SHARON M. CROOK
Curriculum Vitae

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EDUCATION

PhD	Applied Mathematics	University of Maryland, College Park	1996
MA	Applied Mathematics	University of Maryland, College Park	1991
BS	Mathematics	University of Southern Mississippi	1987

PROFESSIONAL INTERESTS

Mathematical and Computational Neuroscience, Neuroinformatics, Neuroscience Data Analysis, Mathematical Physiology, Computational Biology, Differential Equations and Dynamical Systems

ACADEMIC EMPLOYMENT

2021-	Associate Director for Graduate Programs, School of Mathematical and Statistical Sciences, Arizona State University, Tempe, Arizona
2017-	Professor of Mathematics and Statistics and Life Sciences, Arizona State University, Tempe, Arizona
2010-2017	Associate Professor of Mathematics and Statistics and Life Sciences, Arizona State University, Tempe, Arizona
2004-2010	Assistant Professor of Mathematics and Statistics and Life Sciences, Arizona State University, Tempe, Arizona
2000-2004	Assistant Professor of Mathematics, Department of Mathematics and Statistics, University of Maine, Orono, Maine
1997-2000	Postdoctoral Researcher, Center for Computational Biology, Montana State University, Bozeman, Montana
1995-1997	Guest Research Assistant, Mathematical Research Branch, NIDDK, National Institutes of Health, Bethesda, Maryland
1989-1991	Teaching Assistant, University of Maryland, College Park, Maryland

FELLOWSHIPS AND AWARDS

2022	ASU Faculty Women's Association Outstanding Mentor Award
2020	Charles Wexler Teaching Award
2011	Scottish Informatics and Computer Science Alliance (SICSA) Distinguished Visiting Fellowship

2002 Mathematical Association of America, Project NExT Fellow (New Experiences in Teaching)
1999 AWM Workshop Travel Award
1997-1999 NIH Postdoctoral Individual National Research Service Award
1992-1994 NASA Graduate Student Research Fellowship
1987-1989 University of Maryland Graduate School Fellowship
1987 University of Southern Mississippi Student Hall of Fame
1987 University of Southern Mississippi Mathematics Achievement Award

OTHER TRAINING AND AFFILIATIONS

2008- Affiliate, Simon A Levin Mathematical, Computational and Modeling Sciences Center, Arizona State University
2011 SICSA Distinguished Visiting Fellow, School of Informatics, University of Edinburgh
2011 Long-term Visitor, Computational Neurosciences Group, Norwegian University of Life Sciences
2004-2021 Affiliate, Center for Adaptive Neural Systems, Arizona State University
2003 Long-term Visitor, Mathematical Biosciences Institute, Ohio State University, Columbus, Ohio
1998 Visitor and Participant in Computational Neuroscience Workshop, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, Minnesota
1992 Student, Methods in Computational Neuroscience Course, Marine Biological Laboratory, Woods Hole, Massachusetts
1988-1991 Research and Development for Intelligent Data Management, NASA Goddard Space Flight Center, National Space Science Data Center, Greenbelt, Maryland
1987 Summer Intern, Laboratory for Atmospheres, NASA Goddard Space Flight Center, Greenbelt, Maryland
1985-1986 Summer Research Assistant and Computer Graphics Programmer, Medical University of South Carolina, Department of Anatomy, Charleston, South Carolina

PUBLICATIONS (*indicates mentored student or postdoc)

Peer-reviewed Articles:

*Haynes, VR, Y Zhou, **S Crook** (2024) Discovering optimal features for neuron type identification from extracellular recordings. *Frontiers in Neuroinformatics.* 18.1303993. DOI:10.3389/ninf.2024.1303993

*Birgiolas, J, *VR Haynes, P Gleeson, RC Gerkin, SW Dietrich, **S Crook** (2023) NeuroML-DB: Sharing and characterizing data-driven neuroscience models described in NeuroML. *PLoS Computational Biology*. 19(3):e1010941. DOI:10.1371/journal.pcbi.1010941

Gleeson, P, **S Crook**, D Turner, K Mantel, M Raunak, T Willke, JD Cohen (2023) Integrating model development across computational neuroscience, cognitive science, and machine learning. *Neuron.* 111(10):1526-1530. DOI:10.1016/j.neuron.2023.03.037

Eriksson, O, US Bhalla, KT Blackwell, **SM Crook**, D Keller, A Kramer, M Linne, A Saudargiene, RC Wade, J Hellgren Kotaleski (2022) Combining hypothesis- and data-driven neuroscience modeling in FAIR workflows. *eLife.* 11:e69013. DOI:10.7554/eLife.69013

Eke, DO, A Bernard, JG Bjaalie, R Chavarriaga, T Hanakawa, AJ Hannan, SL Hill, ME Martone, A McMahon, O Ruebel, **S Crook**, E Thiels, F Pestilli (2022) International Data Governance for Neuroscience. *NEURON*. 110(4):600-612. DOI:10.1016/j.neuron.2021.11.017

Dietrich, SW, D Goelman, J Broatch, **S Crook**, B Ball, K Kobojek, J Ortiz (2021) Introducing databases in context through customizable visualizations. *Frontiers in Education*. DOI:10.3389/feduc.2021.719134.

Baer, SM, S Chang, **SM Crook**, CL Gardner, JR Jones, C Ringhofer, FR Nelson (2021) A multiscale continuum model of the vertebrate outer retina: The temporal dynamics of background-induced flicker enhancement. *Journal of Theoretical Biology.* DOI:10.1016/j.jtbi.2021.110763.

*Reckell, T, K Nguyen, *T Phan, **SM Crook**, E Kostelich, Y Kuang (2021) Modeling the synergistic properties of drugs in hormonal treatment for prostate cancer. *Journal of Theoretial Biology*. 514:110570. DOI:10:1016/j.jtbi.2020.110570

*Ruhani, M, SM Baer, **SM Crook** (2021) A stage-structured population model for activity-dependent dendritic spines, *Journal of Biological Dynamics*. DOI:10.1080/17513758.2020.1839136

Dietrich, SW, D Goelman, J Broatch, **S Crook**, B Ball, K Kobojek (2020) Using formative assessment for improving pedagogy. *ACM Inroads*. 11(4):27-34. DOI:10.1145/3430766

Crook, SM, AP Davison, RA McDougal, HE Plesser (2020) Editorial: Reproducibility and Rigour in Computational Neuroscience. *Frontiers in Neuroinformatics*. DOI:10.3389/fninf.2020.00023

*Phan, T, **SM Crook**, AH Bryce, CC Maley, EJ Kostelich, Y Kuang (2020) Review: mathematical modeling of prostate cancer and clinical application. *Applied Science*. 10:2721. DOI:10.3390/app10082721

Gleeson, P, M Cantarelli, B Marin, A Quintana, M Earnshaw, S Sadeh, E Piasini, *J Birgiolas, RC Cannon, NA Cayco-Gajic, **S Crook**, AP Davison, S Dura-Bernal, A Ecker, ML Hines, G Idili, F Lanore, SD Larson, WW Lytton, A Mujumdar, RA McDougal, S Sivagnanam, S Solinas, R Stanislovas, SJ van Albada, W van Geit, RA Silver (2019) Open Source Brain: a collaborative resource for visualizing, analyzing, simulating and developing standardized models of neurons and circuits. *Neuron*. DOI:10.1016/j.neuron.2019.05.019

Neal, M, M Koenig, D Nickerson, G Misirli, R Kalbasi, A Drager, K Atalag, V Chelliah, M Cooling, D Cook, **S Crook**, M de Alba, S Friedman, A Garny, J Gennari, P Gleeson, M Golebiewski, M Hucka, N Juty, C Myers, B Oivier, H Sauro, M Scharm, J Snoep, V Toure, A Wipat, O Wolkenhauer, D Waltemath (2018) Harmonizing semantic annotations for computational models in biology. *Briefings in Bioinformatics*. DOI:10.1093/bib/bby087

Gerkin, RC, *RJ Jarvis, **SM Crook** (2018) Towards systematic, data-driven validation of a collaborative, multi-scale model of *C. elegans*. *Philosophical Transactions of the Royal Society B*. 373:20170381. DOI:10.1098.rstb.2017.0381.

*Birgiolas, J, CM Jernigan, RC Gerkin, BH Smith, **SM Crook** (2017) SwarmSight: Real-time tracking of insect antenna movement and proboscis extension reflex using a common preparation and conventional hardware. *Journal of Visualized Experiments* (130), e56803. DOI:10.3791/56803.

*Birgiolas, J, CM Jernigen, B Smith, **S Crook** (2016) SwarmSight: Measuring the temporal progression of animal group activity levels from natural scene and laboratory videos. *Behavior Research Methods*, 1-12.

*Berger, S, **S Crook** (2015) Modeling the influence of ion channels on neuron dynamics in Drosophila. *Frontiers in Computational Neuroscience*. 9:139. DOI:10.3389/fncom/2015.00139.

Gardner, C, *JR Jones, SM Baer, **SM Crook** (2015) Drift-diffusion simulation of the ephaptic effect in the triad synapse of the retina. *Journal of Computational Neuroscience*. 38:129-142. DOI:10.1007/s10827-014-0531-7.

Cannon, RC, P Gleeson, **S Crook**, G Gnapathy, B Marin, E Piasini, RA Silver (2014) LEMS: A language for expressing complex biological models in concise and hierarchical form and its use in underpinning NeuroML 2. *Frontiers in Neuroinformatics*. 8:79. DOI:10.3389/fninf.2014.00079.

*Costela, FM, J Otero-Millan, MB McCamy, S Macknik, XG Troncoso, AN Jazi, **SM Crook**, S Martinez-Conde (2014) Fixational eye movement correction of blink-induced gaze position errors. *PLoS One*. 9(10): e110889.

Vella, M, RC Cannon, **S Crook**, AP Davison, G Ganapathy, HPC Robinson, RA Silver, P Gleeson (2014) libNeuroML and PyLEMS: using Python to combine procedural and declarative modeling approaches in computational neuroscience. *Frontiers in Neuroinformatics*. 8:38. DOI:10.3389/fninf.2014.00038

*Herrera-Valdez, M, EC McKiernan, *SD Berger, S Ryglewski, C Duch, **S Crook** (2013) Relating ion channel expression, bifurcation structure, and diverse firing patterns in a model of an identified motor neuron.

Journal of Computational Neuroscience. 34(2):211-229. DOI:10.1007/s10827-012-0416-6

Crook, SM, JA Bednar, *SD Berger, RC Cannon, AP Davison, M Djurfeldt, J Eppler, B Kreiner, S Furber, B Graham, M Hull, HE Plesser, L Schwabe, L Smith, V Steuber, S van Albada (2012) Creating, documenting and sharing network models. *Network: Computation in Neural Systems.* 23(4):131-149.

McCamy*, MB, J Otero-Millan, SL Macknik, Y Yang, XG Troncoso, SM Baer, **SM Crook**, S Martinez-Conde (2012) Microsaccadic efficacy and contribution to foveal and peripheral vision. *Journal of Neuroscience*. 32(27):9194-9204. DOI:10.1523/JNEUROSCI.0515-12.2012.

Venugopal, S, TM Hamm, **SM Crook,** R Jung (2011) Modulation of inhibitory strength and kinetics facilitates regulation of persistent inward currents and motoneuron excitability following spinal cord injury. *Journal of Neurophysiology*. 106(5):2167-2179.

*Kurian, M, **SM Crook** and R Jung (2011) Motoneuron models of self-sustained firing after spinal cord injury*. Journal of Computational Neuroscience.* 31(3):625-645.

Gleeson, P, **S Crook**, R Cannon, M Hines, G Billings, M Farinella, TM Morse, A Davison, S Ray, U Bhalla, SR Barnes, YD Dimitrova and RA Silver (2010) NeuroML: a simulator-independent language for describing data-driven models of neurons and networks with a high degree of biological realism. *PLoS Computational Biology*. 6(6): e1000815. DOI:10.1371/journal.pcbi.1000815.

Baer, SM, **S Crook**, *M Dur-e-Ahmad and Z Jackiewicz (2009) Numerical solution of calcium-mediated dendritic branch model. *Journal of Computational and Applied Mathematics.* 229:416-424.

*Dur-e-Ahmad, M, Z Jackiewicz, B Zubik-Kowal and **S Crook** (2007) A variant of pseudospectral method for activity-dependent dendritic branch model. *Journal of Neuroscience Methods.* 165:306-319.

Crook, S, *M Dur-e-Ahmad and SM Baer (2007) A model of activity-dependent changes in dendritic spine density and spine structure. *Mathematical Biosciences and Engineering.* 4:617-631.

Crook, S, P Gleeson, F Howell, J Svitak and RA Silver (2007) MorphML: Level 1 of the NeuroML standards for neuronal morphology data and model specification. *Neuroinformatics.* 5(2):96-104.

*Qi, W and **S Crook** (2004) Tools for neuroinformatic data exchange: An XML application for neuronal morphology data. *Neurocomputing*. 58-60C:1091-1095.

*Eaton, CD, **S Crook**, G Cummins and GA Jacobs (2004) Modeling ion channels from the cricket cercal sensory system. *Neurocomputing*. 58-60C:409-415.

Cummins, GI, **SM Crook**, AG Dimitrov, T Ganje, GA Jacobs and JP Miller (2003) Structural and biophysical mechanisms underlying dynamic sensitivity of primary sensory interneurons in the cricket cercal sensory system. *Neurocomputing*. 52:45-52.

Crook, S, J Miller and G Jacobs (2002) Modeling frequency encoding in the cricket cercal sensory system. *Neurocomputing* 44:769-773.

Crook, SM, GB Ermentrout and JM Bower. (1998) Spike frequency adaptation affects the synchronization properties of cortical networks. *Neural Computation* 10:837-854.

Crook, SM, GB Ermentrout and JM Bower (1998) Dendritic and synaptic effects in systems of coupled cortical oscillators. *Journal of Computational Neuroscience* 5:315-329.

Crook, SM, GB Ermentrout, MC Vanier and JM Bower (1997) The role of axonal delay in the synchronization of networks of coupled cortical oscillators. *Journal of Computational Neuroscience* 4:161-172.

Cromp, RF and **S Crook** (1989) An intelligent user interface for browsing satellite data catalogs. *Telematics and Informatics* 6:299-312.

Peer-reviewed Conference Proceedings:

*Faucon, P, P Balachandran, **S Crook** (2017) SNaReSim: Synthetic Nanopore Read Simulator. *Proceedings of the 2017 IEEE International Conference on Healthcare Informatics,* DOI:10.1109/ICHI.2017.98.

*Samavat, M, *D Luli, **SM Crook** (2016) Neuronal network models for sensory discrimination. *Proceedings of 2016 50th Asilomar Conference on Signals, Systems and Computers*, 1066-1073 DOI:10.1109/ACSSC.2016.7869533.

*Birgiolas, J, S Dietrich, **S Crook**, A Rajadesingan, C Zhang, S Velugoti Penchala, V Addepalli (2015) Ontology-assisted keyword search for NeuroML models. In Amarnath Gupta and Susan Rathbun, Eds, *Proceedings of the 27th International Conference on Scientific and Statistical Database Management*, ACM, New York, NY. Article 37. DOI:10.1145/2791347.2791360.

Dietrich, SW, D Goelman, CM Borror, **SM Crook** (2015) An animated introduction to relational databases for many majors. *IEEE Transactions on Education*. 58(2):81-89. DOI:10.1109/TE.2014.2326834.

Crook, S, D Beeman, P Gleeson and F Howell (2005) XML for model specification in neuroscience: An introduction and workshop summary. *Brains, Minds, and Media.* 1:bmm228 (urn:nbn:de:0009-3-2282).

Jacobs, GA, K Hodge, **S Crook**, J Roddey and S Paydar (1998) Spatio-temporal activity patterns encode direction and dynamics in the cricket cercal system, *Proceedings of the 5th International Congress of Neuroethology*.

Crook, SM and GB Ermentrout (1997) An analysis of the adaptive behavior of piriform cortex pyramidal cells. In *Computational Neuroscience Trends in Research 1996*, JM Bower (Ed.), Plenum Publishers, 170-175.

Ermentrout, GB, **S Crook** and JM Bower (1996) Connectivity, axonal delay, and synchrony in cortical oscillators. In *Computational Neuroscience Trends in Research 1995*, JM Bower (Ed.), Academic Press, 167-172.

Cromp, RF and **SM Crook** (1991) Automated extraction of metadata from remotely sensed satellite imagery. *ACSM-ASPRS Annual Convention* 3:111-120.

Published Abstracts:

*Doxey, KE, *V Haynes, Y Zhou, **S Crook** (2023) Neuron-type identification using spatiotemporal features of extracellular recordings. *Society for Neuroscience Abstract,* 118.10.

*Smith, EA, *KE Doxey, *J Birgiolas, RC Gerkin, **SM Crook** (2023) Modeling the role of ketamine on excitation-inhibition balance in the olfactory bulb. *Society for Neuroscience Abstracts*, 577.14.

*Dudebout, EM, WD Van Horn, **S Crook** (2023) Mathematical model for TRPM8 dynamics in cold sensory neurons. *Society for Neuroscience Abstracts*, 118.16.

*Rouhani, M, **SM Crook**, JJ Abbas (2021) Recruitment profiles produced by intra-fascicular stimulation of peripheral nerve fibers. *BMC Neuroscience*.

*Jarvis, JJ, RC Gerkin, **SM Crook** (2020) Large scale discrimination between neural models and experimental data. *BMC Neuroscience.*

*Birgiolas, J, RC Gerkin, **SM Crook** (2020) Biophysically realistic model of mouse olfactory bulb gamma fingerprint. *BMC Neuroscience*.

*Birgiolas, J, *R Jarvis, *V Haynes, R Gerkin, **S Crook** (2019) Automated assessment and comparison of cortical neuron models. *BMC Neuroscience*, 20(Suppl 1):P47.

*Haynes, V, **SM Crook** (2018) Interlaminar contributions to auditory feature processing. *BMC Neuroscience,* 19(Suppl 2):P215.

*Birgiolas, J, R Gerkin, **SM Crook** (2018) Rapid selection of NeuroML models via NeuroML-DB.org. *BMC Neuroscience,* 19(Suppl 2):P216.

Gerkin, R, *RJ Jarvis, **SM Crook** (2018) Multiscale model validation with SciUnit. *BMC Neuroscience,* 19(Suppl 2):P217.

*Jarvis, R, **SM Crook**, RC Gerkin (2017) Parallel model optimization against experimental neuron physiology data with DEAP and NeuronUnit. *Frontiers in Neuroinformatics Conference Abstract: 10th INCF Congress of Neuroinformatics.*

*Birgiolas, J, CM Jernigan, RC Gerkin, BH Smith, **SM Crook** (2016) SwarmSight: Real-time insect antenna and proboscis tracking. *Society for Neuroscience Abstracts*, 97.05.

*Haynes, R, *M Samavat, *D Luli, **S Crook** (2016) The role of connectivity patterns in a computational model of Drosophila Antennal Lobe. *Society for Neuroscience Abstracts*, 430.13.

*Birgiolas, J, R Gerkin, **SM Crook** (2016) Is the model any good? Objective criteria for computational neuroscience model selection. *BMC Neuroscience 17 (Suppl 1), O10.*

Crook, SM, S Dietrich (2014) Model exchange with the NeuroML model database. *BMC Neuroscience* 15(Suppl

1): P171.
Cannon, R, P Gleeson, **S Crook**, A Silver (2013) Reducing duplication and redundancy in declarative model specifications. *Frontiers in Neuroinformatics. Conference Abstract: 5th INCF Congress of Neuroinformatics.* DOI: 10.3389/conf.fninf.2013.08.00008
*Berger, SD, SM Baer, **SM Crook** (2013) A continuum approach to model neurites/dendrites with emerging subtrees. *BMC Neuroscience*. 14(Suppl 1):P73.
*Berger, S, S Baer, **S Crook** (2012) Estimation of electrical properties of dendrites with branches using a continuum modeling formulation. *Society for Neuroscience Abstracts,* 340.01.
Gleeson P, E Piasini, **S Crook**, R Cannon, V Steuber, D Jaeger, S Solinas, E D'Angelo, RA Silver (2012) The Open Source Brain Initiative: enabling collaborative modelling in computational neuroscience. *BMC Neuroscience*. 13(Suppl 1):O7.
Cannon, R, P Gleeson, **S Crook**, RA Silver (2012) A declarative model specification system allowing NeuroML to be extended with user-defined component types. *BMC Neuroscience.* 13(Suppl 1): P42.
Smith A, M Cruz-Aponte, EC McKiernan, **S Crook**, M Herrera-Valdez (2011) Differential contribution of A-type potassium currents in shaping neuronal responses to synaptic input. *BMC Neuroscience*.12:P147.
Gleeson P, **S Crook**, A Silver, R Cannon (2011) Development of NeuroML version 2.0: Greater extensibility, support for abstract neuronal models and interaction with Systems Biology languages. *BMC Neuroscience*. 12:P29.
*Herrera-Valdez MA, *SD Berger, C Duch, **S Crook** (2010) Differential contribution of voltage-dependent potassium currents to neuronal excitability, *BMC Neuroscience*, 11:P159.
*Chang, S, SM Baer, **SM Crook**, CL Gardner, C Ringhofer (2009) Computational study of cat retinal cone-horizontal cell interaction, *Society for Neuroscience Abstracts*, 557.13.
Venugopal, S, **S Crook**, T Hamm, R Jung (2009) A computational study of the interaction between persistent inward currents and recurrent inhibition in alpha motoneurons before and after spinal cord injury, *Society for Neuroscience Abstracts*, 657.10.
Crook, S, P Gleeson, RA Silver (2009) Describing and exchanging models of neurons and neuronal networks with NeuroML, *BMC Neuroscience*, 10:L1.
*Berger, SD, *MA Herrera-Valdez, C Duch and **S Crook** (2009) Passive current transfer in wildtype and genetically modified *Drosophila* motoneuron dendrites, *BMC Neuroscience*, 10:P346.
Venugopal, S, *M Kurian, **S Crook** and R Jung (2009) Role of inhibition in the suppression of alpha-motoneuron hyper-excitability following chronic spinal cord injury, *BMC Neuroscience*, 10:P343.
Dacher, M, **SM Crook** and BH Smith (2008) Spatio-temporal activity of neurons in the insect antennal lobe: A data driven computational model, *Chemical Senses*, 33(8):S66
*Kurian, MP, **S Crook** and R Jung (2008) Modeling changes in motoneuron morphology after spinal cord injury, *Society for Neuroscience Abstracts* (#469.12)
Gleeson, P, **S Crook**, S Barnes, RA Silver (2008) Interoperable model components for biologically realistic single neuron and network models implemented in NeuroML. *Frontiers in Neuroscience*. Conference abstract: Neuroinformatics 2008. DOI: 10.3389/conf.neuro.11.2008.01.135
*McCamy, M, S Baer and **S Crook** (2008) A stage-structred population approach for modeling activity-dependent plasticity of dendritic spines. *BMC Neuroscience*. 9(1):P104.
*Chang, S, S Baer, **S Crook**, C Gardner and C Ringhofer (2008) Modeling the GABA and ephaptic feedback mechanisms in cat outer retina, *BMC Neuroscience.* 9:P110.
*Kurian, MP and **SM Crook** (2007) Modeling motoneuron excitability following spinal cord injury, *Society for Neuroscience Abstracts* (#76.6).
Crook, S, P Gleeson and RA Silver (2007) NetworkML: Level 3 of the NeuroML standards for multiscale model specification and exchange, *Society for Neuroscience Abstracts* (#102.28)
*Jennings, AB, **S Crook**, C Duch and S Ryglewski (2007) Mathematical models of octopaminergic dorsal unpaired median neurons, *Society for Neuroscience Abstracts* (#536.20).

*Dur-e-Ahmad, M, **S Crook** and S Baer (2007) A model of activity-dependent changes in dendritic spine density and spine structure, *BMC Neuroscience.* 8:P91.

Gleeson, P, **S Crook**, V Steuber and RA Silver (2007) Using NeuroML and neuroConstruct to build neuronal network models for multiple simulators, *BMC Neuroscience*. 8:P1.

*Kurian, MP and **S Crook** (2007) Two-compartment models of spasticity in spinal motor neurons following spinal cord injury, *BMC Neuroscience.* 8:P101.

Crook, SM, *M Dur-e-Ahmad, SM Baer and Z Jackiewicz (2006) A model of activity-dependent changes in dendritic spine density and spine structure, *Society for Neuroscience Abstracts* (#135.8).

Mahaffy, MD, **SM Crook**, GA Jacobs and JP Miller (2000) Frequency tuning properties of primary sensory interneurons in the cricket cercal sensory system, *Society for Neuroscience Abstracts* (#55.5).

Book Chapters:

Birgiolas, J**,** R Gerkin, **SM Crook** (2018) Software and resources for computational neuroscience. In Cutsuridis, Graham, Cobb, Vida (eds.) Hippocampal Microcircuits: A Computational Modeler's Resource Book, Springer.

Crook, SM, HE Plesser, AP Davison (2013) Learning from the past: approaches for reproducibility in computational neuroscience. In JM Bower, ed. *20 Years of Computational Neuroscience*, Springer.

Gleeson, P, V Steuber, RA Silver and **S Crook** (2012) NeuroML. In Le Novere, ed. *Computational Systems Biology*, Springer.

Venugopal, S, **S Crook**, M Srivatsan and R Jung (2011) Principles of computational neuroscience. In Jung, ed. *Biomimetic and Biohybrid Living-Hardware Systems*, Wiley.

Günay, C, TG Smolinski, WW Lytton, TM Morse, P Gleeson, **S Crook**, V Steuber, A Silver, H Voicu, P Andrews, H Bokil, H Maniar, C Loader, S Mehta, D Kleinfeld, D Thomson, PP Mitra, G Aaron and J-M Fellous (2008) Computational intelligence in electrophysiology: Trends and open problems. In Smolinski, Milanova and Hassanien, eds. *Applications of Computational Intelligence in Biology*, Springer, Berlin/Heidelberg.

Crook, S and F Howell (2007) XML for data representation and model specification. in Crasto, ed. *Methods in Molecular Biology Book Series: Neuroinformatics*, Humana Press.

Crook, S and A Cohen (1995) Central pattern generators. In Bower and Beeman, eds. *The Book of GENESIS: A workbook of tutorials for the GEneral NEural SImulation System*, Chapter 6. TELOS Publishers.

Other:

Crook, Sharon Marie (1996) The role of delay in oscillatory models of olfactory cortex. *PhD Dissertation*, University of Maryland, College Park, Maryland.

Crook, S (1987) Remarks on the convergence of pi. *Journal of Undergraduate Mathematics*, 19(1):15-22.

Crook, S (1986) Algorithms for computer generation of surfaces. *Journal of Undergraduate Mathematics*, 18(2):51-54.

SPONSORED RESEARCH

Funded Grants:

06/01/20-05/31/24	NIH R01DC019278, PI: Zhou, *CRCNS Research Proposal: Visual modulation of panoramic auditory spatial processing*, $1,484,453, Role: Co-I (50%)
07/01/18-06/30/23	NIH R25NS107188, PI: Neisewander, *Workforce Inclusion in Neuroscience through Undergraduate Research Experience* (WINURE), $1,270,790, Role: Mentor
02/01/18-01/31/20	NIH F31DC016811, PI: Birgiolas, *Integrated Understanding of Tufted and Mitral Pathways in the Olfactory Bulb*, $120,651, Role: Internal PI/Research Advisor (50%)

09/05/15-06/30/19	NIH R01MH106674, PI: Crook, Tools for Model Discovery, Validation and Selection in Neuroscience with NeuroML, $1,505,557 (45%)
09/30/15-07/31/18	NIH R01EB021711, PI: Gerkin, *CRCNS Data Sharing: Exchange and Evaluation of Reduced Neuron Models*, $393,020, Role: Co-I (40%)
09/01/14-08/31/15	NSF CISE-IIS, PI: Smith, *2014 CRCNS PI Conference*, $29,813, Role: Co-I (50%)
09/01/14-08/31/17	NSF DUE 1431848, PI: Dietrich, Collaborative Research: Databases for Many Majors: Customized Visualizations to Improve STEM Learning, $222,982, Role: Senior Personnel (5%)
09/01/11-08/31/15	NIH R01 EB014640, National Institute of Biomedical Imaging and Bioengineering, PI: Crook, *CRCNS Data Sharing: NeuroML Database for Multiscale Models in Neuroscience*, $315,064 (50%)
06/01/11-08/31/11	Norway Research Council Travel Grant, 119,000 NOK (~$21,444) through Norwegian University of Life Sciences
07/01/09-06/30/15	NIH R01 MH081905, National Institute of Mental Health, PI: Crook *NeuroML: Standards and Tools for Multiscale Model Specification and Exchange*, $894,282 (80%)
01/01/10-12/31/12	NSF DUE-0941584, PI: Dietrich, *Collaborative Research: Databases for Many Majors: A Student-Centered Approach,* $49,884, Role: Senior Personnel (5%)
03/01/09-02/28/10	NSF IIS-0912814 (International Travel Award), PI: Crook, *NeuroML Development Workshop: Biophysical Single Cell Modeling,* $10,050 (100%)
2/01/09	International Neuroinformatics Coordinating Facility Workshop Proposal, Organizers: Silver, Gleeson, and Crook, *NeuroML Development Workshop: Biophysical Single Cell Modeling*, ~$9,000 (Through UCL)
09/03/07-09/03/12	NSF DMS, PI: Kostelich, *CSUMS: Undergraduate Research Experience for Computational Math Science Majors at ASU,* $1,029,404 Role: Co-PI (8%)
09/01/07-08/31/10	NSF DMS 0718308, PI: Baer, *Multiscale Modeling of the Neural Subcircuits in the Outer-Plexiform Layer of the Retina*, $642,671 Role: Co-PI (20%)
10/01/06-09/30/09	NSF IIS-0613404 PI: Crook, *CRCNS: Behaviorally Relevant Neuronal Modification during Postembryonic Development*, $457,654 (50%)
08/15/05-07/31/08	NSF SBE, PI: Jung, *CATALYST Center of Excellence in Adaptive Neuro-Biomechatronic Systems (CEANS)*, $110,944 Role: core faculty (8%)
08/15/01-07/31/05	NSF I0S-0091117, PI: Crook, *Collaborative Research: A Dynamic Atlas of the Cricket Cercal Sensory System*, $240,798 (100%)
12/15/02-11/30/07	NSF IGERT, PI: Knowles, *Predoctoral Training in Functional Genomics of Model Organisms*, Role: core faculty
09/01/97-08/30/99	NIH NS010545, Individual National Research Service Award F32, Postdoctoral Research Grant, *A Mechanistic Basis for Neural Encoding*, $49,700

RECENT PRESENTATIONS (*indicates mentored student or postdoc)

Invited Conference Presentations:

2019	Archival and search of NeuroML models and model components, Open Source Brain Workshop, Alghero, Italy
2018	Rigor and reproducibility in computational neuroscience, Practical approaches to research data management and reproducibility Satellite Workshop of the Bernstein Conference, Berlin, Germany
2018	Reproducibiity and rigour: testing the data driven model, (plenary speaker), Neuroinformatics Congress of the INCF, Montreal, Canada
2018	Reproducibility and rigour: testing the data driven model in *C. elegans*, Royal Society Meeting:

Connectome to behaviour: modelling *C. elegans* at cellular resolution, London, UK

2017 Reproducibility and rigour: testing the data driven model, Biofest, University of Maryland, College Park, Maryland

2016 Rigor and reproducibility in computational neuroscience: Model development, exchange and evaluation, BARCCSYN 2016, Barcelona, Spain

2015 Collaborative development of neural models with NeuroML, 2015 COMBINE (Computational Modeling in Biolgy Network) Meeting, Salt Lake City, Utah

2014 A continuum approach for exploring the role of neuronal structure, Nonlinear Dynamics and Stochastic Methods: From Neuroscience to Other Biological Applications, Conference in Honor of Bard Ermentrout's 60th Birthday, Pittsburgh, Pennsylvania

Invited Seminar Presentations:

2020 Data driven modeling in neuroscience: a mathematical success story, University of North Carolina, Greensboro

2019 Testing data-driven models in neuroscience, Precision Neurotherapeutics Innovation Program, Department of Neurosurgery, Mayo Clinic Arizona

2018 Data driven modeling in neuroscience: a mathematical success story, Dartmouth College, Mathematical Colloquium

2017 Reproducibility and rigor in compuational science, University of Arizona Modeling and Computation Seminar Series

2015 Predicting network behavior based on the behavior of individual elements, Faculty Panel: Organismal, Integrative and Systems Biology, School of Life Sciences, Life Sciences Cafe

2015 How I use mathematics to understand the brain, Virginia Commonwealth University, Department of Mathematics Colloquium Series

2015 How I use mathematics to understand the brain, University of Southern Mississippi, Department of Mathematical Sciences Colloquium Series

Contributed Conference Presentations:

2024 Dynamics and Data: Integration and Collaboration, ASU/BNI Neuro-Engineering and Computational Neuroscience Symposium

Research Workshops and Symposia:

2022 NeuroML Breakout, Harmony Codefest of the COMBINE (Computational Modeling in Biology Network) Initiative (speaker and participant)

2021 Towards multipurpose neural network models: II model testing and model fitting, Testing the data driven model, European Institute for Theoretical Neuroscience, International Workshop, (invited speaker)

2021 Report from the International Brain Initiative Data Standards and Sharing Working Group, INCF Assembly (speaker)

2021 FAIR in Computational Neuroscience Session 3, INCF Assembly (speaker and moderator)

2020 International BRAIN Initiative Data Sharing Meeting, Tokyo, Japan (speaker and panelist)

2018 OpenWorm Open House and Hackaton, University College London, London, UK (participant)

2017 NICT-NSF Collaborative Workshop on Computational Neuroscience, Osaka, Japan (speaker, policy)

2016 Workshop on Data Driven Models (speaker, moderator), HHMI Janelia Campus

2015 Joint NeuroML and Open Source Brain Workshop (moderator), Alghero, Sardinia, Italy

2014 Joint NeuroML and Open Source Brain Workshop (moderator, speaker), Alghero, Sardinia, Italy

2014 Collaborative Research in Computational Neuroscience PI Meeting, Workshop on Open Science and Resources for Computational Neuroscience, ASU (organizer, speaker, moderator), Tempe, Arizona

Poster and Demo Presentations:

2023 Cochran, K, D Knight, *K Doxey, *L Colemen, S Crook, NeuroNex Investigators Meeting 2023, Washington DC, November 15-16.

2023 *Doxey, K, *E Smith, *J Birgiolas, R Gerkin, S Crook, Modeling gamma oscillations and high-frequency oscillations in the rodent olfactory bulb. 2023 Internatinal CNS Meeting, Leipzig, Germany

2022 *Nguyen, D, *V Haynes, S Crook, Y Zhou, High-density eletrode probes reveal heterogeneous functions of auditory cortex neurons. 2022 Advances and Perspectives in Auditory Neuroscience.

2021 *Rouhani, M, SM Crook, JJ Abbas, Recruitment profiles produced by intra-fascicular stimulation of peripheral nerve fibers. 2021 International CNS Meeting.

2021 Crook, S, T Kokan, and the IBI Data Standards and Sharing Working Group Training Task Force, Training Activities of the IBI Data Standards and Sharing Working Group, 2021 US BRAIN Initiative PI Meeting

2021 Abbas, J, R Jung, Y Bornat, F Kolbl, L McPherson, A Thota L Regnacq, A Ortega, *M Rouhani, O Romain, S Crook, S Renaud, Improving selectivity with intrafascicular stimulation: computational and experimental studies. 2021 US BRAIN Initiative PI Meeting

2021 *Haynes, V, Y Zhou, S Crook, A simulation-based machine learning approach to demixing EAP sources for extracellular morphological characterization, INCF Assembly, Online

2020 *Jarvis, RJ, RC Gerkin, SM Crook, Large scale discrimination between neural models and experimental data. 2020 Computational Neuroscience Meeting, Melbourne, Australia and Online.

2020 *Birgiolas, J, RC Gerkin, SM Crook, Biophysically realistic model of a mouse olfactory bulb gamma fingerprint. 2020 Computational Neuroscience Meeting, Melbourne, Australia and Online.

2020 Abbas, J, R Jung, Y Bornat, F Kolb, L McPherson, A Thota, O Romain, A Ortega, *M Rouhani, S Crook, S Renaud, Improving selectivity with intrafascicular stimulation: mathematical models, hardware, and experimentation. BRAIN Initiative Investigators Conference, Virtual.

2019 *Birgiolas, J, *V Haynes, *RJ Jarvis, R Gerkin, SM Crook, NeuroML-DB: A model sharing resource that promotes rapid selection and reuse, International Neuroinformatics Coordinating Facility Congress, Warsaw, Poland

2019 *Birgiolas, J, *R Jarvis, *VR Haynes, RC Gerkin, SM Crook, Automated assessment and comparison of cortical neuron models, 2019 Computational Neuroscience Meeting, Barcelona, Spain

2018 *Birgiolas, J, R Gerkin, S Crook, Rapid selection of NeuroML models via NeuroML-DB.org, 2018 Computational Neuroscience Meeting, Seattle, Washington

2017 *Jarvis, RJ, SM Crook, RC Gerkin, Optimization of Reduced Models against Diverse Experimental Neuron Physiology Datasets with NeuronUnit, CRCNS PI Meeting, Providence, Rhode Island (by Rick Gerkin)

2017 *Jarvis, R, SM Crook, RC Gerkin, Parallel model optimization against experimental neuron physiology data with DEAP and NeuronUnit. 2017 INCF Congress, Kuala Lumpur, Malaysia

2016 *Birgiolas, J, R Gerkin, SM Crook, Is the model any good? Objective criteria for computational neuroscience model selection. 2016 Compuational Neuroscience Meeting, South Korea

2016 Crook, S, R Gerkin, *K Dai, Creating better reduced neuron models. International Conference on Mathematical Neuroscience. Juan-les-Pins, France

2014 Crook, S, S Dietrich, NeuroML: Model Exchange for Computational Neuroscience, 2014 Collaborative Research in Computational Neuroscience (CRCNS) PI Meeting, Tempe, Arizona

2014 Crook, S, NeuroML: Model Exchange in Computational Neuroscience, 2014 COMBINE Meeting, UCLA, California

2014 Crook, S, S Dietrich, NeuroML Model Database, 2014 Computational Neuroscience Meeting, Quebec City, Canada

EDUCATIONAL ACTIVITIES

Postdoctoral Fellow Mentoring:

2021-2022 Vergil Haynes (with Yi Zhou), Currently: Researcher, Allen Institute for Brain Science
2014-2015 Sungwoo Ahn, Currently: Asst. Professor, East Carolina University
2013-2014 Richard Gerkin (with Brian Smith), Currently: Associate Research Professor, Arizona State University
2008-2010 Marco Herrera-Valdez (with Carlos Castillo-Chavez), Currently: Professor, School of Science, National Autonomous University of Mexico

PhD Students Advised:

Current Theophilus Kwofie, PhD Applied Mathematics, with Yun Kang
Current Michael Niehaus, PhD Statistics
Current Kira Koyah, PhD Applied Mathematics
Current Katherine Doxey, PhD Applied Mathematics
Current Dominique Hughes, PhD Applied Mathematics
Current Elliot Smith, PhD Interdisciplinary Neuroscience, with Rick Gerkin
2022 Morteza Rouhani, PhD Applied Mathematics, with Jimmy Abbas, *Model Based Investigations of Peripheral Nerve Stimulation Using Longitudinal Intrafascicular Electrodes*
2020 Russell Jarvis, PhD Interdisciplinary Neuroscience, with Rick Gerkin, *Neuronal Deep Fakes: Data-driven Optimization of Reduced Neuronal Models*
2020 Vergil Haynes, PhD Applied Mathematics, *Understanding Cortical Neuron Dynamics through Simulation-based Applications of Machine Learning*
2019 Justas Birgiolas, PhD Interdisciplinary Neuroscience, *Towards Brains in the Cloud: A Biophysically Realistic Computational Model of Olfactory Bulb,* Currently: Postdoctoral Fellowship, Computational Physiology, Laboratory, Cornell University
2014 Francisco Costela, PhD Interdisciplinary Neuroscience, with Susana Martinez-Conde at Barrow Neurological Institute, *The Significance of Microsaccades for Perception and Oculomotor Control,* Currently: Postdoctoral Fellow, Schepens Eye Research Institute, Harvard Medical School
2014 Sandra Berger, PhD Interdiscipinary Neuroscience, *Analysis of Signal Processing and Excitability in Computational Models of an Identified Drosophila Motoneuron,* Currently: not seeking employment
2013 Dori Luli, PhD Applied Mathematics for Life and Social Sciences, *A Neuronal Network Model of Drosophila Antennal Lobe,* Currently: Senior Associate - Modeling, Discover Financial Services
2012 David Tello, PhD Applied Mathematics for the Life and Social Sciences, *Modeling the Turnover Process for Dopaminergic Neurons,* Currently: Senior Analyst, Raza Development Fund
2010 Mini Kurian, PhD Mathematics, *Mathematical Models of Motoneurons after Spinal Cord Injury,* Currently: not seeking employment
2007 Muhammad Dur-e-Ahmad, PhD Mathematics, with Zdzislaw Jackiewicz, *Structural Plasticity of Dendritic Spines: A Computational Study,* Currently: Visiting Professor, University of Waterloo

Master's Students Advised:

2009 Pradeep Thiyyagura, MS Computational Biosciences, *Network Models of Insect Olfaction*, Currently: Computer Systems Specialist, Banner Good Samaritan PET Center, Banner Alzheimer's Institute
2007 Todd Huffman, MS Computational Biosciences, *Knife Edge Scanning Microscope: Development and Designs,* Currently: CEO 3Scan

2004 Carrie Diaz Eaton, MA Mathematics, University of Maine, *The Mathematical Properties and Underlying Structure of Fast Spiking Cell and Networked Cell Models,* Currently: Associate Pofessor of Mathematics, Center for Biodiversity, Bates College

2003 Weihong Qi, MS in Computer Science, University of Maine, *Tools for Neuroinformatic Data Exchange and Neuronal Simulation: An XML Application for Neuronal Morphology Data,* Currently: Researcher, Swiss Tropical Institute of the World Health Organization

PhD Graduate Student Committies:

Current Danyh Tolah, PhD Applied Mathematics
Current Ishtesa Khan, PhD Mathematical Education
Current Derek Nguyen, PhD Biomedical Engineering
Current Ruofan Wu, PhD Electrical Engineering
Current Subash Padmanaban, PhD Biomedical Engineering
Current Jason Guglielmo, PhD Mathematics Education
2023 Sulagna Sahu, PhD Biomedical Engineering
2023 Adel Alatawi, PhD Applied Mathematics
2023 Duane Harris, PhD Applied Mathematics
2022 Yanshuai Tu, PhD Computer Science
2021 Tin Phan, PhD Applied Mathematics
2021 Chao Zhang, PhD Computer Science
2020 Rahim Taghikhani, PhD Applied Mathematics
2019 Wendy Caldwell, PhD Applied Mathematics
2017 Javier Baez, PhD Applied Mathematics
2017 Christophe Faucon, PhD Computer Science
2015 Rebecca Everett, PhD Applied Mathematics
2014 Thomas Holeva, PhD Mathematics
2013 Jeremiah Jones, PhD Applied Mathematics
2012 Lydia Bilinsky, PhD Mathematics
2012 Fernando Vonhoff, PhD Interdisciplinary Neuroscience
2012 Shaojie Wang, PhD Mathematics
2010 Michael McCamy, PhD Mathematics
2009 Sarah Hewes, PhD Mathematics
2008 Joe Graham, PhD Bioengineering
2007 Tufail Malik, PhD Mathematics
2007 Hao Wang, PhD Mathematics

Master's Graduate Student Committies:

2016 Ruofan Wu, MS Electrical Engineering
2015 Aashish Masih, MS Biomedical Engineering
2010 Eric Nabity, MS Computational Biosciences
2008 Yi-Wen Sun, MS Computational Biosciences
2008 Genevieve Toutain, MA Mathematics
2007 Danielle Robbins, MA Mathematics

Undergraduate Student Research Advised:

2023-2024 Landon Mattingly-Dawson, Honors Thesis Advisor
2022-2023 Devon Horner, Computational Mathematics, Honors Thesis Committee
2020-2024 Eric Dudeabout, Biochemistry, Honors Thesis Advisor, with Wade Van Horn

2021-2022 Jacqueline Dworaczk, Mathematics, Honors Thesis Committee
2018-2019 Nicolas Schlichting, Computational Mathematics, Honors Thesis Advisor
2018-2019 Marcus Armstrong, ASU online, Biochemistry
2018-2019 Aymard Irakoze, Bioengineering
2018-2019 Alarmel Sira, Honors Thesis Committee
2018-2019 Tyler Mebane, Honors Thesis Advisor
2018-2019 Michael Furey, Honors Thesis Advisor
2018-2019 Sean Randall, Honors Thesis Advisor
2018-2019 David Ackerman, Computational Mathematics, Honors Thesis Advisor
2018-2019 Charly McCown, Computational Mathematics
2017-2018 Xavier Henes, Computational Mathematics
2016-2017 Sarah Brotman, Biology, Honors Thesis Committee
2016-2017 Lidia Csernak, Computational Mathematics, Honors Thesis Advisor
2015-2016 James Kyeh, Bioengineering, Honors Thesis Committee
2014-2015 Catalina Flores, Biology, Honors Thesis Committee
2014-2015 Kara Schaffer, Biology, Honors Thesis Committee
2013-2014 Giresse Tchegho, Chemical Engineering
2012-2014 Jason Young, Mathematics
2010-2011 April Chiu, Honors Thesis Advisor, Computational Mathematics
2010 Miles Manning and April Chiu, CSUMS Summer Project
2010-2011 Sara Selitsky, Biology
2006-2008 Nicholas Tatonetti, UBM and SOLUR Programs
2007 Pamela Reitsma, Odalys Colon, Irina Kareva, MTBI Summer Program
2006-2007 Adriana Kuiper, UBM Program, Mathematics
2005-2006 Gina Ngo, UBM Program (with Ron Rutowski), Biology
2003-2004 Jason Sewell, Honors Thesis, University of Maine
2002-2003 Carrie Diaz Eaton, Honors Thesis, University of Maine

Highschool Student Research Advised:
2023-2024 Alistair Peet, BASIS Scottsdale, Scottsdale, AZ
2020-2021 Ritvik Vallambhatla, BASIS Chandler, Chandler, AZ
2019-2020 Eric Dudeabout, BASIS Ahwahtukee, Phoenix, AZ
2018-2019 Aaron Yu, BASIS Ahwahtukee, Phoenix, AZ
2018-2019 Laasya Sarva, BASIS Peoria, Peoria, AZ

RECENT SERVICE

Editorial Service:
Editorial Board: Neuroinformatics (resigned 2021), Journal of Biological Systems (resigned 2019)
Associate Editor: Mathematical Biosciences and Engineering, Frontiers in Neuroinformatics
Section Editor, Springer Encyclopedia of Computational Neuroscience
Ad hoc Reviews: Journal of Computational Neuroscience, Journal of Neuroscience, Network, Neurocomputing, Journal of Theoretical Biology, Journal of Neurophysiology, BioSystems, Cognitive Neurodynamics, IEEE Transactions on Biomedical Engineering, Neuroinformatics, Physical Review E, Neural Computation, Biophysical Journal, SIAM Applied Dynamical Systems, PLoS Computational Biology, Mathematical Medicine and Biology

Grant Reviews:

NIH BRAIN Initiative Study Sections: Data Archives, Integration, and Standards 2019, Data Analysis 2020, Data Analysis (chair) 2021, Data Archives, Integration, and Standards (chair) 2022, Research Education: Short Courses 2022, 2023

NIH NRSA Individual Postdoctoral Fellowships 2019, 2020

United States – Israel Binational Science Foundation (BSF) 2020

Interagency (NIH, ARO, DOE, FDA, NASA, NSF, ONR) Predictive Multiscale Modeling for Biomedical, Biological, Behavioral, Environmental and Clinical Research Review Panel 2017

NIH Study Section Member: Neuro-, Opthalmic and Imaging Technology July 1, 2012-June 30, 2015

NIH Study Sections (Ad hoc Member): Sensorimotor Integration 2005, 2006, 2020; Neurotechnology 2007, 2008, 2010; MABS 2018

NSF Panel and Ad Hoc Reviewer: Computational Neuroscience, Applied Mathematics, Computational Mathematics, Bioengineering, Mathematical Biology, Joint DMS/NIGMS

Other Regional, National, and International Service:

2023-202	Society for Industrial and Applied Mathematics (SIAM) Committee on Science Policy
2021-	Scientific Steering Group, NIH BRAIN Initiative Grant Advancing bio-realistic modeling via the Brain Modeling Toolkit and SONATA Data Format
2020-	International BRAIN Initiative: Data Standards and Sharing Working Group, Chair: Training Task Force
2019-	NeuroML Scientific Committee
2019-	Steering Committee, NIH SPARC (Stimulating Peripheral Activity to Relieve Conditions) Data Resource Center
2016-2019	Vice President, Organization for Computational Neuroscience (Elected International)
2017	Advisory Role, NICT-NSF Collaborative Workshop on Computational Neuroscience, Osaka, Japan
2016-2017	Program Committee, 2017 International Neuroinformatics Coordinating Facility (INCF) Annual Meeting, Kuala Lumpur
2016-2017	Scientific Advisory Committee, 2017 Society for Mathematical Biology Meeting in Salt Lake City
2014-2016	Editorial Board (elected), NeuroML Project
2013-2015	Board of Directors, Organization for Computational Neuroscience
2015	Organizer (with Brian Smith), Large-scale Modeling of the Olfactory System, NIMBioS Funded Workshop, University of Tennessee, Knoxville, Tennessee
2014	Organizer (with Brian Smith), 2014 Collaborative Research in Computational Neuroscience PI Meeting, Tempe, Arizona

Professional Society Membership:

Organization for Computational Neuroscience, Society for Neuroscience, Society for Mathematical Biology, Society for Industrial and Applied Mathematics, Association for Women in Mathematics, American Association for the Advancement of Science, International Neuroinformatics Coordinating Facility Member

Service to the University, College and Units:

2022-2023	Search Committee, Theoretical Mathematics Faculty, SoMSS, ASU
2022-2023	Search Committee, Presidential Postdoctoral Fellowship, SoMSS, ASU
2021-2022	Search Committee, Presidential Postdoctoral Fellowship, SoMSS, ASU
2021	Search Committee, Dean of Natural Sciences, The College, ASU
2020-2021	Executive Committee, Chair, School of Mathematical and Statistical Sciences
2020-2021	Promotion and Tenure Peer Committee for Karen Watanabe, ASU
2020-2021	Promotion Sub-Committee for John Fricks, ASU

2020-2022 Omsbuds Committee, School of Mathematical and Statistical Sciences
2018-2019 Adjuct Faculty Committee, School of Life Sciences
2018 Dean of Natural Sciences Division of CLAS Search Committee, ASU
2017-2019 Graduate Education Committee, School of Mathematical and Statistical Sciences
2017-2019 Personnel Committee (elected), School of Mathematical and Statistical Sciences
2006-2017 Executive Committee and Mathematics Liaison, Joint Arizona State University and Barrow Neurological Institute PhD Program in Interdisciplinary Neuroscience
2016-2017 Executive Committee (elected), School of Mathematical and Statistical Sciences
2015-2016 Statistics Hiring Committee, School of Mathematical and Statistical Sciences
2015-2016 Colloquium Committee, School of Mathematical and Statistical Sciences
2014-2016 Research Advisory Committee, College of Liberal Arts and Sciences
2014-2015 Ad hoc Committee on Biocomputing, Office of Knowledge Enterprise and Development
2012-2013 Applied and Computational Mathematics Hiring Committee Chair, School of Mathematical and Statistical Sciences
2012-2014 Personnel and Budget Committee (elected), School of Mathematical and Statistical Sciences
2007-2014 Informatics Certificate Committee

Contributions to Education and Professional Development:

2024 Training and Careers in Computational Neuroscience, Neurodevils Club Presentation and Q&A
2023 International Mathematics and Statistics Student Research Symposium, Preparing for Graduate Programs Panel
2019 Open Door, ASU Outreach
2018 Open Door, ASU Outreach
2016 ASU Math Club Speaker, Using Mathematics to Understand the Brain
2016 Panelist on STEM Career Paths in Mathematics, Association for Women in Science, JumpStarting STEM Careers Symposium (also poster judge)
2015 Panelist on Teaching for New Faculty, Arizona State University
2014 Mathematics Awareness Day Event: Math, Magic and Mystery, High School Student Workshop on Pattern Formation in Nature, School of Mathematical and Statistical Sciences, Arizona State University