Samuel A. Neymotin, Ph.D.
Assistant Professor (Research), Dept. Neuroscience
Brown University
Providence, Rhode Island
samuel_neymotin@brown.edu

Education:
2012 Ph.D., Biomedical Engineering, **SUNY Downstate Health Science Center and NYU-Poly**, Brooklyn, NY
2005 M.S., Computer Science, **Columbia University School of Engineering and Applied Science**, New York, NY
2001 B.S. Magna Cum Laude, Computer Science, **Queens College, City University of New York**, Flushing, NY

Academic Appointments:
Feb 2017 - present, Assistant Professor of Neuroscience (Research), **Brown University.**
October 2012 – Feb 2017, Research Assistant Professor, Dept. Physiology & Pharmacology, **State University of New York, Downstate Medical Center**.
June 2014 – present, Visiting Research Scientist, Dept. Neuroscience, **Yale University School of Medicine**.
June 2013 – June 2014, Lab Associate, Dept. Neurobiology, **Yale University School of Medicine**.
June 2012 – June 2013, Postdoctoral Associate, Dept. Neurobiology, **Yale University School of Medicine**.

Awards:
The Robert F. Furchgott Award for Excellence in Research (2012; awarded for best Ph.D. thesis)
SUNY Downstate, Annual Research Day 2011, Biomedical Engineering Travel Award ($1500)
Organization for Computational Neuroscience (CNS) Annual Meeting Student Travel Award (2010)
Statistical Analysis of Neural Data 5th Annual Meeting (SAND5) Student Travel Award (2010)
Phi Beta Kappa, Alpha Sigma Lambda, Golden Key International Honour Society

Peer-reviewed Journal Articles:
29) Dura-Bernal S, **Neymotin SA**, Kerr CC, Sivagnanam S, Majumdar A, Francis JT, Lytton WW. Evolutionary algorithm optimization of biological learning parameters in a biomimetic neuroprosthesis. *IBM Journal of Research and Development* 61(2/3), 2017.

28) **Neymotin SA**, Suter BA, Dura-Bernal S, Shepherd GMG, Migliore M, Lytton WW. Optimizing computer models of corticospinal neurons to replicate *in vitro* dynamics. *Journal of Neurophysiology* 117(1):148-162, 2017.

27) **Neymotin SA**, Talbot ZN, Jung JQ, Fenton AA, Lytton WW. Tracking recurrence of correlation structure in neuronal recordings. *Journal of Neuroscience Methods* 275:1-9, 2017.

26) Lakatos P, Barczak A, **Neymotin SA**, McGinnis T, Ross D, Javitt D, O'Connell M. Global dynamics of attention and its lapses in primary auditory cortex. *Nature Neuroscience* 19:1707-1717, 2016.

25) **Neymotin SA**, Dura-Bernal S, Lakatos P, Sanger TD, Lytton WW. Multitarget multiscale simulation for pharmacological treatment of dystonia in motor cortex. *Frontiers in Pharmacology* 7:157, 2016.

24) Dura-Bernal S, Li K, **Neymotin SA**, Francis JT, Principe JP, Lytton WW. Restoring behavior via inverse neurocontroller in a lesioned cortical spiking model driving a virtual arm. *Frontiers in Neuroscience* 10:28, 2016.

23) **Neymotin SA**, McDougal RA, Bulanova AS, Zeki M, Lakatos P, Terman D, Hines ML, Lytton WW. Calcium regulation of HCN channels supports persistent activity in a multiscale model of neocortex. *Neuroscience* 316:344-366, 2016.

22) Dura-Bernal S, Zhou X, **Neymotin SA**, Przekwas A, Francis JT, Lytton WW. Cortical spiking network interfaced with virtual musculoskeletal arm and robotic arm. *Frontiers in Neurorobotics* 9:13, 2015.

21) Sanjay M, **Neymotin SA**, Babu KS. Impaired dendritic inhibition leads to epileptic activity in a computer model of CA3. *Hippocampus* 25(11):1336-1350, 2015.

20) **Neymotin SA**, McDougal RA, Sherif MA, Fall CP, Hines ML, Lytton WW. Neuronal calcium wave propagation varies with changes in endoplasmic reticulum parameters: a computer model. *Neural Computation* 27:4, 2015.

19) Rowan MS, **Neymotin SA,** Lytton WW. Electrostimulation to reduce synaptic scaling driven progression of Alzheimer's disease. *Frontiers in Computational Neuroscience* 8:39, 2014.

18) Eguchi A, **Neymotin SA,** Stringer SM. Color opponent receptive fields self-organize in a biophysical model of visual cortex via spike-timing dependent plasticity. *Frontiers in Neural Circuits* 8:16, 2014.

17) Lytton WW, **Neymotin SA,** Kerr CC. Multiscale modeling for clinical translation in neuropsychiatric disease. *Journal of Computational Surgery* 1(1):7, 2014.

16) Chadderdon GL, Mohan A, Suter BA, **Neymotin SA,** Kerr CC, Francis JT, Shepherd GMG, Lytton WW. Motor cortex microcircuit simulation based on brain activity mapping. *Neural Computation* 26(7):1239-1262, 2014.

15) Dura-Bernal S, Chadderdon GL, **Neymotin SA,** Francis JT, Lytton WW. Towards a real-time interface between a biometic model of sensorimotor cortex and a robotic arm. *Pattern Recognition Letters* 36(15):204-212, 2014.

14) **Neymotin SA,** Chadderdon GL, Kerr CC, Francis JT, Lytton WW. Reinforcement learning of 2-joint virtual arm reaching in a computer model of sensorimotor cortex. *Neural Computation* 25(12):3263-3293, 2013.

13) **Neymotin SA,** Hilscher MH, Moulin TC, Skolnick Y, Lazarewicz MT, Lytton WW. I_h tunes theta/gamma oscillations and cross-frequency coupling in an in-silico CA3 model. *PLoS ONE* 8:e76285, 2013.

12) Lytton WW, **Neymotin SA,** Wester JC, Contreras D. Neocortical simulation for epilepsy surgery guidance: Localization and intervention. *Computational Surgery and Dual Training* 339-349, Springer, 2013.

11) Kerr CC, Van Albada SJ, **Neymotin SA,** Chadderdon GL, Robinson PA, Lytton WW. Cortical information flow in Parkinson's disease: a composite network/field model. *Frontiers in Computational Neuroscience* 7:39, 2013.

10) Chadderdon GL, **Neymotin SA,** Kerr CC, Lytton WW. Reinforcement learning of targeted movement in a spiking neuronal model of motor cortex. *PLoS ONE* 7(10):e47251, 2012.

9) Kerr CC, **Neymotin SA,** Chadderdon GL, Fietkiewicz C, Francis JT, Lytton WW. Electrostimulation as a prosthesis for repair of information flow in a computer model of neocortex. *IEEE Transactions on Neural Systems & Rehabilitation Engineering* 20:153-160, 2012.

8) **Neymotin SA,** Lytton WW, Olypher AO, Fenton AA. Measuring the quality of neuronal identification in ensemble recordings. *Journal of Neuroscience* 31(45):16398-16409, 2011.

7) **Neymotin SA,** Lazarewicz MT, Sherif M, Contreras D, Finkel LH, Lytton WW. Ketamine disrupts theta modulation of gamma in a computer model of hippocampus. *Journal of Neuroscience* 31(32):11733-11743, 2011.

6) **Neymotin SA,** Lee H, Park E, Fenton AA, Lytton WW. Emergence of physiological oscillation frequencies in a computer model of neocortex. *Frontiers in Computational Neuroscience* 5:19, 2011.

5) **Neymotin SA,** Jacobs KM, Fenton AA, Lytton WW. Synaptic information transfer in computer models of neocortical columns. *Journal of Computational Neuroscience* 30(1):69-84, 2011.

4) **Neymotin SA,** Lee, H, Fenton, AA, Lytton WW. Interictal EEG Discoordination in a Rat Seizure Model. *Journal of Clinical Neurophysiology*. 27(6):438-444. Original Article. 2010.

3) Fenton AA, Kao HY, **Neymotin SA,** Olypher AV, Vayntrub Y, Lytton WW, Ludvig N. Unmasking the CA1 ensemble place code by exposures to small and large environments: more place cells and multiple, irregularly arranged, and expanded place fields in the larger space. *Journal of Neuroscience* 28:11250-62, 2008.

2) Lytton WW, **Neymotin SA,** Hines ML. The virtual slice setup. *Journal of Neuroscience Methods* 171:309-15, 2008.

1) Lytton WW, Omurtag A, **Neymotin SA**, Hines ML. Just-in-Time Connectivity for Large Spiking Networks. *Neural Computation*. 20:2745-56, 2008.

Peer-reviewed Conference Papers:
3) Dura-Bernal S, Chadderdon GL, **Neymotin SA,** Xianlian Z, Przekwas A, Francis JT, Lytton WW. Virtual musculoskeletal arm and robotic arm driven by a biomimetic model of sensorimotor cortex with reinforcement learning. *IEEE Signal Processing in Medicine and Biology Symposium (SPMB13), IEEE Xplore*, 2013.

2) Rowan M, **Neymotin S.** Synaptic scaling balances learning in a spiking model of neocortex. *Adaptive and Natural Computing Algorithms, Springer Lecture Notes in Computer Science* 7824:20-29, 2013.

1) **Neymotin SA,** Kerr CC, Francis JT, Lytton WW. Training oscillatory dynamics with spike-timing-dependent plasticity in a computer model of neocortex. *IEEE Signal Processing in Medicine and Biology Symposium* 2011 Dec 10:1-6.

Book Chapters / Review articles:
7) **Neymotin SA**, Dura-Bernal S, Moreno H, Lytton WW. Computer modeling for pharmacological treatments for dystonia. *Drug Discovery Today: Disease Models* Special Issue on *Computational Models of Neurological Disorders* 2017 (In Press).

6) Eguchi A, **Neymotin SA**, Horwitz GD, Albright TD. Representation of Color. *Reference Module in Neuroscience and Biobehavioral Psychology.* Elsevier 2017 (In Press).

5) **Neymotin SA**, Sherif MA, Jung JQ, Kabariti JJ, Lytton WW. Genome-wide associations of schizophrenia studied with computer simulation. *Hippocampal Microcircuits: A Computational Modeler's Resource Book Vol. 2.* ed.:V. Cutsuridis, BP Graham, S Cobb, I Vida. Springer 2016 (In Press).

4) **Neymotin SA**, Taxin Z, Mohan A, Lipton P. Brain Ischemia and Stroke. *Encyclopedia of Computational Neuroscience* 437-441, ed.: Dieter Jaeger & Ranu Jang, Springer 2015.

3) Taxin ZH, **Neymotin SA**, Mohan A, Lipton P, Lytton WW. Modeling Molecular Pathways of Neuronal Ischemia. *Progress in Molecular Biology and Translational Science*, Vol. 123:249-275, ed.:Kim T. Blackwell. Academic Press 2014.

2) **Neymotin SA,** Mathew AM, Kerr CC, Lytton WW. Computational Neuroscience of Neuronal Networks. *Neuroscience in the 21st Century*, Springer Verlag, 2013.

1) **Neymotin S,** Uhlrich, DJ, Manning, KA, Lytton, WW. Data mining of time-domain features from neural extracellular field data. *Applications of Computational Intelligence in Bioinformatics and Biomedicine: Current Trends and Open Problems* Series: Studies in Computational Intelligence 151:119-140. Springer, 2008.

Conference Abstracts and Presentations:
69) **Neymotin SA**. Investigating neocortical neural dynamics using (data-driven) multiscale models. Invited Talk. Aberdeen Proving Ground, Army Research Lab. Feb 9 2017.

68) **Neymotin SA**. Investigating neocortical neural dynamics using (data-driven) multiscale models. Brown University in-house Neuroscience seminars. Jan 31 2017.

67) Dura-Bernal S, Suter BA, **Neymotin SA**, Shepherd GMG, Lytton WW. (2016) Modeling the subcellular distribution of synaptic connections in cortical microcircuits. Society for Neuroscience, Annual Meeting. November, 2016. San Diego, CA, USA.

66) **Neymotin SA**, Dura-Bernal S, Suter BA, Lakatos P, Shepherd GMG, Lytton WW. (2016) Beta oscillations in neocortex: a multiscale modeling study. Society for Neuroscience, Annual Meeting. November, 2016. San Diego, CA,

USA.

65) Sherif M, **Neymotin S**, Lytton W. (2016) Schizophrenia genome-wide association studied with computer simulation: gamma oscillations and information flow in CA3. Society for Neuroscience, Annual Meeting. November, 2016. San Diego, CA, USA.

64) Dura-Bernal S, Suter BA, **Neymotin SA**, Kerr CC, Quintana A, Gleeson P, Shepherd GMG, Lytton WW. (2016) NetPyNE: a Python package for NEURON to facilitate development and parallel simulation of biological neuronal networks. Collaborative Development of Data-Driven Models of Neural Systems. September 2016. HHMI Janelia. Ashburn, VA, USA.

63) **Neymotin SA**, Dura-Bernal S, Seidenstein A, Lakatos P, Sanger TD, Lytton WW. (2016) Multiscale modeling of M1 multitarget pharmacotherapy for dystonia. Collaborative Development of Data-Driven Models of Neural Systems. September 2016. HHMI Janelia. Ashburn, VA, USA.

62) Dura-Bernal S, Suter BA, **Neymotin SA**, Kerr CC, Quintana A, Gleeson P, Shepherd GMG, Lytton WW. (2016) NetPyNE: a Python package for NEURON to facilitate development and parallel simulation of biological neuronal networks. Organization for Computational Neurosciences Annual Meeting. July, 2016. Jeju, South Korea.

61) Dura-Bernal S, Menzies RS, McLauchlan C, van Albada SJ, Kedziora DJ, **Neymotin SA**, Lytton WW, Kerr CC. (2016) Effect of network size on computational capacity. Organization for Computational Neurosciences Annual Meeting. July, 2016. Jeju, South Korea.

60) **Neymotin SA**, Dura-Bernal S, Seidenstein A, Lakatos P, Sanger TD, Lytton WW. (2016) Multiscale modeling of M1 multitarget pharmacotherapy for dystonia. Organization for Computational Neurosciences Annual Meeting. July, 2016. Jeju, South Korea.

59) Seidenstein AH, **Neymotin SA**, Barone FC, McDougal RA, Lytton WW. Mosaic method of multiscale modeling for ischemic stroke. Computational Surgery, Annual Meeting. May, 2016. Bordeaux, France.

58) Seidenstein A, **Neymotin SA**, Hines ML, McDougal RA, Bulanova AS, Lytton WW. Neuronal network bump attractors augmented by calcium up-regulation of Ih in a multiscale computer model of prefrontal cortex. Society for Neuroscience, Annual Meeting. October, 2015. Chicago, IL, USA.

57) Dura-Bernal S, Suter BA, **Neymotin SA**, Quintana A, Gleeson P, Shepherd GMG, Lytton WW. Normalized cortical depth (NCD) as a primary coordinate system for cell connectivity in cortex: experiment and model. Society for Neuroscience, Annual Meeting, October, 2015. Chicago, IL, USA.

56) **Neymotin SA**, Suter BA, Migliore M, Dura-Bernal S, Shepherd GMG, Lytton WW. Optimizing computer models of layer 5 motor cortex pyramidal neurons using somatic whole cell recordings. Society for Neuroscience, Annual Meeting. October, 2015. Chicago, IL, USA.

55) **Neymotin SA**, Dura-Bernal S, Suter BA, Migliore M, Gleeson P, Shepherd GMG, Lytton WW. Microconnectomics of primary motor cortex: a multiscale computer model. NIH Multiscale Modeling Consortium Meeting. September, 2015. Bethesda, MD, USA.

54) Dura-Bernal S, Kerr C, **Neymotin S**, Suter B, Shepherd G, Francis J, Lytton W. Large-scale M1 microcircuit model with plastic input connections from biological PMd neurons used for prosthetic arm control. Organization for Computational Neurosciences Annual Meeting. July 2015. Prague, Czech Republic.

53) **Neymotin SA**, Suter BA, Migliore M, Dura-Bernal S, Shepherd GMG, Lytton WW. Motor cortex neurons: from experiment to model via evolutionary algorithms. Organization for Computational Neurosciences Annual Meeting. July 2015. Prague, Czech Republic.

52) Bulanova A, McDougal RA, **Neymotin S**, Mutai V, Lytton WW, Hines M. Integrating Systems Biology Markup Language (SBML) with NEURON. Organization for Computational Neurosciences Annual Meeting. July 2014. Quebec City, Canada.

51) **Neymotin SA**, McDougal RA, Hines ML, Lytton WW. Calcium regulation of HCN supports persistent activity associated with working memory: a multiscale model of prefrontal cortex. Organization for Computational Neurosciences Annual Meeting. July 2014. Quebec City, Canada.

50) Dura-Bernal S, Li K, Brockmeier A, Kerr CC, **Neymotin SA**, Principe J, Francis JT, Lytton WW. Modulation of virtual arm trajectories via microstimulation in a spiking model of sensorimotor cortex. Organization for Computational Neurosciences Annual Meeting. July 2014. Quebec City, Canada.

49) Dura-Bernal S, Prins N, **Neymotin S**, Prasad A, Sanchez J, Francis JT, Lytton WW. Evaluating Hebbian reinforcement learning BMI using an in silico brain model and a virtual musculoskeletal arm. Society for the Neural Control of Movement. April 2014. Amsterdam, Netherlands.

48) **Neymotin SA**, Lytton WW, O'Connell MN, Lakatos P. Dynamical microstates in primary auditory cortex. Society for Neuroscience, Annual Meeting, November, 2013. San Diego, CA, USA.

47) Kerr C, Von Kraus L, Iordanou J, **Neymotin SA**, Francis J, Lytton W. Receptive field formation and erasure in somatosensory cortex. Society for Neuroscience, Annual Meeting, November, 2013. San Diego, CA, USA.

46) Sherif MA, McDougal R, **Neymotin S**, Hines M, Lytton WW. Calcium wave propagation varies with changes in endoplasmic reticulum parameters: a computer model. Society for Neuroscience, Annual Meeting, November, 2013. San Diego, CA, USA.

45) Hines ML, McDougal RA, **Neymotin SA**, Tropper C, Lytton WW. Interfaces in multiscale reaction-diffusion models in the NEURON simulator. Society for Neuroscience, Annual Meeting, November, 2013. San Diego, CA, USA.

44) Carnevale NT, Cheung KH, Crasto CJ, Hines ML, Marenco L, McDougal RA, Migliore M, Miller PL, Morse TM, **Neymotin SA**, Shepherd GM, Wang R, Yu Y. Senselab databases integrate neuronal data and modeling. International Neuroinformatics Coordinating Facility, Annual Meeting. August, 2013. Stockholm, Sweden.

43) Kerr CC, van Albada SJ, **Neymotin SA**, Chadderdon G, Robinson PA, Lytton WW. Multiscale modeling of cortical information flow in Parkinson's disease. Organization for Computational Neurosciences Annual Meeting. July, 2013. Paris, France.

42) **Neymotin SA**, Hilscher MM, Moulin T, Skolnick Y, Lazarewicz MT, McDougal RA, Hines ML, Lytton WW. Ih-dependent tuning of theta and gamma oscillations in a multiscale computer model of CA3. *Rhythmic Dynamics and Cognition Conference,* organized by Cognitive Rhythms Collaborative. June, 2013. MIT, Cambridge, MA, USA.

41) McDougal R, **Neymotin S**, Hines M, Lytton W. Computational study of neuronal calcium waves Mathematical Biosciences Institute, Workshop 5: Cellular and Subcellular. April, 2013. Columbus, OH, USA.

40) Kerr CC, van Albada SJ, **Neymotin SA**, Chadderdon G, Robinson PA, Lytton WW. How Parkinson's disease affects cortical information flow: a multiscale model. *NeuroEng: Australian Workshop on Computational Neuroscience,* 2013.

39) Kerr CC, van Albada SJ, **Neymotin SA**, Chadderdon G, Robinson PA, Lytton WW. Wrong on so many levels: Parkinsonism in a multiscale network/field model. *BrainModes* 2012.

38) **Neymotin SA**. An in-silico brain simulation can learn to control an arm. Invited talk. *Brain-Computer Interface: Reading (motor output) and Writing (sensory feedback)* symposium at 4th Annual International Conference in Computational Surgery and Dual Training. December, 2012. Boston, MA, USA.

37) **Neymotin SA**, Skolnick Y, McDougal RA, Hilscher M, Moulin T, Lytton WW. Simulated relations of molecular, cellular, and neuronal network dynamics in a PFC network. NIH Multiscale Modeling Consortium Meeting. October, 2012. Bethesda, MD, USA.

36) Sherif MA, Barry JM, **Neymotin SA**, Lytton WW. CPP alters cross-frequency coupling between theta and gamma in CA1 in rats: simulation and experiment. International Pharmaco-EEG Society. 17th Biennial Conference. October, 2012. NY, NY, USA.

35) Sherif MA, Barry JM, **Neymotin SA**, Lytton WW. CPP alters theta/gamma oscillations in rat hippocampus: simulation and experiment. BMC Neuroscience 2012, 13(Suppl 1):P91 (16 July 2012). Organization for Computational Neurosciences Annual Meeting. July, 2012. Decatur, GA, USA.

34) **Neymotin SA**, Chadderdon G, Kerr CC, Francis JT, Lytton WW. Reinforcement learning of 2-joint virtual arm reaching in motor cortex simulation. BMC Neuroscience 2012, 13(Suppl 1):P90 (16 July 2012) Organization for Computational Neurosciences Annual Meeting. July, 2012. Decatur, GA, USA.

33) Hilscher MM, Moulin T, Skolnick Y, Lytton WW, **Neymotin SA**. Ih modulates theta rhythm and synchrony in computer model of CA3. BMC Neuroscience 2012, 13(Suppl 1):P80 (16 July 2012). Organization for Computational Neurosciences Annual Meeting. July, 2012. Decatur, GA, USA.

32) Sherif MA, Barry JM, **Neymotin SA**, Lytton WW. CPP alters hippocampal CA1 oscillations in rat: simulation and experiment. Schizophrenia Workshop. Focus Program on *Towards Mathematical Modeling of Neurological Disease from Cellular Perspectives*. May, 2012. Fields Institute. Toronto, Ontario, Canada.

31) Lytton WW, **Neymotin SA**, Chadderdon GL, Kerr CC, Francis JT. Reinforcement learning of 2-joint virtual arm reaching in motor cortex simulation. Society for the Neural Control of Movement, Annual Meeting. April, 2012. Venice, Italy.

30) Chadderdon GL, **Neymotin SA**, Kerr CC, Francis JT, Lytton WW. Dopamine-based reinforcement learning of virtual arm reaching task in a spiking model of cortex. SUNY Downstate Annual Research Day. April, 2012. Brooklyn, New York.

29) Sherif MA, Barry JM, **Neymotin SA**, Lytton WW. CPP alters hippocampal CA1 oscillations in rat: simulation and experiment. SUNY Downstate Annual Research Day. April, 2012. Brooklyn, New York.

28) **Neymotin SA**, Lytton WW, Olypher AV, Fenton AA. Measuring the quality of neuronal identification in ensemble recordings. SUNY Downstate Annual Research Day. April, 2012. Brooklyn, New York.

27) **Neymotin SA**. Oscillations and information transfer in neocortex and hippocampus. Invited lecture at LASCON 2012 (IV Latin American School on Computational Neuroscience). University of São Paulo, Ribeirão Preto, SP, Brazil. February, 2012.

26) Kerr CC, **Neymotin SA**, Mo J, Schroeder C, Ding M, Lytton WW. Interlaminar feedback connections dominate in macaque inferotemporal cortex: in vivo and in silico studies. Society for Neuroscience, Annual Meeting, November, 2011. Washington, DC, USA.

25) **Neymotin SA**, Kerr CC, Francis JT, Lytton WW. Attentional modulation of receptive fields in a computer model of the thalamocortical system. Society for Neuroscience, Annual Meeting, November, 2011. Washington, DC, USA.

24) **Neymotin SA**, Kerr CC, Chadderdon GL, Francis JT, Lytton WW. Restoring physiological oscillations using neuroprosthetic spike-timing-dependent plasticity in computer model of neocortex. Society for Neuroscience, Annual Meeting, November, 2011. Washington, DC, USA.

23) **Neymotin SA**, Kerr CC, Chadderdon GL, Fietkiewicz C, Lytton WW. Spike-timing-dependent plasticity and subcortical waves enhance alpha oscillations in a computer model of neocortex. International Neuroinformatics Coordinating Facility, Annual Meeting, September 4-6, 2011. Boston, Massachusetts, USA.

22) Kerr CC, Mo J, **Neymotin S**, Ding M, Lytton WW. Interlaminar Granger causality and alpha oscillations in a model of macaque cortex BMC Neuroscience 2011, 12(Suppl 1):P208 (18 July 2011) Organization for Computational Neurosciences Annual Meeting. July, 2011. Stockholm, Sweden

21) **Neymotin SA**, Wester JC, Contreras D, Lytton WW. Simulating the spread of activation in neocortical circuits BMC Neuroscience 2011, 12(Suppl 1):P209 (18 July 2011) Organization for Computational Neurosciences Annual Meeting. July, 2011. Stockholm, Sweden

20) **Neymotin SA**, Lee H, Park E, Fenton AA, Lytton WW. Emergence of physiological oscillation frequencies in a computer model of neocortex. SUNY Downstate Annual Research Day. March, 2011. Brooklyn, New York. (received $1500 travel award)

19) Kerr CC, Fietkiewicz CT, Chadderdon GL, **Neymotin SA**, Lytton WW. Development of In Silico Brain for DARPA REPAIR Project. SPAWAR Systems Pacific and DARPA First Annual Neuroscience Engineering, Science and Technology forum. November, 2010. San Diego, California.

18) **SA Neymotin**, AA Fenton, WW Lytton. Recurrence of correlation structure in hippocampal neuronal ensembles during spatial behavior. Society for Neuroscience, Annual Meeting, November 2010. San Diego, California.

17) **Neymotin SA**, Lee H, Park E, Fenton AA, Lytton WW. Emergent oscillations in neocortex: a simulation study. Dynamical Neuroscience XVIII: The Resting Brain: *Not* at Rest! Satellite meeting for Society for Neuroscience Annual Meeting. November, 2010. San Diego, California.

16) **Neymotin S**, Lee H, Park E, Fenton A, Lytton W. Altered information transfer in neuronal networks marks pathology. BMC Neuroscience 2010, 11(Suppl 1):P170 (20 July 2010) Organization for Computational Neurosciences Annual Meeting. July, 2010. San Antonio, Texas
15) **Neymotin SA**, Lee H, Fenton AA, Lytton WW. Interictal EEG discoordination in a rat seizure model. Fifth International Workshop. Statistical Analysis of Neuronal Data (SAND5). May, 2010. University of Pittsburgh. Pittsburgh, PA

14) **Neymotin SA**, Lee H, Fenton AA, Lytton WW. Interictal EEG discoordination in a rat seizure model. SUNY Downstate Annual Research Day, April 2010.

13) Park E, **Neymotin S**, Lytton W, Fenton AA. Neural discoordination of hippocampus and prefrontal cortex spike trains in a phencyclidine schizophrenia-related animal model. Society for Neuroscience, Annual Meeting, October, 2009. Chicago, Illinois.

12) **Neymotin SA**, Jacobs KM, Lytton WW. Information transmission vs processing in computer models of neocortical columns. Society for Neuroscience, Annual Meeting, October, 2009. Chicago, Illinois.

11) Lee H, **Neymotin SA**, Fenton AA. Targeting aberrant neural synchrony to improve cognitive deficits in a neurodevelopmental animal model of schizophrenia. Society for Neuroscience, Annual Meeting, October, 2009. Chicago, Illinois.

10) **Neymotin SA**, Lazenka MF, Jacobs KM, Lytton WW. Computer models of transmission/processing neuronal networks. SUNY Downstate Annual Research Day, April 2009.

9) Lee H, Kao HY, **Neymotin SA**, Lytton WW, Fenton AA. Discoordination of neural synchrony and impaired cognitive control in a schizophrenia-related neurodevelopmental rat model. Biological Psychiatry 65(8):44S, 2009.

8) Fenton A, Lee H, Kao H, **Neymotin S**, Dvorak D, Donnett J, Scharfman H, Lytton W. Epilepsy and features of psychosis in a single animal model. American Epilepsy Society, Annual Meeting, December, 2008. Seattle, Washington.

7) Lytton WW, **Neymotin SA**, Lee HY, Uhlrich DJ, Fenton AA. Circuit changes augment disinhibited shock responses in computer models of neocortex. American Epilepsy Society, Annual Meeting, December, 2008, Seattle, Washington.

6) **Neymotin SA**, Uhlrich DJ, Lytton WW. Virtual slice simulation of resonance in a layered cortical model. Society for Neuroscience, Annual Meeting, November, 2008, Washington, D.C.

5) **Neymotin SA**, Olypher AV, Kao HY, Kelemen E, Jozwicka AE, Lytton WW, Fenton AA. Standardized assessment of extracellular single unit isolation quality. Society for Neuroscience, Annual Meeting, November, 2008, Washington, D.C.

4) **Neymotin SA**, Lytton WW, Olypher AV, Fenton AA. Objectifying multiunit cluster quality. New York Biotechnology Association Annual Meeting. May, 2008.

3) **Neymotin SA**, Lytton WW, Olypher AV, Fenton AA. Objectifying multiunit cluster quality. SUNY Downstate Annual Research Day, April 2008.

2) **Neymotin SA**, Lytton WW. Data mining algorithms in spike-wave(SW) detection. SUNY Downstate Annual Research Day, April 2007.

1) Lytton WW, **Neymotin S**. How understanding computers helps us think about the brain. Society for Neuroscience, Annual Meeting, 2006.

Teaching experience:
Digital Signal Processing, **SUNY Downstate, School of Graduate Studies**, Spring 2008
Organized material; designed and taught a lecture; assigned and graded programming projects; provided assistance during office hours.

Computational Biology, Teaching Assistant, **SUNY Downstate, School of Graduate Studies**, Spring 2009
Helped prepare lecture material, grade homeworks, and answer student questions for office hours.

Molecular/Cellular Biology (MCB) Lecturer, **SUNY Downstate, Early Medical Education Program**, Summer 2011
Prepared and taught lectures to undergraduates admitted to medical school. Teaching obligations included preparation and grading of a quiz and student presentations of clinical relevance of MCB.

IV Latin American School on Computational Neuroscience (LASCON 2012), Computational Neuroscience Tutor, **University of São Paulo, Ribeirão Preto, SP, Brazil**, January 15 – February 10, 2012
Tutor for NEURON simulator and computational neuroscience, helped supervise student research projects.
Okinawa Computational Neuroscience Course (OCNC 2013), Computational Neuroscience Tutor

Okinawa Institute of Science and Technology, Okinawa, Japan, June 15 – July 5, 2013
Organized and presented tutorial lecture for NEURON simulator, tutored for NEURON and computational neuroscience, helped supervise student research projects.

Designed and presented lecture on Calcium Dynamics Modeling (From Experimental Data to Dynamic Modeling), part of Calcium Imaging *Methods and Application to Neuroscience* (course organized by Herman Moreno), **SUNY Downstate, School of Graduate Studies**, Fall 2013; Fall 2015.

Okinawa Computational Neuroscience Course (OCNC 2014), Computational Neuroscience Tutor
Okinawa Institute of Science and Technology, Okinawa, Japan, June 16 – July 3, 2014
Organized and presented tutorial lecture for NEURON simulator, tutored for NEURON and computational neuroscience, helped supervise student research projects.

Academic Service:
Guest editor for Drug Discovery Today: Disease Models – special issue on *Computational Models of Neurological Disorders*

Review for: Clinical EEG and Neuroscience, Drug Discovery Today, Entropy, Epilepsia, Epilepsy Research, European Journal of Neuroscience, Frontiers in Neural Circuits, Frontiers in Neuroinformatics, Frontiers in Robotics and AI, IEEE Signal Processing in Medicine and Biology Symposium, Journal of Computational Neuroscience, Journal of Neurophysiology, Journal of Neuroscience, Nature Communications, Neural Computation, Neuropsychopharmacology, Organization for Computational Neurosciences Annual Meeting, Physical Review, PLoS Computational Biology, PLoS ONE, Schizophrenia Bulletin.

Software engineering experience:

Software engineer, **CVision Technologies, LLC**, September 2000 – September 2006, NY
Research and development of algorithms for image compression, processing, enhancement, recognition, and computer vision. Developed software for PDF compression, parsing, and writing.

Programmer, **CyberRebate**, 1999 – 2000, NY
Utilized web/database programming; developed a spider/bot to search internet stores for pricing information, interfacing with a database system.

Lead developer, **Wunkus, Inc.**, 1998 – 2000, NY
Web programming - developed a community website for sharing and uploading photos, artwork, and other creative works. System design included a voting/comment system interfacing with a MySQL database backend.

Computer Languages/platforms:

C/C++, Python, HOC/NMODL (NEURON), Matlab, Perl, Java, Visual Basic, Javascript, VBScript, HTML, SPARC Assembly, SQL. Windows, Linux, Unix.