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## Education

1990 Ph.D., Physics, University of Washington

1986 M.S., Physics, University of Washington

1984 B.A., Physics, University of California at Santa Cruz

## Research and Professional Experience

2001-present                Scientist 4, Computer, Computational and Statistical Sciences Division, Information Sciences Group (CCS-3), LANL

1992-2000                Postdoc, U. of Texas Med. School, Dept. of Neurobiology and Anatomy

1990-1992                Postdoc, Baylor College of Medicine, Division of Neuroscience

## Publications

- Mansingh, S., **Kenyon, G.T.**, and Teti, M., [Distilled Feedforward Networks Are As Robust as Energy-Based Models trained with Equilibrium Propagation](#), *New Frontiers in Associative Memories*, 2025.
- Henke K, Pelofske E, **Kenyon G**, Hahn G, [Comparing Quantum Annealing and Spiking Neuromorphic Computing for Sampling Binary Sparse Coding QUBO Problems](#), *arXiv:2405.20525*, 2024; *Unconventional Computing*, **2(13)**, 2025.
- Hannan, D., Arnab, R., Parpart, G., Kenyon, G.T., Kim, E. and Watkins, Y., 2024, March. [Event-To-Video Conversion for Overhead Object Detection](#), in *IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI)*, 89-92, 2024.
- Szarka G, Ganczer A, Balogh M, Tengölics ÁJ, Futácsi A, **Kenyon GT**, Pan F, Kovács-Öller T, Völgyi B. [Gap Junctions Fine-tune Ganglion Cell Signals to Equalize Response Kinetics within a Given Electrically Coupled Array](#). *iScience*, 2024.
- Dibbo, S.V., Mansingh, S., Rego J., **Kenyon, G.T.**, Moore, J., Teti M. [How Can Neuroscience Help Us Build More Robust Deep Neural Networks?](#). In *The Second Workshop on New Frontiers in Adversarial Machine Learning* 2023.
- Kim, E., Ha, T., **Kenyon, G.T.** [Sparse Kernel Transfer Learning](#). In *International Symposium on Visual Computing*, 2022.
- Mansingh S, Kucer M, **Kenyon G.T.**, Moore J, Teti M. Energy-Based Models Trained With Equilibrium Propagation are Inherently Robust, in *International Conference on Machine Learning Applications (ICMLA)*, 2024.
- Dibbo, S.V., Moore, J.S., **Kenyon, G.T.**, Teti MA. [LCAnets++: Robust audio classification using multi-layer neural networks with lateral competition](#). In *2024 IEEE International Conference on Acoustics, Speech, and Signal Processing Workshops (ICASSPW)*, 2024.
- Kim, E., Daniali, M., Rego, J. and **Kenyon, G.T.**, [The Selectivity and Competition of the Mind's Eye in Visual Perception](#), ICASSP- *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Seoul,

Korea, 5720-5724, 2024.

- Szarka, G., Ganczer, A., Balogh, M., Tengölics, Á.J., Futácsi, A., **Kenyon, G.**, Pan, F., Kovács-Öller, T., Völgyi, B., [Gap Junctions Fine-tune Ganglion Cell Signals to Equalize Response Kinetics within a Given Electrically Coupled Array](#), ISCIENCE, 2024.
- Mansingh S, Kucer M, **Kenyon G.T.**, Moore J, Teti M. [How Robust Are Energy-Based Models Trained With Equilibrium Propagation?](#), in Associative Memory & Hopfield Networks in 2023, NeurIPS workshop, 2023.
- Parpart, G., Risbud S, **Kenyon G.T.**, Watkins Y, [Implementing and Benchmarking the Locally Competitive Algorithm on the Loihi 2 Neuromorphic Processor](#), in *Proceedings of the 2023 International Conference on Neuromorphic Systems (ICONS)*, 2023.
- Henke K, Pelofske E, Hahn G, **Kenyon G.T.**, [Sampling binary sparse coding QUBO models using a spiking neuromorphic processor](#), in *Proceedings of the 2023 International Conference on Neuromorphic Systems (ICONS)*, 2023.
- Kunwar S, Jernigan Z, Hughes Z, Somodi C, Saccone MD, Caravelli F, Roy P, Zhang D, Wang H, Jia Q, MacManus-Driscoll JL, **Kenyon, G.T.**, Sornborger, A, Nie, W., Chen, A, [An Interface-Type Memristive Device for Artificial Synapse and Neuromorphic Computing](#), *Advanced Intelligent Systems*, 2023.
- Nesbit, S.C., O'Brien, A., Rego, J., Parpart, G., Gonzalez, C., **Kenyon, G.T.**, Kim, E., Terrence C. Stewart, T.C., and Watkins, Y., [Think Fast: Time Control in Varying Paradigms of Spiking Neural Networks](#), in *Proceedings of the International Conference on Neuromorphic Systems (ICONS)* 2022.
- Aimone, J., Date, P. and Fonseca-Guerra, G. and Hamilton, K. and Henke, K. and Kay, B. and **Kenyon, G.T.**, Kulkarni, S., Mniszewski, S., Parsa, M., Risbud, S., Schuman, C., Severa, W. and Smith, J.D., [A review of non-cognitive applications for neuromorphic computing](#), *Neuromorphic Computing and Engineering*, 2022.
- Henke, K.G., Teti, M., **Kenyon, G.T.**, Migliori, B. and Kunde, G.J., [Apples-to-spikes: The first detailed comparison of LASSO solutions generated by a spiking neuromorphic processor](#), in *ICONS* 2022.
- Teti, M., **Kenyon, G.T.**, Migliori, B. and Moore, J., [LCANets: Lateral Competition Improves Robustness Against Corruption and Attack](#), *ICML*, 2022.
- Jones, H., Springer, J.M., **Kenyon, G.T.** and Moore, J., [If You've Trained One You've Trained Them All: Inter-Architecture Similarity Increases With Robustness](#), in *The 38th Conference on Uncertainty in Artificial Intelligence*, 2022.
- Parpart, G., Gonzalez, C., Stewart, T.C., Kim, E., Rego, J., O'Brien, A., Nesbit, S., **Kenyon, G.T.** and Watkins, Y., [Dictionary Learning with Accumulator Neurons](#), arXiv preprint arXiv:2205.15386, in *ICONS* 2022.
- Ganczer, A., Szarka, G.; Balogh, M., Hoffmann, G., Tengölics, Á.J., **Kenyon, G.T.**; Kovács-Öller, T., Völgyi, B., [Transience of the Retinal Output Is Determined by a Great Variety of Circuit Elements](#), *Cell*, **11**, **810**, 2022.
- Springer, J.M., Mitchell, M. and **Kenyon, G.T.**, [A Little Robustness Goes a Long Way: Leveraging Universal Features for Targeted Transfer Attacks](#), *NeurIPS*, 2021.
- Henke, K.G., **Kenyon, G.T.** and Migliori, B., [Fast Post-Hoc Normalization for Brain Inspired Sparse Coding on a Neuromorphic Device](#), in *IEEE Transactions on Parallel and Distributed Systems*, 2021.
- Springer, J.M. and Kenyon, G.T., [It's Hard for Neural Networks To Learn the Game of Life](#), arXiv:2009.01398, *IJCNN*, 2021.
- Wang, D.A., Pritchard, H., and **Kenyon, G.T.**, [A sparse coding approach to up-sampling and extrapolating 2-dimensional computational fluid dynamics simulations](#), in *Applications of Machine Learning 2021*, vol. **11843**, p. 118430M, International Society for Optics and Photonics, 2021.
- Springer, J.M., Mitchell, M, and **Kenyon, G.T.**, [Adversarial Perturbations Are Not So Weird: Entanglement of Robust and Non-Robust Features in Neural Network Classifiers](#), arXiv:2102.05110, 2021.
- Kim, E., Daniali, M., Rego, J., **Kenyon, G.T.**, [The Selectivity and Competition of the Mind's Eye in Visual Perception](#), arXiv:2011.11167, 2020.
- Nguyen, N.T.T., Moore, J.S. and **Kenyon, G.T.**, [Using models of cortical development based on sparse coding to discriminate between real and synthetically generated faces](#), *AIPR*, 2020.
- Watkins, Y., Kim, E., Sornborger, A, and **Kenyon, G.T.**, [Using Sinusoidally-Modulated Noise as a Surrogate for Slow-Wave Sleep to Accomplish Stable Unsupervised Dictionary Learning in a Spike-Based Sparse Coding Model](#), *CVPR*

*Workshop on Women in Computer Vision (WICV)*, 2020.

- Kim, E., Rego, J., Watkins, Y., **Kenyon, G.T.**, [Modeling Biological Immunity to Adversarial Examples](#), *CVPR*, 2020.
- Strauss, C.M.S., Thresher, A., **Kenyon, G.T.**, Comparing Sparse and Deep Neural Networks: Using AI to Detect Cancer, [\[video\]](#) *Medical Imaging meets NeurIPS* 2020.
- Wang, D.A., Strauss, C.M.S., Springer, J.M., Thresher, A., Pritchard, H., **Kenyon, G.T.**, [Sparse MP4](#), *SSIAI*, 2020.
- Teti, M., Meyer, E., **Kenyon, G.T.**, [Can Lateral Inhibition for Sparse Coding Help Explain V1 Neuronal Responses to Natural Stimuli?](#), *SSIAI*, 2020.
- Henke, K., **Kenyon, G.T.**, Migliore, B., [Machine Learning in a Post Moore's Law World: Quantum vs. Neuromorphic Substrates](#), *SSIAI*, 2020.
- Kim, E., Lawson, E., Sullivan, K., **Kenyon, G.T.**, [Spatiotemporal Sequence Memory for Prediction using Deep Sparse Coding](#), *NICE*, 2019.
- Nguyen NT, Kenyon GT, Yoon B. [A regression algorithm for accelerated lattice QCD that exploits sparse inference on the D-Wave quantum annealer](#). arXiv preprint arXiv:1911.06267. 2019 Nov 14.
- Watkins, Y., Thresher, A., Schultz, P.F., Wild, A., Sornborger, A, and **Kenyon, G.T.**, [Unsupervised Dictionary Learning via a Spiking Locally Competitive Algorithm](#), (*ICONS*) *Proceedings of the International Conference on Neuromorphic Systems*, Article No. 11, 2019.
- Springer, J.M., Strauss, C.S., Thresher, A.M., Kim, E., and **Kenyon, G.T.**, [Classifiers Based on Deep Sparse Coding Architectures are Robust to Deep Learning Transferable Examples](#), arXiv:1811.07211, 2018.
- Dubey, M.L., Jones, H., Thresher, A., **Kenyon, G.T.**, [Separating Musical Sources With Convolutional Sparse Coding](#), *APPIS*, 2019.
- Fischer, W.M., Moudgalya, S.S., Cohn, J.D., Nguyen, N.T.T. and **Kenyon, G.T.**, [Sparse coding of pathology slides compared to transfer learning with deep neural networks](#), Selected articles from the *Computational Approaches for Cancer Workshop (CAFCW-2017)*; *BMC Bioinformatics*, **19**(Sup 18):489, 2018.
- Nguyen, N.T.T. & **Kenyon, G.T.**, [Comparing Deep Learning with Quantum Inference on The D-Wave 2X](#), *3RD International Workshop on Post-Moore's Era Supercomputer (PMES)*, 2018.
- Zhang, X., Watkins, Y., **Kenyon, G.T.**, [Can deep learning learn the principle of closed contour detection?](#), *Computer Vision Conference (CVC)*, 2019.
- Nguyen, N.T.T. & **Kenyon, G.T.**, [Image classification using quantum inference on the D-Wave 2X](#), *IEEE International Conference on Rebooting Computing (ICRC)*, 2018.
- Nguyen, N.T.T. & **Kenyon, G.T.**, [Radiographic Inference Based on a Model of V1 Simple Cells Implemented on the D-Wave 2X Quantum Annealing Computer](#), *IEEE International Conference on Rebooting Computing (ICRC)*, 2018.
- Watkins, Y., Thresher, A., Mascareñas, D., and **Kenyon, G.T.**, [Sparse Coding Enables the Reconstruction of High-Fidelity Images and Video from Retinal Spike Trains](#), *Proceedings of the International Conference on Neuromorphic Systems (ICONS)*, Article No. 8, 2018.
- Kim, E., Hannan, D., and **Kenyon, G.T.**, [Deep Sparse Coding for Invariant Multimodal Halle Berry Neurons](#), arXiv:1711.0799, *CVPR* 2018.
- Watkins, Y., Iaroshenko, O., Sayeh, M., and **Kenyon, G.T.**, [Image Compression: Sparse Coding vs. Bottleneck Autoencoders](#), *IEEE Southwest Symposium on Image Analysis (SSIAI)*, 2018.
- Carroll, J., Carlson, N., and **Kenyon, G.T.**, [Phase Transitions in Image Denoising via Sparsely Coding Convolutional Neural Networks](#), (arXiv 1710.09875), workshop on *Advances in Modeling and Learning Interactions from Complex Data*, *NIPS* 2017.
- Lundquist, S. Y., Mitchell, M., **Kenyon, G.T.**, [Sparse Coding on Stereo Video for Object Detection](#), arXiv:1705.07144, 2017; workshop on *Learning with Limited Labeled Data: Weak Supervision and Beyond*, *NIPS* 2017.
- Yoon, B. and Schultz, P., **Kenyon, G.T.**, [Implementing a Sparse Prediction Machine on the Trinity Supercomputer](#), workshop on [Deep Learning at Supercomputer Scale](#), *NIPS* 2017.
- Dubey, M.L., **Kenyon, G.T.**, Carlson, N., Thresher, A., [Does Phase Matter For Monaural Source Separation?](#),

arXiv 1711.00913; workshop on *Machine Learning for Audio Signal Processing (ML4Audio)*, NIPS 2017.

- Moudgalya, S.S., Fischer, W.M. and **Kenyon, G.T.**, [Sparse Coding of Pathology Slides](#), *Computational Approaches for Cancer Workshop (CAFCW-2017)*.
- Yoon, B., Schultz, P., and **Kenyon, G.T.**, [PetaVision Neural Simulation Toolbox on Intel KNLs](#), SC2017.
- Nguyen, N.T.T., Larson, A.E., and **Kenyon, G.T.**, [Generating sparse representations using quantum annealing: Comparison to classical algorithms](#), *IEEE Rebooting Computing*, 2017.
- Yang, Y., Dorn, C., Mancini, T., Talken, Z., **Kenyon, G.**, Farrar, C., Mascareñas, D., [Blind identification of full-field vibration modes from video measurements with phase-based video motion magnification](#), *Mechanical Systems and Signal Processing*, **85**, 567-590, 2017,
- Thulasidasan, S., Bilmes, and **Kenyon, G.T.**, [Efficient Distributed Semi-Supervised Learning Using Stochastic Regularization over Affinity Graphs](#), *NIPS Workshop on Machine Learning Systems*, 2016.
- Nguyen, N.T.T. and **Kenyon, G.T.**, [Solving sparse representation for object classification using quantum D-Wave 2X machine](#), *IST International Workshop on Post-Moore's Era Supercomputing (PMES)*, 2016.
- Lundquist, S.Y., Paiton, D.M., Schultz, P., **Kenyon, G.T.**, [Sparse Encoding of Binocular Images for Depth Inference](#), *SSIAI 2016*, 121-124, 2016.
- Dubey, M.L., Schultz, P.F., **Kenyon, G.T.**, [Learning Phase-Rich Features from Streaming Auditory Images](#), *SSIAI 2016*, 73-76, 2016.
- Dorn C.J., Mancini, T.D., Talken, Z.R., Yang, Y., Kenyon, G., Farrar, C., Mascareñas, D., [Automated Extraction of Mode Shapes Using Motion Magnified Video and Blind Source Separation](#). In: Mains M. (eds) *Topics in Modal Analysis & Testing, Volume 10*. Conference Proceedings of the Society for Experimental Mechanics Series. Springer, Cham, 2016.
- Zhang, X. & **Kenyon, G.T.**, [A Deconvolutional Strategy for Implementing Large Patch Sizes Supports Improved Image Classification](#), [The First International Workshop on Computational Models of the Visual Cortex: Hierarchies, Layers, Sparsity, Saliency and Attention](#), 2015.
- Paiton, D.M., Zhang, X., Lundquist, S.Y., Shainin, W., Schultz, P., **Kenyon, G.T.**, [A Deconvolutional Competitive Algorithm for Building Sparse Hierarchical Representations](#), [The First International Workshop on Computational Models of the Visual Cortex: Hierarchies, Layers, Sparsity, Saliency and Attention](#), 2015.
- Schultz, P., Paiton, D.M., Lu, W., **Kenyon, G.T.**, [Replicating Kernels with a Short Stride Allows Sparse Reconstructions with Fewer Independent Kernels](#), *arXiv:1406.4205 [q-bio.QM]*, 2014.
- Lundquist, S.Y., Paiton, D.M., Nowers, B.M., Schultz, P.F., Brumby, S.P., Jorgensen, A.M., **Kenyon, G.T.**, [Biologically Inspired Distributed Sensor Networks: Collective Signal Amplification via Ultra-Low Bandwidth Spike-Based Communication](#), *IJCNN 2013*.
- Thomure, M. D., Mitchell, M., and **Kenyon, G.T.**, [On the role of shape prototypes in hierarchical models of vision](#), *IJCNN 2013*.
- Landecker, W., Thomure, M., Bettencourt, L.M.A., **Kenyon, G.T.**, Mitchell, M., Brumby, S.P., [Interpreting Individual Classifications of Hierarchical Networks](#), [2013 IEEE Symposium on Computational Intelligence and Data Mining](#), 2013.
- Zhengping, J., Theiler, J., Chartrand, R., Kenyon, G., Brumby, S.P., [Decoupling sparse coding of SIFT descriptors for large-scale visual recognition](#), *Proc. SPIE 8750, Independent Component Analyses, Compressive Sampling, Wavelets, Neural Net, Biosystems, and Nanoengineering XI*, 2013.
- Schultz, P.F., Bettencourt, L.M.A., **Kenyon, G.T.**, [A Symmetry-Breaking Generative Model of a Simple-Cell/Complex-Cell Hierarchy](#), *SSIAI 2012*.
- Paiton, D.M., Brumby, S.P., **Kenyon, G.T.**, Kunde, G.J., Peterson, K.D., Ham, M.I., Schultz, P.F., George, J.S., [Combining Multiple Visual Processing Streams for Locating and Classifying Objects in Video](#), In *SSIAI 2012*.
- Gintautas, V., Ham, M.I., Kunsberg, B., Barr, S., Brumby, S.P., Rasmussen, C., George, J.S., Nemenman, I., Bettencourt, L. M., **Kenyon, G.T.**, [Model Cortical Association Fields Account for the Time Course and Dependence on Target Complexity of Human Contour Perception](#), *PLoS Comput. Biol.* **7**(10), 2011
- Ji, Z., Huang, W., Kenyon, G., and Bettencourt, L. M. A., [Hierarchical Discriminative Sparse Coding via](#)

[Bidirectional Connections](#), *IJCNN*, 2011.

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- Brumby, S.P., **Kenyon, G.T.**, Landecker, W., Rasmussen, C., Swaminarayan, S., and Bettencourt, L. M. A., [Large-Scale Functional Models of Visual Cortex for Remote Sensing](#), in *AIPR 2009*.
- **Kenyon, G.T.**, [Extreme Synergy](#): Spatiotemporal Correlations Enable Rapid Image Reconstruction from Computer Generated Spike Trains, *Journal of Vision*, **10**(3):21, 1-27, 2010.
- **Kenyon, G.T.**, [Theoretical and Computational Neuroscience: Retinal Models](#). *New Encyclopedia of Neuroscience*, Squire, L.R. (Ed), Academic Press, Oxford, 2008.
- Allegretti, D.G., **Kenyon, G.T.**, Priedhorsky, W.C., [Cellular Automata for Distributed Sensor Networks](#), *The International Journal of High Performance Computing Applications*, **21**(2), 167-176, 2008
- Nugent, M.A., Porter R., **Kenyon, G.T.**, Reliable storage at unreliable synapses: [Using separable environments to stabilize long-term memories](#), *Physica D: Unconventional Computing*, **237**(9), 1196-1206, 2008.
- Nemzek, R., **Kenyon, G.**, Koehler, A., Lee, D.M., Priedhorsky and W., Raby, E.Y., [SNM-DAT: Simulation of a heterogeneous network for nuclear border security](#), *Nuclear Instruments and Methods in Physics Research A*, **579**(1):414–417, 2007.
- Miller, J., **Kenyon, G.T.**, [Extracting Number Selective Responses from Coherent Oscillations in a Computer Model](#), *Neural Comp*, **19**(7), 1766-1797, 2007.
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- Galbraith, J., **Kenyon, G.T.**, J.S., Ziolkowski, R.W., [3D Structure from motion based on mammalian vision processing](#), *IEEE Trans. Pattern Analysis & Machine Intel*, **27**(8):1279-1291, 2005.
- Porter, R., Chakrabarti, C., Harvey, N. and **Kenyon G.**, [A Scalable Learning System for Video Recognition](#), *IEEE Aerospace Conference*, Big Sky, Montana, March 2005.
- Nugent, A., **Kenyon, G.**, Porter R., [Unsupervised adaptation to improve fault tolerance of neural network classifiers](#), in *2004 NASA/DoD Conference on Evolvable Hardware*, Eds. Zebulum, R.S. et al., IEEE Computer Society, 246-249, 2004.
- **Kenyon, G.T.**, N.R. Harvey, G.J. Stephens, and J.P. Theiler, “[Dynamic segmentation of grayscale images in a computer model of the mammalian retina](#),” *SPIE Annual Meeting on Optical Science and Technology*, Denver, Colorado, USA, August 2–6, 5558, 1-12, 2004.
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- **Kenyon, G.T.**, Theiler, J., Marshak, D.W., Moore, B., Jeffs, J., Travis, B.J., [Firing correlations allow improved detection of moving bars](#). In: *Proc Int Joint Conf Neural Networks*, 2003, 1274-1279, 2003.
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- **Kenyon, G.T.**, Medina, J.M., Mauk, M.D., [A mathematical model of the cerebellum I: Self-regulating equilibrium of climbing fiber activity](#). *J Comput Neurosci*, **5**:17-33, 1998.

- **Kenyon, G.T.**, Medina, J.M., Mauk, M.D., [A mathematical model of the cerebellum II: Motor adaptation through systematic disruption of climbing fiber equilibrium](#). *J Comput Neurosci*, 5:71-90, 1998.
- **Kenyon, G.T.**, [A model of long-term memory storage in the cerebellar cortex: A possible role for plasticity at parallel fiber synapses onto stellate/basket cells](#). *Proc. of the Natl. Acad. of Sci. USA*, 94: 14200-14205, 1997.
- **Kenyon, G.T.**, [A continuous time model of synaptic plasticity in the cerebellar cortex](#). In: *Computation and Neural Systems* 1997, J.M. Bower, ed., Plenum, New York, 99 105, 1997.
- **Kenyon, G.T.**, Tam, D.C., [An entropy measure for revealing deterministic structure in spike train data](#). In: *Computation and Neural Systems* 1992, F.E. Eeckman and J.M. Bower, eds., Kluwer Academic Publishers, Massachusetts, 43 47, 1993.
- **Kenyon, G.T.**, Tam, D.C., A parallel algorithm for computing the time dependent Kolmogorov entropy from stationary time series. In: *Proceedings of the Second Annual Conference on Nonlinear Dynamical Analysis of the EEG*, B.H. Jansen and M.E. Brandt, eds., World Scientific Publishing Co. Pte. Ltd., New Jersey, 78 99, 1993.
- **Kenyon, G.T.**, Puff, R.D., Fetz, E.E., [A general diffusion model for analyzing the efficacy of synaptic input to threshold neurons](#), *Biol. Cybern.*, 67:133 141, 1992.
- **Kenyon, G.T.**, Fetz, E.E., Puff, R.D., [Effects of firing synchrony on signal propagation in layered networks](#). In: *Advances in Neural Information Processing Systems* #2, Morgan Kaufmann, Palo Alto, 141–148, 1990.

## Professional Service

- Reviewer, NSF, DOE & NIH
- Consultant, Mercury Biotherapeutics via the New Mexico Small Business Assistance program
- Co-Organizer, [Grand Challenges in Neural Computation: Measurement, Analysis and Modeling of Cellular and Network Dynamics](#), Santa Fe, 2007.
- Co-Organizer, [High-Level Perception and Low-Level Vision: Bridging the Semantic Gap](#), Santa Fe Institute, 2007.
- Co-Organizer, [Grand Challenges in Neural Computation II: Synthetic Cognition and Neuromimetic Processing](#), Santa Fe, 2011.
- Online Lecture: [Cracking the Neural Code](#), Frontiers in Science lecture series, 2008
- Online Lecture: [Deep, Sparse Representations of Form Depth and Motion](#), NICE, 2015
- Online Lecture: [A Deconvolutional Competitive Algorithm \(DCA\)](#), Berkeley, 2015
- Online Lecture: [Using Locally Competitive Algorithms to Model Top-Down and Lateral Interactions](#), Berkeley, 2013
- News Article: [Computer learns how to imagine the future](#), *Albuquerque Journal*, 10/27/17; <https://youtu.be/DVcdvOeoJc0>.
- News Article: [Why Artificial Brains Need Sleep](#), *Inside Science*, 05/19/2020
- News Article: [Why neural networks struggle with the Game of Life](#), *TechTalks*, 09/16/2020
- Blog: [AI's Big Challenge](#), *Scientific American*, 02/26/2019
- Online Lecture: [Using Neuromorphic Processors to Model Biological Neural Processing](#), CRCNS PI Meeting, Tel Aviv, 2023

## Students and Post-Docs Mentored

*Students (co-authors only)*: Siddarth Mansingh, Kyle Henke, Jocelyn Rego, Steven Nesbit, Charles Strauss, Yijing Watkins, Oleksandr Iaroshenko, Mohit Dubey, [Xinhua Zhang](#), [Sheng Lundquist](#), [Dylan Paiton](#), [Will Landecker](#), [Mick Thomure](#), [Cyrus Omar](#), [Kate Denning-Gaudry](#), [Alex Nugent](#), [Bartlett Moore](#), Jeremy Miller, Dan Hill, Dylan Allegratti, [Janelle Jeffs-Williamson](#)

*Post-Docs:* Michal Kucer, Yijing Watkins, Nga Nguyen, [Kris Peterson](#), [Pete Schultz](#), Wentao Huang, Greg Stephens

### **Awards and Honors**

NIH Predoctoral NRSA Fellowship

NIH Postdoctoral NRSA Fellowship

LANL Small Team Distinguished Performance Award, [PetaVision](#), 2009

R&D 100 Award 2018: [Video-Based Dynamic Measurement & Analysis \(ViDeoMAgic\)](#)

### **Grants Received (including joint/collaborative proposals)**

DOE Sparse/Efficient Coding and Predictive Processing for Modeling Optical Recordings from Mouse V1 Simple Cells, 1.2M, 2021-2023

NSF A Neurally-Inspired Event-Based Computer Vision Pipeline, PI:Kenyon, ~250K, 2017-2018

DARPA Cortical Processors, PI Kenyon, ~300K, 2015-2016

DARPA UPSIDE SALSA project, PI of NMC subcontract: Kenyon, ~450K, 2013-2017

NSF Scalable Vision System (PetaCat), PI of NMC collaborative research: Kenyon, ~165K, 2010-2013

NSF [PetaVision](#), PI: Kenyon, ~1.2M, 2008-2012

DCI Postdoctoral Fellowship, PI: Kenyon, ~300K, 2007-2008

DOE Laboratory Directed Research & Development, Exploratory Research, PI: Kenyon, ~1.2M, 2006-2009

DOE Laboratory Directed Research & Development, Exploratory Research, PI: Kenyon, ~1.2M, 2017-2019

### **Patents**

[System and method for automated object detection in an image](#)

**Patent number:** 9152888

**Date of Patent:** October 6, 2015

**Assignee:** Los Alamos National Security, LLC

**Inventors:** Garrett T. Kenyon, Steven P. Brumby, John S. George, Dylan M. Paiton, Peter F. Schultz

[Image fusion using sparse overcomplete feature dictionaries](#)

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