

Shawn Mikula

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Education/Training

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Texas, Austin, TX, USA	BS	1994-1998	Physics
	BS	1994-1998	Mathematics
	BS	1994-1998	Biochemistry
Johns Hopkins University, Baltimore, MD, USA	Ph.D	1998-2005	Neuroscience
University of California, Davis, CA, USA	post-doc	2005-2009	
Max Planck Institute for Medical Research, Heidelberg, Germany	post-doc	2009-2014	

Professional Experience

Visiting Scientist, National Institute for Physiological Sciences, Okazaki, Japan, 2018-present
Project Leader (tenured), Max Planck Institute for Neurobiology, Martinsried, Germany, 2014-2018

Professional Activities

Associate Editor, *Journal of Comparative Neurology*, 2018-present
Associate Editor, *Frontiers in Neuroanatomy*, 2015-present
Guest Associate Editor, *Frontiers in Neural Circuits*, 2017-present
Guest Associate Editor, *Frontiers in Neuroscience: Neural Technology*, 2016-2017
Peer reviewer for *eLife*, *eNeuro*, *Frontiers in Neuroanatomy*, *Frontiers in Neural Circuits*, *Frontiers in Neuroinformatics*, *NeuroImage*, *Physics in Medicine and Biology*, and *Neural Computation*.
Member of the *Society for Neuroscience*, 2004-present

Invited Talks

02/2018 High-Throughput Electron Microscopy and Synchrotron X-ray NanoCT of Whole Mammalian Brains for Brain-wide Cellular Connectomics. Tokyo Univ., Tokyo, Japan
01/2018 High-Throughput Electron Microscopy and Synchrotron X-ray NanoCT of Whole Mammalian Brains for Brain-wide Cellular Connectomics. National Institute of Physiological Sciences, Okazaki, Japan
05/2017 Mouse Whole-Brain Volume Electron Microscopy for Cellular Connectomics.

	Univ. of Chicago, Chicago, USA
04/2017	Mouse Whole-Brain Volume Electron Microscopy for Cellular Connectomics. Connectomics Meeting. Berlin, Germany
11/2016	Progress Towards Mammalian Whole-Brain Cellular Connectomics. Mind-Brain Inst., Johns Hopkins Univ., Baltimore, MD, USA
07/2016	Whole-Brain Electron Microscopic Circuit Reconstruction. FENS Forum of Neuroscience. Copenhagen, Denmark
04/2016	Circuit Reconstruction Conference, Janelia Farm Research Campus, HHMI, Ashburn, VA, USA
04/2016	113th International Titisee Conference. Building tools for quantifying brain and behaviour, Titisee, Germany
11/2014	Towards an Electron Microscopic Map of the Whole Mouse Brain. Bodian Seminar, Johns Hopkins Univ., Baltimore, MD, USA
11/2014	High-Resolution Whole-Brain Staining for Electron Microscopic Circuit Reconstruction. NIH, Bethesda, MD, USA
10/2014	Enhanced Staining for Whole Mouse Brain Circuit Reconstruction. Neural Circuit Reconstruction Conference, MPI, Berlin, Germany
06/2013	Enhanced Staining for Whole Mouse Brain Circuit Reconstruction. Sixth International Neural Microcircuit Conference, Okazaki, Japan
03/2013	Enhanced Staining for Whole Mouse Brain Circuit Reconstruction. Janelia Farm Research Campus, HHMI, Ashburn, VA, USA
11/2012	Mapping the Whole Mouse Brain with Electron Microscopy. Whole-Brain Circuit Reconstruction satellite symposium, SFN, New Orleans, LA, USA
02/2012	Towards Mapping the Whole Mouse Brain using Serial Block-face Electron Microscopy. Bernstein Center for Computational Neuroscience, Berlin, Germany
10/2006	Virtual Microscopy in Neurology. Aperio Visions Conference, San Diego, CA, USA

Publications

Kubota, Y., Sohn, J., Hatada, S., Schurr, M., Straehle, J., Gour, A., Neujahr, R., Miki, T., [Mikula, S.](#), & Kawaguchi, Y. (2018). A Carbon Nanotube Tape for Serial-Section Electron Microscopy of Brain Ultrastructure. *Nature Communications* (in press).

[Mikula, S.](#) (2017). In-Chamber Reel-to-Reel System for Random-Access Volume Electron Microscopy. *Microscopy and Microanalysis*, 23(S1), 154–155.

Dorkenwald, S., Schubert, P. J., Killinger, M. F., Urban, G., [Mikula, S.](#), Svara, F., & Kornfeld, J. (2017). Automated Synaptic Connectivity Inference for Volume Electron Microscopy. *Nature Methods*, 14(4), 435–442.

[Mikula, S.](#) (2016). Progress Towards Mammalian Whole-Brain Cellular Connectomics. *Frontiers in Neuroanatomy*, 10, 62.

Mikula, S. & Denk, W. (2015) High-Resolution Whole-Brain Staining for Electron Microscopic Circuit Reconstruction. *Nature Methods*. 12:6, 541-6. (Cover article)

Kemen, T., Malloy, M., Thiel, B., Mikula, S., Denk, W., Delleman, G., Zeidler, D. (2015) Further Advancing the Throughput of a Multibeam SEM. *SPIE Advanced Lithography*.

Eberle, A.L., Mikula, S., Schalek, R., Lichtman, J., Knothe Tate, M., and Zeidler, D. (2015) High-Resolution, High-Throughput Imaging with a Multi-Beam Scanning Electron Microscope. *Journal of Microscopy*.

Tek, B.F., Kroeger, T., Mikula, S., Hamprecht, F.A. (2014) Automated Cell Nuclei Detection for Large-Volume Electron Microscopy of Neural Tissue. *IEEE International Symposium on Biomedical Imaging*.

Kroeger, T., Mikula, S., Denk, W., Koethe, U., Hamprecht, F.A. (2013) Learning to Segment Neurons with Non-Local Quality Measures. *Med Image Comput Comput Assist Interv*. 16(Pt 2): 419-27.

Binding, J., Mikula, S., Denk, W. (2013) Low-Dosage Maximum-a-Posteriori Focusing and Stigmation. *Microscopy and Microanalysis*. 19(1): 38-55.

Mikula, S., Binding, J., Denk, W. (2012) Staining and Embedding the Whole Mouse Brain for Electron Microscopy. *Nature Methods*. 9, 1198–1201.

Speer, C.M., Mikula, S., Huberman, A.D., Chapman, B. (2010) The Developmental Remodeling of Eye-Specific Afferents in the Ferret Dorsal Lateral Geniculate Nucleus. *Anat Rec (Hoboken)*. 293(1): 1-24.

Mikula, S., Parrish, S.K., Trimmer, J.S., Jones, E.G. (2009) Complete 3D Visualization of Primate Striosomes by KChIP1 Immunostaining. *J Comp Neurol*. 514(5): 507-17.

Bohland, J.W., Wu, C., Barbas, H., Bokil, H., Cline, H.T., Freed, P.J., Greenspan, R.J., Haber, S.N., Hawrylycz, M., Herrera, D.G., Hilgetag, C.C., Huang, Z.J., Jones, A., Jones, E.G., Karten, H.J., Kleinfeld, D., Kotter, R., Lester, H.A., Lin, J.M., Mikula, S., Panksepp, J., Safdieh, J., Saper, C.B., Schiff, N.D., Svoboda, K., Swanson, L.W., Toga, A.W., Watson, J.D., & Mitra, P.P. (2009) A Proposal for a Coordinated Effort for the Determination of Brain Wide Neuroanatomical Connectivity in Model Organisms at a Mesoscopic Scale. *PLoS Comput Biol*. 5(3): e1000334.

Mikula, S., Manger, P.R., and Jones, E.G. (2008) The Thalamus of the Monotremes: Cyto- and Myeloarchitecture and Chemical Neuroanatomy. *Philos Trans R Soc Lond B Biol Sci*. 363(1502): 2415-40

Mikula, S., Stone, J.M., and Jones, E.G. (2008) BrainMaps.org - Interactive High-Resolution Digital Brain Atlases and Virtual Microscopy. Brains, Minds & Media, Vol.3, bmm1426, in: Lorenz S, Egelhaaf M (eds): Interactive Educational Media for the Neural and Cognitive Sciences, Brains, Minds & Media, 2008.

Mikula, S. and Niebur, E. (2008) Exact Solutions for Rate and Synchrony in Recurrent Networks. Neural Computation. 20(11): 2637-61. (Cover article)

Trotts, I., Mikula, S., and Jones, E.G. (2007) Interactive Visualization of Multiresolution Image Stacks in 3D. NeuroImage. 35(3): 1038-43

Mikula, S., Trotts, I., Stone, J., and Jones, E.G. (2007) Internet-Enabled High-Resolution Brain Mapping and Virtual Microscopy. NeuroImage. 35(1): 9-15. (Cover article)

Mikula, S. and Niebur, E. (2006) A Novel Method for Visualizing Functional Connectivity using Principal Component Analysis. Int J Neurosci. 116(4): 419-29.

Mikula, S. and Niebur, E. (2005) Rate and Synchrony in Feedforward Networks of Coincidence Detectors: Analytical Solution. Neural Computation. 17(4): 881-902.

Mikula, S. and Niebur, E. (2004) Correlated Inhibitory and Excitatory Inputs to the Coincidence Detector: Analytical Solution. IEEE Transactions on Neural Networks. 15(5): 957-62.

Mikula, S. and Niebur, E. (2003) Synaptic Depression leads to Nonmonotonic Frequency Dependence in the Coincidence Detector. Neural Computation. 15(10): 2339-58

Mikula, S. and Niebur, E. (2003) The Effects of Input Rate and Synchrony on a Coincidence Detector: Analytical Solution. Neural Computation. 15(3): 539-47.

Reviews

Mikula, S. (2014) Scanning Electron Microscopy. Encyclopedia of Computational Neuroscience. Springer. Editors, Dieter Jaeger and Ranu Jung.