- A.V. Rangan, L.S. Young. *Network mechanisms involving collaborative activity within a model of the visual cortex*, J. Comp. Neurosci. to be submitted (2011).
- A.V. Rangan, *A simple filter for detecting low-rank submatrices*, J. Comp. Phys. In Press (2012).
- A.V. Rangan, *Detecting low-rank clusters of vectors via random sampling*, J. Comp. Phys. 231(1): In Press (2012).
- A.V. Rangan, L.S. Young. *Network model of V1 exhibiting background patterns and surround suppression*, J. Comp. Neurosci. In Submission (2011).
- M. Patel, A.V. Rangan, D. Cai. *Coding of odors by temporal binding within a model network of the locust antennal lobe*, PLoS Comp. Bio. In Submission (2011).
- A.V. Rangan, *Efficient methods for grouping vectors into low-rank clusters*, J. Comp. Phys. 230(14): 5684-5703, (2011).
- A.V. Rangan, *Coding and reliability within the fly olfactory system*, PLoS Comp. Bio. In Submission (2011).
- D. Zhou, Y. Sun, A.V. Rangan, D. Cai, *Spectrum of Lyapunov exponents of non-smooth dynamical systems of integrate-and-fire type*., J. Comp. Neurosci. 28(2): 229-245, (2010).
- Y. Sun, D. Zhou, A.V. Rangan, and D. Cai, *Pseudo-Lyapunov exponents and predictability of Hodgkin-Huxley neuronal network dynamics*, J. Comp. Neurosci. 28(2): 2247-266, (2010).
- M.S. Shkarayev, G. Kovacic, A.V. Rangan, and D. Cai. *Architectural and functional connectivity in scale-free integrate-and-fire networks*, Europhys. Lett. 88, 50001, (2010).
- K.A. Newhall, G. Kovacic, P.R. Kramer, D. Zhou, A.V. Rangan, and D. Cai, *Dynamics of current-based Poisson driven, integrate-and-fire neuronal networks*, Commun. Math. Sci. 8(2): 541-600, (2010).
- A.V. Rangan, *Diagrammatic expansion of pulse-coupled network dynamics in terms of subnetworks*, Phys. Rev. E. 80(3): 036101, (2009).
- A.V. Rangan, *Diagrammatic expansion of pulse-coupled network dynamics*, Phys. Rev. Lett. 102, 158101, (2009).
- G. Kovacic, A.V. Rangan, L. Tao, and D. Cai, *Fokker-Planck description of conductance-based integrate-and-fire neuronal networks*, Phys. Rev. E, 80:021904, (2009).
- M. Patel, A.V. Rangan, and D. Cai, *A Large-scale Model of Locust Antennal Lobe*, J. Comput. Neurosci. 27(3): 553-567, (2009).
- Y. Sun, D. Zhou, A.V. Rangan, and D. Cai, *Library-based Numerical Reduction of the Hodgkin-Huxley Neuron for Network Simulation*, J. Comp. Neurosci. DOI 10.1007/s10827-009-0151-9, (2009).
- A.V. Rangan, L. Tao, G. Kovacic, and D. Cai, *Large-Scale Computational Modeling of the Primary Visual Cortex*, In K. Josic, M.A. Matias, R. Romo, and J. Rubin, editors, *Coherent Behavior in Neuronal Networks*, volume 3 of *Springer Series in Computational Neuroscience*, Springer-Verlag, 263-296, (2009).
- A.V. Rangan, L. Tao, G. Kovacic, and D. Cai, *Multi-scale Modeling of the Primary Visual Cortex*, IEEE Engineering in Medicine and Biology Magazine, 28(3):19-24, (2009).
- D. Zhou, Y. Sun, A.V. Rangan, and D. Cai, *Network-induced Chaos in integrate-and-fire neuronal ensembles*, Phys. Rev. E. 80(3): 031918 (2008).
- A.V. Rangan, D. Cai and D. McLaughlin, *Quantifying neuronal network dynamics through coarse-grained event trees*, Proc. Nat. Acad. Sci. (USA), 105, 10990 (2008).
- A.V. Rangan, D. Cai and G. Kovacic, *Kinetic theory for neuronal networks with fast and slow excitatory conductances driven by the same spike train*, Phys. Rev. E **77** 041915 (2008)
- A.V. Rangan and D. Cai, *Fast numerical methods for simulating large-scale integrate-and-fire neuronal networks*, J. Comp. Neurosci. 22, 81-100 (2007).
- A.V. Rangan, *Automatic coordinate transformation for two-point boundary value problems*, Commun. Math Sci. 5 (2007).
- A.V. Rangan, D. Cai and L. Tao, *Numerical methods for solving moment equations in kinetic theory of neuronal network dynamics*, J. Comp. Phys. 221, 781-798 (2007).
- A.V. Rangan and D. Cai, *Maximum-entropy closures for kinetic theories of neuronal network dynamics*, Phys. Rev. Lett. 96, 178101 (2006).
- D. Cai, L. Tao, A.V. Rangan and D. McLaughlin, *Kinetic theory for neuronal network dynamics*, Comm. Math. Sci. 4, 97 (2006).
- A.V. Rangan, D. Cai and D. McLaughlin, *Modeling the spatiotemporal cortical activity associated with the line-motion illusion in primary visual cortex*, Proc. Natl. Acad. Sci. (USA), 102, 18793 (2005).
- D. Cai, A.V. Rangan and D. McLaughlin, *Architectural and synaptic mechanisms underlying coherent spontaneous activity in V1*, Proc. Natl. Acad. Sci. (USA), 102**,** 5868 (2005).
- A.V. Rangan, *Adaptive solvers for partial differential and differential-algebraic equations*, Ph.D. Thesis (2003).