Saigal, R., 3D-printed polypyrrole microneedle arrays for electronically controlled transdural drug release, *ACS Biomater. Sci. Eng.*, 8:1544–1553, 2022.

Mahasweta Sarkar

2012

- Vohra, A., Sarkar, M. and Lee, G. A smart transmission scheme for emergency data from a network of bio-sensors on the human body. Proceedings of IEEE International Conference on Multisensor Fusion and Information Integration (MFI), Hamburg, Germany, September, 2012.

2015

- Tripathy, A., Chinara, S. and Sarkar, M. An application of wireless brain computer interface for drowsiness detection, Journal of Biocybernetics and Biomedical Engineering, Elsevier Inc, September 2015.
- Rani, S., Talwar, R., Malhotra, J., Ahmed, S.H., Sarkar, M. and Song, H. A novel scheme for an energy efficient Internet of things based on wireless sensor networks. Sensors, 11:28603-28627, 2015.

2016

- Patel, P., Sarkar, M., Nagaraj, S. and Kushalad, K. Channel modelling based on statistical analysis for brain-computer-interface (BCI) applications. In International Conference on Computer Communications, IEEE INFOCOM 10-15th April 2016, San Francisco, California.
- Patel, P., Sarkar, M., and Nagaraj, S. Ultra wideband channel characterization for invasive biomedical applications. In Wireless and Microwave Technology Conference, IEEE WAMICON 11-13th April 2016, Clearwater Beach, Florida.
- Patel, P., Sarkar, M. and Nagaraj, S. Tracking the behavior of UWB transmissions in invasive BCI applications. In IEEE 13th Annual International Body Sensor Networks Conference, (IEEE BSN), June 14-17, 2016, San Francisco, CA.
- Patel, R., Sarkar, M., Nagaraj, S. and Patel, P. Investigating the feasibility of multiple UWB transmitters in brain computer interface (BCI) applications. In IEEE 13th Annual International Body Sensor Networks Conference, (IEEE BSN), June 14-17, 2016, San Francisco, CA.
- Basu, S., Sarkar, M., Nagaraj, S. and Chinara, S. A survey on ultra wideband and ultrasonic communication for body area networks. Intern. J Ultra Wideband Comm Sys, 3, DOI: 10.1504/IJUWBCS.2016.080171

2017

- Kumar, J.L.A., Sarkar, M., Mohanty., S. and Ahmed, S.H. A comparative study of MAC protocols in brain-computer interface (BCI) applications, 2017 13th International Wireless Communications and Mobile Computing Conference, June 26-30, 2017, DOI: 10.1109/IWCMC.2017.7986510

Visvesh Sathe

2016

- Smith, W.A., Mogen, B.J., Fetz, E.E., Sathe, V.S. and Otis, B.P. Exploiting electrocorticographic spectral characteristics for optimized signal chain design: A 1.08 μ W analog front end with reduced ADC resolution requirements. IEEE Trans Biomed Circuits Syst. 2016 Apr 6.

2017

- Smith, W.A., Uehlin, J.P., Perlmutter, S.I., Rudell, J.C. and Sathe, V.S. A scalable, highly-multiplexed delta-encoded digital feedback ECoG recording amplifier with common and differential-mode artifact suppression. 2017 Symposium on VLSI Circuits, C172 - C173, 2017.
- Uehlin, J.P., Smith, W.A., Pamula, V.R., Perlmutter, S., Rudell, J.C. and, Sathe, V.S. A 0.0023 mm² delta-encoded, time-division multiplexed mixed-signal ECoG recording architecture with stimulus artifact suppression. IEEE Trans Biomed Circuits Syst. 2019 Dec 31.

2021

- Mandal et al., A 46-channel vector stimulator with 50mV worst-case common-mode artifact for low-latency adaptive closed-loop neuromodulation. 2021 IEEE Custom Integrated Circuits Conference (CICC), 2021, pp. 1-2, doi: 10.1109/CICC51472.2021.9431493.

Eric Shea-Brown

2014

- Lajoie, G., Thivierge, J.P. and Shea-Brown, E. Structured chaos shapes spike-response noise entropy in balanced neural networks. Front Comput Neurosci., 8:123. doi: 10.3389/fncom.2014.00123. eCollection 2014.
- Hu, Y., Trousdale, J., Josić, K. and Shea-Brown, E. Local paths to global coherence: cutting networks down to size. Phys Rev E Stat Nonlin Soft Matter Phys. 2014 Mar;89(3):032802. Epub 2014 Mar 10.
- Hu, Y., Zylberberg, J. and Shea-Brown, E. The sign rule and beyond: boundary effects, flexibility, and noise correlations in neural population codes. PLoS Comput Biol. 2014 Feb 27;10(2):e1003469. doi: 10.1371/journal.pcbi.1003469. eCollection 2014 Feb.
- Barreiro, A.K., Gjorgjieva, J., Rieke, F. and Shea-Brown E. When do microcircuits produce beyond-pairwise correlations? Front Comput Neurosci. 2014 Feb 6;8:10. doi: 10.3389/fncom.2014.00010. eCollection 2014.

2015

- Leen, D.A. and Shea-Brown, E. A simple mechanism for beyond-pairwise correlations in integrate-and-fire neurons. J Math Neurosci. 2015 Dec;5(1):30. doi: 10.1186/s13408-015-0030-9. Epub 2015 Sep 1.
- Schwemmer, M.A., Fairhall, A.L., Denève, S. and Shea-Brown, E.T. Constructing precisely computing networks with biophysical spiking neurons. J Neurosci. 2015 Jul 15;35(28):10112-34. doi: 10.1523/JNEUROSCI.4951-14.2015.
- Cayco-Gajic, N.A., Zylberberg, J. and Shea-Brown, E. Triplet correlations among similarly tuned cells impact population coding. Front Comput Neurosci. 2015 May 18;9:57. doi: 10.3389/fncom.2015.00057. eCollection 2015.

2016

- Zylberberg, J., Cafarom J., Turner, M.H., Shea-Brown, E and Rieke F. Direction-selective circuits shape noise to ensure a precise population code. Neuron, 89:369-383, 2016.

- Brinkman, B.A., Weber, A.I., Rieke, F., Shea-Brown, E. How do efficient coding strategies depend on origins of noise in neural circuits? *PLoS Comput Biol.* Oct 14;12(10):e1005150. doi: 10.1371/journal.pcbi.1005150, 2016.
- Lajoie, G., Lin, K.K., Thivierge, J.P. and Shea-Brown E. Encoding in balanced networks: Revisiting spike patterns and chaos in stimulus-driven systems. *PLoS Comput Biol.* 2016 Dec 14;12(12):e1005258.

2017

- Zylberberg, J., Pouget, A., Latham, P.E. and Shea-Brown, E. Robust information propagation through noisy neural circuits, *PLoS Comput Biol*, 13(4): e1005497, 2017.
- Fyall, A.M., El-Shamayleh, Y., Choi H., Shea-Brown, E. and Pasupathy, A. Dynamic representation of partially occluded objects in primate prefrontal and visual cortex, *eLife* 2017;6:e25784 doi: 10.7554/eLife.25784.

2018

- Kass, R.E., Amari, S.I., Arai, K., Brown, E.N., Diekman, C.O., Diesmann, M., Doiron, B., Eden, U.T., Fairhall, A.L., Fiddymont, G.M., Fukai, T., Grün, S., Harrison, M.T., Helias, M., Nakahara, H., Teramae, J.N., Thomas, P.J., Reimers, M., Rodu, J., Rotstein, H.G., Shea-Brown, E., Shimazaki, H., Shinomoto, S., Yu, B.M. and Kramer, M.A. Computational neuroscience: Mathematical and statistical perspectives. *Annu Rev Stat Appl.* 5:183-214, 2018.
- Knox, J.E., Harris, K.D., Graddis, N., Whitesell, J.D., Zeng, H., Harris, J.A., Shea-Brown, E. and Mihalas, S. High-resolution data-driven model of the mouse connectome. *Netw Neurosci.* 2018 Dec 1;3(1):217-236. doi: 10.1162/netn_a_00066. PMID: 30793081; PMCID: PMC6372022.
- Brinkman, B.A.W., Rieke, F., Shea-Brown, E. and Buice, M.A. Predicting how and when hidden neurons skew measured synaptic interactions. *PLoS Comput Biol.* 2018 Oct 22;14(10):e1006490. doi: 10.1371/journal.pcbi.1006490. PMID: 30346943; PMCID: PMC6219819.
- Cayco-Gajic, N.A., Zylberberg, J. and Shea-Brown, E. A moment-based maximum entropy model for fitting higher-order interactions in neural data. *Entropy (Basel).* 2018 Jun 23;20(7):489. doi: 10.3390/e20070489. PMID: 33265579; PMCID: PMC7513015.

2019

- Recanatesi, S., Ockerm G,K,, Buice, M.A. and Shea-Brown, E. Dimensionality in recurrent spiking networks: Global trends in activity and local origins in connectivity. *PLoS Comput Biol.* 2019 Jul 12;15(7):e1006446. doi: 10.1371/journal.pcbi.1006446. PMID: 31299044; PMCID: PMC6655892.

2020

- Stern, M. and Shea-Brown, E. Network dynamics governed by Lyapunov functions: From memory to classification. *Trends Neurosci.* 2020 Jul;43(7):453-455. doi: 10.1016/j.tins.2020.04.002. Epub 2020 May 5. PMID: 32386741.

Joshua Smith

2012

- Christ, A., Douglas, M.G., Roman, J., Cooper, E.B., Sample, A.P., Waters, B.H., Smith, J.R. and Kuster, N. Evaluation of wireless resonant power transfer systems with human electromagnetic exposure limits. IEEE Transactions on Electromagnetic Compatibility, 99:1-10, 2012.
- Waters, B.H., Sample, A.P., and Smith, J.R. Adaptive impedance matching for magnetically coupled resonators. PIERS Proceedings; pp. 694-701, Moscow, Russia, August 19-23, 2012.
- Carter, M.T., Stetter, J.R., Smith, J.R., Parks, A.N., Zhao, Y., Findlay, M.W. and Patel, V. Printed low power amperometric gas sensor employing RF energy harvesting. The Electrochemical Society, January 2012.
- Waters, B.H., Sample, A.P. and Bonde, P., Smith, J.R. Powering a ventricular assist device (VAD) with the free-range resonant electrical energy delivery (FREE-D) system. Proceedings of the IEEE, 100:138-149, 2012.
- Jiang, L.-T. and Smith, J.R. Pretouch sensing for manipulation, robotics. Science and systems (RSS) Workshop: Alternative Sensing Techniques for Robotic Perception. July 11-12, 2012.
- Jiang, L.-T. and Smith, J.R. A unified framework for grasping and shape acquisition via pretouch sensing. IEEE International Conference on Robotics and Automation (ICRA), Karlsruhe, Germany, May 6-10, 2013.
- Balasubramanian, R., Xu, L., Brook, P., Smith, J.R. and Matsuoka, Y. Physical human interactive guidance: Identifying grasping principles from human-planned grasps. IEEE Transactions on Robotics (T-RO).
- Jiang, L.-T. and Smith, J.R. Seashell effect pretouch sensing for robotic grasping. IEEE International Conference on Robotics and Automation (ICRA), St. Paul, USA, May 5-12, 2012.
- Chang, L. and Smith, J.R., Fox, D. Interactive singulation of objects from a pile. IEEE International Conference on Robotics and Automation (ICRA), May 5-12, 2012.
- Bryan, M., Nicoll, G., Thomas, V., Chung, M., Smith, J.R. and Rao, R.P.N. Automatic extraction of command hierarchies for adaptive brain-robot interfacing. Proceedings of ICRA 2012, May 5-12, 2012.
- Sample, A.P., Macomber, C., Jiang, L.-T., Smith, J.R. Optical localization of passive UHF RFID tags with integrated LEDs. 2012 IEEE International Conference on Digital Object Identifier, 10.1109/RFID.2012.6193038, 116-123, 2012.

2013

- Lee, G., Waters B., Shi, C., Park, W., and Smith, J.R. Design considerations for asymmetric magnetically coupled resonators used in wireless power transfer applications. IEEE Topical Meeting on Biomedical Wireless Technologies, Networks and Sensing Systems (BioWireless), January 20-23, 2013 Austin, TX.
- Parks, A., Sample, A., Zhao, Y. and Smith J.R. A wireless sensing platform utilizing ambient RF energy. IEEE Topical Meeting on Wireless Sensors and Sensor Networks (WiSNET), January 20-23, 2013 Austin, TX.
- Talla, V., Buettner, M., Wetherall, D. and Smith, J.R. Hybrid analog-digital backscatter platform for high data rate, battery-free sensing. IEEE Topical Meeting on Wireless Sensors and Sensor Networks (WiSNET), January 20-23, 2013 Austin, TX.

- Dementyev, A., Taylor, S., Smith, J.R. and Hodges, S. Power consumption analysis of bluetooth low energy, ZigBee, and ANT sensor nodes in cyclic sleep scenario. IEEE International Wireless Symposium, April 14-18, 2013 Beijing, China.
- Dementyev, A., Gummeson, J., Thrasher, D., Parks, A., Ganesan, D., Smith, J.R., and Sample, A.P. Wirelessly powered bistable display tags. Proc. 2013 ACM International Joint Conference on Pervasive and Ubiquitous Computing, Zurich, Switzerland, September 8-12, 2013.
- Jiang, L.-T. and Smith, J.R. A unified framework for grasping and shape acquisition via pretouch sensing. 2013 IEEE International Conference on Robotics and Automation (ICRA), 10.1109/ICRA.2013.6630695, Page(s): 999-1005.
- Sample, A.P., Waters, B.H., Wisdom, S. and Smith, J.R. Seamless wireless power delivery in dynamic environments. (Invited) Proceedings of the IEEE, 101:1343-1358, 2013.
- Talla, V., Waters, B.H. and Smith, J.R. A study of detuning effects and losses in implantable coils for biomedical wireless power transfer. Progress in Electromagnetics Research Symposium PIERS, 1369, 2013.

2014

- Wang, J.X., Smith, J.R. and Bone, P. Energy transmission and power sources for mechanical circulatory support devices to achieve total implantability. Annals Thoracic Surg., 97:1467-1474, 2014.

2015

- Waters, B., Mahoney, B., Ranganathan, V and Smith, J.R. Power delivery and leakage field control using an adaptive phased-array wireless power system. IEEE Transactions on Power Electronics 30 (11), 6298-6309 2* 2015.
- Naderiparizi, S., Zhao, Y., Youngquist, J., Sample, A.P. and Smith, J.R. Self-localizing battery-free cameras. Proceedings of the 2015 ACM International Joint Conference on Pervasive and... 2015.
- Talla, V., Waters, B.H. and Smith, J.R. Optimal operating frequency for wirelessly powered implanted systems, PIERS, Prague, 1079 2015.
- Huang, K., Jiang, L.T., Smith, J.R. and Chizeck, H.J. Sensor-aided teleoperated grasping of transparent objects. 2015 IEEE International Conference on Robotics and Automation (ICRA), 4953-4959, 2015.
- Talla, V., Kellogg, B., Ransford, B., Naderiparizi, S., Gollakota, S. and Smith, J.R. Powering the next billion devices with Wi-Fi. arXiv preprint arXiv:1505.06815 1 2015.
- Shi, X., Parks, A.N., Waters, B.H. and Smith, J.R. Co-optimization of efficiency and load modulation data rate in a wireless power transfer system. Circuits and Systems (ISCAS), 2015 IEEE International Symposium on, 698-701, 2015.
- Parks, A.N. and Smith, J.R. Active power summation for efficient multiband RF. Energy Harvesting. International Microwave Symposium, 2015.
- Waters, B.H., Fidelman, P.R., Raines, J.D. and Smith, J.R. Simultaneously tuning and powering multiple wirelessly powered devices. Wireless Power Transfer Conference (WPTC), 2015 IEEE, 1-4 2015.

- Shi, X., Waters, B.H. and Smith, J.R. SAR distribution for a strongly coupled resonant wireless power transfer system. Wireless Power Transfer Conference (WPTC), 2015 IEEE, 1-4 2015.
- Ranganathan, V., Waters, B.H. and Smith, J.R. Localization of receivers using phased-array wireless power transfer systems. Wireless Power Transfer Conference (WPTC), 2015 IEEE, 1-4 2015.
- Zhao, Y., Smith, J.R. and Sample, A. NFC-WISP: A sensing and computationally enhanced near-field RFID platform. RFID (RFID), 2015 IEEE International Conference on, 174-181 2015.
- Naderiparizi, S., Parks, A.N., Kapetanovic, Z., Ransford, B. and Smith, J.R. WISPCam: A battery-free RFID camera.
- Guo, D., Lancaster, P., Jiang, L-T., Sun, F. and Smith, J.R. Transmissive optical pretouch sensing for robotic grasping. 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2015, Pages: 5891 - 5897, DOI: 10.1109/IROS.2015.7354214

2016

- Lee, G., Waters, B.H., Shin, Y.G., Smith, J.R. and Park, W.S. A reconfigurable resonant coil for range adaptation wireless power transfer. IEEE Transactions on Microwave Theory and Techniques, 2016.
- Iyer, V., Talla, V., Kellogg, B., Gollakota, S. and Smith, J.R. Inter-technology backscatter: Towards Internet connectivity for implanted devices. SIGCOMM '16, August 22-26, 2016, Florianopolis, Brazil; DOI: <http://dx.doi.org/10.1145/2934872.2934894>
- Ranganathan, V., Mahoney, B., Pepin, E., Sunshine, M.D., Moritz, C.T., Rudell, J.C. and Smith, J.R. A high-voltage compliant neural stimulator with HF wireless power and UHF backscatter communication. 2016 IEEE Wireless Power Transfer Conference (WPTC), 2016.
- Tan, J., Pawekczak, P., Parks, A. and Smith, J.R. Wisent: Robust downstream communication and storage for computational RFIDs. IEEE INFOCOM 2016 - The 35th Annual IEEE International Conference on Computer Communications, 2016.
- Zhao, Y. Mahoney, B., Smith, J.R. Analysis of a near field communication wireless power system. 2016 IEEE Wireless Power Transfer Conference (WPTC), Pages: 1 - 4, DOI: 10.1109/WPT.2016.7498827, 2016.

2019

- Ranganathan, V., Nakahara, J., Samejima, S., Tolley, N., Khorasani, A., Moritz, C., Smith, J.R. Neural closed-loop implantable platform: A modular FPGA-based neural interface for closed-loop operation. 9th International IEEE EMBS Neural Engineering Conference. San Francisco, CA. March 20-23, 2019.
- Arjona, L., Rosenthal, J., Smith, J.R. and Moritz, C.T. High performance flexible protocol for backscattered-based neural implants, 2019 IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC), IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC), pp. 276-280, 2019.
- Ranganathan, V., Nakahara, J., Samejima, S., Tolley, N., Khorasani, A., Moritz, C.T., and Smith, J.R. NeuralCLIP: A modular FPGA-based neural interface for closed-loop operation. 2019 9th International IEEE/EMBS Conference on Neural Engineering (NER) Conference, 791-794, 2019.

- Arjona, L., Smith, J.R. and Muralter, F. TDMA protocol for dual mode operation of passive RFID tags: Identification and sensing. 2019 IEEE International Conference on RFID (RFID), 2019.
- Shi, X. and Smith, J.R. Reconfigurable and adaptive coupled relay resonator platform for a moving receiver. International Workshop on Antenna Technology (iWAT), 182-185, 2019.
- Kapetanovic, Z., Saffari, A., Chandra, R. and Smith, J.R. Glaze: Overlaying occupied spectrum with downlink IoT transmissions, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 3:1-21, 2019.
- Saffari, A., Hesar, M., Naderiparizi, S. and Smith, J.R. Battery-free wireless video streaming camera system, 2019 IEEE International Conference on RFID (RFID), 2019.

2020

- Katanbaf, M., Saffari, A. and Smith, J.R. Receiver selectivity limits on bistatic backscatter range. *2020 IEEE International Conference on RFID (RFID)*, Orlando, FL, USA, 2020, pp. 1-8, doi: 10.1109/RFID49298.2020.9244826.

2022

- Sivitilli DM, Smith JR, Gire DH. Lessons for Robotics From the Control Architecture of the Octopus. *Front Robot AI*. 2022 Jul 18;9:862391. doi: 10.3389/frobt.2022.862391.

Laura Specker-Sullivan

2016

- Specker-Sullivan, L. Medical maternalism: beyond paternalism and antipaternalism. *J Med Ethics* doi:10.1136/medethics-2015-103095, 2016.
- Specker-Sullivan, L. Do implanted brain devices threaten autonomy or the “sense” of autonomy. *AJOB Neuroscience* 6:24-26, 2015.
- Specker-Sullivan, L. Uncovering metaethical assumptions in bioethical discourse across cultures. *Kennedy Institute of Ethics Journal*, 26:47-78, 2016.
- Specker Sullivan, L., and Illes, J. Beyond ‘communication and control’: towards ethically complete rationales for brain-computer interface research. *Brain-Computer Interfaces*, 3:156-163, 2016.

2017

- Sullivan, L.S., Klein, E., Brown, T., Sample, M., Pham, M., Tubig, P., Folland, R., Truitt, A. and Goering, S. Keeping disability in mind: A case study in implantable brain-computer interface research. *Sci Eng Ethics*. 2017, doi: 10.1007/s11948-017-9928-9.
- Sullivan, L.S. and Illes, J. Models of engagement in neuroethics programs: Past, present and future, in *Debates About Neuroethics: Perspectives on its Development, Focus, and Future* (edited by Eric Racine and John Aspner, Cham (Switzerland): Springer International Publishing, 2017.

- Sullivan, L.S. and Illes, J. Ethics in published brain computer interface research. *J Neural Eng.* 2017 Sep 21. doi: 10.1088/1741-2552/aa8e05.
- Specker Sullivan, L. and Goering, S. Neuroethics in eLS (the online Encyclopedia of Life Sciences, John Wiley and Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0027184, 2017.
- Specker Sullivan, L., Fukushi, T., Isobe, T., Nakazawa, E., Takimoto, Y., Akabayashi, A., and Sakura, O. Neuroethics in Asia, in *The Handbook of Neuroethics*, edited by Karen Rommelfanger and L. Syd Johnson. Routledge, 2017.

Kat Steele

2015

- Steele, K.M., Tresch, M.C. and Perreault, E.J. Consequences of biomechanically constrained tasks in the design and interpretation of synergy analyses. *J Neurophysiol.* 2015 Jan 14;jn.00769.2013. doi: 10.1152/jn.00769.2013.
- Steele, K.M., Rozumalski, A. and Schwartz, M.H. Muscle synergies and complexity of neuromuscular control during gait in cerebral palsy. *Dev Med Child Neurol.* 2015 Jun 17. doi: 10.1111/dmcn.12826.
- Choi, H., Bjornson, K., Fatone, S. and Steele, K.M. Using musculoskeletal modeling to evaluate the effect of ankle foot orthosis tuning on musculotendon dynamics: a case study. *Disabil Rehabil Assist Technol.* 2015 Feb 2:1-6.
- Lee, S.S., Gaebler-Spira, D., Zhang, L.Q., Rymer W.Z., and Steele, K.M. Use of shear wave ultrasound elastography to quantify muscle properties in cerebral palsy. *Clin Biomech*, 2015 Oct 18. pii: S0268-0033(15)00267-3. doi: 10.1016/j.clinbiomech.2015.10.006.

2016

- Schwartz, M.H., Rozumalski, A. and Steele, K.M. Dynamic motor control is associated with treatment outcomes for children with cerebral palsy. *Dev Med Child Neurol.* 11:1139-1145, 2016.
- Steele, K.M., Ruisinger, J.F., Bates, J., Prohaska, E.S., Melton, B.L. and Hipp, S. Home-based comprehensive medication reviews: pharmacist's impact on drug therapy problems in geriatric patients. *The Consultant pharmacist*, 10:598-605, 2016.
- Choi, H., Wren, T.A. and Steele, K.M. Gastrocnemius operating length with ankle foot orthoses in cerebral palsy. *Prosthetics and Orthotics International.* 2016.
- Butler, E.E., Steele, K.M., Torburn, L., Gamble, J.G. and Rose, J. Clinical motion analyses over eight consecutive years in a child with crouch gait: a case report. *J Med Case Reports*, 10:157, 2016.
- Shuman, B., Goudriaan, M., Bar-On, L., Schwartz, M.H., Desloovere, K. and Steele, K.M. Repeatability of muscle synergies within and between days for typically developing children and children with cerebral palsy, *Gait and Posture*, 45: 127-132, 2016.
- Lee, S.S., Gaebler-Spira, D., Zhang, L.Q., Rymer, W.Z. and Steele KM. Use of shear wave ultrasound elastography to quantify muscle properties in cerebral palsy. *Clinical Biomechanics*, 31: 20-28, 2016.

Andrea Stocco

2017

- Stocco, A., Murray, N.L., Yamasakia, B.L., Rennoa, T.J., Nguyen, J. and Prat, C.S. Individual differences in the Simon effect are underpinned by differences in the competitive dynamics in the basal ganglia: An experimental verification and a computational model, *Cognition*, 164:31–45, 2017.

2018

- Stocco, A. A biologically plausible action selection system for cognitive architectures: Implications of basal ganglia anatomy for learning and decision-making models. *Cogn Sci.* 42:457-490, 2018.
- Seo, R., Stocco, A. and Prat, C.S. The bilingual language network: Differential involvement of anterior cingulate, basal ganglia and prefrontal cortex in preparation, monitoring, and execution. *Neuroimage.* 174:44-56, 2018.

2019

- Rice, P. and Stocco, A. The role of dorsal premotor cortex in resolving abstract motor rules: Converging evidence from transcranial magnetic stimulation and cognitive modeling. *Topics in Cognitive Science*, 11:240–260, 2019.

Joseph A. Stramondo

2019

- Stramondo, J.A. The distinction between curative and assistive technology. *Science and Engineering Ethics*, 25:1125–1145, 2019.

2020

- Stramondo, J. A. The right to assistive technology. *Theoretical Medicine and Bioethics* (2020) 1–25.
- Stramondo, J.A. Disability and the damaging master narrative of an open future. *Hastings Cent Rep.* 2020 May;50 Suppl 1:S30-S36. doi: 10.1002/hast.1153. PMID: 32597527.
- Guidry-Grimes, L., Savin, K., Stramondo, J.A., Reynolds, J.M., Tsaplina, M., Burke, T.B., Ballantyne, A., Kittay, E.F., Stahl, D., Scully, J.L, Garland-Thomson, R., Tarzian, A., Dorfman, D. and Fins, J.J. Disability rights as a necessary framework for crisis standards of care and the future of health care. *Hastings Cent Rep.* 2020 May;50(3):28-32. doi: 10.1002/hast.1128. PMID: 32596899.

Margaret C. Thompson

2018

- Thompson, M.C. Critiquing the concept of BCI illiteracy. *Science and Engineering Ethics*, 2018, <https://doi.org/10.1007/s11948-018-0061-1>.

Emo Todorov

2013

- Kumar, V., Xu, Z., and Todorov, E. Fast, strong and compliant pneumatic actuation for dexterous tendon-driven hands. *IEEE International Conference on Robotics and Automation*, 2013.

- Wu, T., Tassa, Y., Kumar, V., Movellan, J. and Todorov, E. STAC: Simultaneous tracking and calibration. Humanoids, 2013
- Erez, T., Lowrey, K., Kumar, V., Kolev, S. and Todorov, E. An integrated system for real time Model Predictive Control for humanoid robots. Humanoids 2013.
- Zhe, X., Kumar, V. and Todorov, E. A low cost and modular, 20 dof anthropomorphic robotic hand: Design, actuation and modelling. Humanoids 2013.
- Todorov, E., Tassa, Y., Erez, T., Mordatch, I., Kulchenko, P. and Kumar, V. Synthesis of complex behaviors with optimal control. Computational and Systems Neuroscience (COSYNE) 2013.
- Kumar, V., Tassa, Y., Erez, T. and Todorov, E. Real-time behavior synthesis for dynamic hand manipulation. IEEE International Conference on Robotics and Automation, 2014.
- Xu, Z., Kumar, V. and Todorov, E. A low-cost and modular, 20-DOF anthropomorphic robotic hand: Design, actuation and modeling. IEEE/RAS International Conference on Humanoid Robots, 2013.

2014

- Xu, Z., Kolev, S. and Todorov, E. Design, optimization, calibration, and a case study of a 3D-printed, low-cost fingertip sensor for robotic manipulation. 2014 IEEE International Conference on Robotics and Automation (ICRA), DOI: 10.1109/ICRA.2014.6907253, 2014: 2749 – 2756.
- Kumar, V., Tassa, Y., Erez, T. and Todorov, E. Real-time behaviour synthesis for dynamic hand-manipulation. 2014 IEEE International Conference on Robotics and Automation (ICRA), DOI: 10.1109/ICRA.2014.6907864, 2014:6808-6815.
- Lowrey, K., Kolev, S., Tassa, Y., Erez, T. and Todorov, E. Physically-consistent sensor fusion in contact-rich behaviors. International Conference on Intelligent Robots and Systems (IROS 2014), 2014 IEEE/RSJ, DOI: 10.1109/IROS.2014.6942777, 2014: 1656-1662.
- Tassa, Y., Mansard, N. and Todorov, E. Control-limited differential dynamic programming Robotics and Automation (ICRA), 2014 IEEE International Conference on DOI: 10.1109/ICRA.2014.6907001, 2014: 1168–1175.

Paul Tubig

2020

- Tubig, P. and McCusker, D. Fostering the trustworthiness of researchers: SPECS and the role of ethical reflexivity in novel neurotechnology research. Research Ethics. August 2020. doi:10.1177/1747016120952500

Joel Voldman

2011

- Toh, Y.C., Blagovic, K., Yu, H. and Voldman, J. Spatially organized in vitro models instruct asymmetric stem cell differentiation. Integr Biol (Camb), 3:1179-1187, 2011.

2012

- Przybyla, L. and Voldman, J. Probing embryonic stem cell autocrine and paracrine signaling using microfluidics. *Annu Rev Anal Chem (Palo Alto Calif)*, 5:293-315, 2012.
- Vahey, M.D. and Voldman, J. Isodielectric separation and analysis of cells. *Methods Mol Biol.*, 853:53-63, 2012.
- Przybyla, L.M. and Voldman, J. Attenuation of extrinsic signaling reveals the importance of matrix remodeling on maintenance of embryonic stem cell self-renewal. *Proc Natl Acad Sci U S A*, 109:835-840, 2012.
- Tsang, W.M., Stone, A.L., Otten, D., Aldworth, Z.N., Daniel, T.L., Hildebrand, J.G., Levine, R.B. and Voldman, J. Insect-machine interface: a carbon nanotube-enhanced flexible neural probe. *J Neurosci Methods*, 204:355-365, 2012.

2013

- Honegger, T., Scott, M.A., Yanik, M.F. and Voldman, J. Electrokinetic confinement of axonal growth for dynamically configurable neural networks. *Lab Chip*, 13:589-598, 2013.
- Przybyla, L.M., Theunissen, T.W., Jaenisch, R. and Voldman, J. Matrix remodeling maintains ESC self-renewal by activating Stat3. *Stem Cells*, 31:1097-1106, 2013.
- Su, H.W., Prieto, J.L. and Voldman, J. Rapid dielectrophoretic characterization of single cells using the dielectrophoretic spring. *Lab Chip*, 13:4109-4117, 2013.

2014

- Dura, B., Liu, Y. and Voldman, J. Deformability-based microfluidic cell pairing and fusion. *Lab Chip*. 2014 Jun 5.
- Castellarnau, M., Szeto, G.L., Su, H.W., Tokatlian, T., Love, J.C., Irvine, D.J. and Voldman, J. Stochastic particle barcoding for single-cell tracking and multiparametric analysis. *Small*. 2014 Sep 2. doi: 10.1002/smll.201401369.
- Dighe, A., Froriep, U.P., Sunshine, M., levins, A., Anikeeva, P., Moritz, C. and Voldman, J. Development and in vivo testing of reconfigurable neural probes for chronic electrical recording. *Hilton Head Workshop 2014: A Solid-State Sensors, Actuators and Microsystems Workshop 2014*.

Azadeh Yazdan-Shamorad

2018

- Yazdan-Shahmorad, A., Silversmith, D.B., Kharazia, V. and Sabes, P.N. Targeted cortical reorganization using optogenetics in non-human primates. *Elife*. 2018 May 29;7. pii: e31034. doi: 0.7554/eLife.31034.

2019

- Griggs, D.J., Khateeb, K., Philips, S.A., Chan, J.W., Ojemann, W.K.S. and Yazdan-Shahmorad, A. Optimized large-scale optogenetic interface for non-human primates, *Proc. SPIE 10866, Optogenetics and Optical Manipulation 2019*, 1086605 (22 February 2019); doi: 10.1117/12.2511317
- Khateeb, K., Griggs, D. J., Sabes, P.N., Yazdan-Shahmorad, A. Convection enhanced delivery of optogenetic adeno-associated viral vector to the cortex of rhesus macaque under guidance of online MRI images. *J. Vis. Exp.* (147), e59232, doi:10.3791/59232 (2019).

- He, J.W., Rabiller, G., Nishijima, Y., Akamatsu, Y., Khateeb, K., Leinekugel, X., Yazdan-Shahmorad, A. and Liu, J. Experimental cortical stroke induces aberrant increase of sharp wave associated ripples in the hippocampus and disrupts cortico-hippocampal communication. *J. Cerebral Blood Flow and Metabolism*, 2019, Sep 26:271678X19877889.
- Khateeb, K., Yao, Z., Kharazia, V., Burunova, E., Song, S., Wang, R. and Yazdan-Shahmorad, A. A practical method for creating targeted focal ischemic stroke in the cortex of nonhuman primates. *IEEE EMBC 2019*.
- Ip, Z., Rabiller, G., He, J.W., Yao, Z., Akamatsu, Y., Nishijimi, Y., Liu, J. and Yazdan-Shahmorad, A. Cortical stroke affects activity and stability of theta/delta states in remote hippocampal regions. *IEEE EMBC 2019*.
- Bloch, J., Khateeb, K., Silversmith, D., O'Doherty, J.E., Sabes, P.N. and Yazdan-Shahmorad, A. Cortical stimulation induces network-wide coherence change in non-human primate cortex. *IEEE EMBC 2019*.
- Macknik, S., Alexander, R., Caballero, O., Nielsen, K., Nishimura, N., Schaffer, C., Slovin, H., Babayoff, A., Tang, S., Ju, N., Yazdan-Shahmorad, A., Alonso, J.M., Malinskiy, E. and Martinez-Conde, S. Advanced circuit and cellular imaging methods in non-human primates. *J Neurosci*, 39:8267-8274, 2019.

2020

- Tremblay S, Acker L, Afraz A, Albaugh DL, Amita H, Andrei AR, Angelucci A, Aschner A, Balan PF, Basso MA, Benvenuti G, Bohlen MO, Caiola MJ, Calcedo R, Cavanaugh J, Chen Y, Chen S, Chernov MM, Clark AM, Dai J, Debes SR, Deisseroth K, Desimone R, Dragoi V, Egger SW, Eldridge MAG, El-Nahal HG, Fabbrini F, Federer F, Fetsch CR, Fortuna MG, Friedman RM, Fujii N, Gail A, Galvan A, Ghosh S, Gieselmann MA, Gulli RA, Hikosaka O, Hosseini EA, Hu X, Hüer J, Inoue KI, Janz R, Jazayeri M, Jiang R, Ju N, Kar K, Klein C, Kohn A, Komatsu M, Maeda K, Martinez-Trujillo JC, Matsumoto M, Maunsell JHR, Mendoza-Halliday D, Monosov IE, Muers RS, Nurminen L, Ortiz-Rios M, O'Shea DJ, Palfi S, Petkov CI, Pojoga S, Rajalingham R, Ramakrishnan C, Remington ED, Revsine C, Roe AW, Sabes PN, Saunders RC, Scherberger H, Schmid MC, Schultz W, Seidemann E, Senova YS, Shadlen MN, Sheinberg DL, Siu C, Smith Y, Solomon SS, Sommer MA, Spudich JL, Stauffer WR, Takada M, Tang S, Thiele A, Treue S, Vanduffel W, Vogels R, Whitmire MP, Wichmann T, Wurtz RH, Xu H, Yazdan-Shahmorad A, Shenoy KV, DiCarlo JJ, Platt ML. An open resource for non-human primate optogenetics. *Neuron*. 2020 Oct 12:S0896-6273(20)30751-0. doi: 10.1016/j.neuron.2020.09.027.
- Ojemann, W.K.S., Griggs, D.J., Ip, Z., Caballero, O., Jahanian, H., Martinez-Conde, S., Macknik, S. and Yazdan-Shahmorad, A. A MRI-based toolbox for neurosurgical planning in nonhuman primates. *J Vis Exp*. 2020 Jul 17;(161). doi: 10.3791/61098. PMID: 32744531.

2021

- Griggs, D.J., Bloch, J., Chavan, S., Coubrough, K.M., Conley, W., Morrisroe, K. and Yazdan-Shahmorad, A., Autonomous cage-side system for remote training of non-human primates. *J. Neuroscience Methods*, 348, 2021., 108969, ISSN 0165-0270, <https://doi.org/10.1016/j.jneumeth.2020.108969>.
- Griggs, D.J., Khateeb, K., Zhou, J., Liu, T., Wang, R. and Yazdan-Shahmorad, A., Multi-modal artificial dura for simultaneous large-scale optical access and large-scale electrophysiology in non-human primate cortex. *J. Neural Eng*. 18 055006, 2021.

2022

- Khateeb, K., Bloch, J., Zhou, J., Rahimi, M., Griggs, D.J., Kharazia, V.N., Le, M.N., Wang, R.K. and Yazdan-Shahmorad, A. A versatile toolbox for studying cortical physiology in primates, *Cell Reports Methods*, Volume 2, Issue 3, 2022, 100183, ISSN 2667-2375, <https://doi.org/10.1016/j.crmeth.2022.100183>.
- Zhou, J., Khateeb, K., Gala, A., Rahimi, M., Griggs, D.J., Ip, Z. and Yazdan-Shahmorad, A. Neuroprotective effects of electrical stimulation following ischemic stroke in non-human primates, 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2022, pp. 3085-3088, doi: 10.1109/EMBC48229.2022.9871335.
- Sato, Y., Schmitt, O., Ip, Z., Rabiller, G., Omodaka, S., Tominaga, T., Yazdan-Shahmorad and Liu, J., Pathological changes of brain oscillations following ischemic stroke. *Journal of Cerebral Blood Flow & Metabolism*. 42:1753-1776, 2022.
- Griggs, D.J., Garcia, A.D., Au, W.Y., Ojemann, W.K.S., Johnson, A.G., Ting, J.T., Buffalo, E.A. and Yazdan-Shahmorad, A. Improving the efficacy and accessibility of intracranial viral vector delivery in non-human primates. *Pharmaceutics* 2022, 14, 1435. <https://doi.org/10.3390/pharmaceutics14071435>
- Bloch, J., Greaves-Tunnell, A., Shea-Brown, E., Harchaoui, Z., Shojaie, A. and Yazdan-Shahmorad, A. Network structure mediates functional reorganization induced by optogenetic stimulation of non-human primate sensorimotor cortex, *iScience*, 25:104285, 2022.

2023

- Belloir, T., Montalvo-Vargo, S., Ahmed, Z., Griggs, D.J., Fisher, S., Brown, T., Chamanzar, M. and Yazdan-Shahmorad, A. Large-scale multimodal surface neural interfaces for primates, *iScience*, Volume 26, Issue 1, 2023, 105866, ISSN 2589-0042, <https://doi.org/10.1016/j.isci.2022.105866>.
- Griggs, D., Belloir, T., Zhou, J. and Yazdan-Shahmorad, A. (2023). Convection Enhanced Delivery of Viral Vectors. In: Eldridge, M.A., Galvan, A. (eds) *Vectorology for Optogenetics and Chemogenetics*. *Neuromethods*, vol 195. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-2918-5_12.