

# Tatyana O Sharpee

## List of Publications by Year in descending order

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Version: 2024-02-01

65  
papers

2,826  
citations

218381

26  
h-index

197535

49  
g-index

74  
all docs

74  
docs citations

74  
times ranked

2569  
citing authors

| #  | ARTICLE  | IF   | CITATIONS |
|----|--|------|-----------|
| 1  | Visual adaptation: Neural, psychological and computational aspects. <i>Vision Research</i> , 2007, 47, 3125-3131.  | 0.7  | 306       |
| 2  | Adaptive filtering enhances information transmission in visual cortex. <i>Nature</i> , 2006, 439, 936-942.   | 13.7 | 290       |
| 3  | Analyzing Neural Responses to Natural Signals: Maximally Informative Dimensions. <i>Neural Computation</i> , 2004, 16, 223-250.  | 1.3  | 256       |
| 4  | Cooperative Nonlinearities in Auditory Cortical Neurons. <i>Neuron</i> , 2008, 58, 956-966.  | 3.8  | 123       |
| 5  | Associative Learning Enhances Population Coding by Inverting Interneuronal Correlation Patterns. <i>Neuron</i> , 2013, 78, 352-363.  | 3.8  | 116       |
| 6  | Hierarchical computation in the canonical auditory cortical circuit. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 21894-21899.                | 3.3  | 101       |
| 7  | Maximally informative foraging by <i>Caenorhabditis elegans</i> . <i>ELife</i> , 2014, 3, .  | 2.8  | 98        |
| 8  | Transition to Chaos in Random Networks with Cell-Type-Specific Connectivity. <i>Physical Review Letters</i> , 2015, 114, 088101.   | 2.9  | 97        |
| 9  | Hierarchical representations in the auditory cortex. <i>Current Opinion in Neurobiology</i> , 2011, 21, 761-767.   | 2.0  | 92        |
| 10 | Computational Identification of Receptive Fields. <i>Annual Review of Neuroscience</i> , 2013, 36, 103-120.  | 5.0  | 79        |
| 11 | The Fine Structure of Shape Tuning in Area V4. <i>Neuron</i> , 2013, 78, 1102-1115.  | 3.8  | 77        |
| 12 | Neural Mechanisms for Evaluating Environmental Variability in <i>Caenorhabditis elegans</i> . <i>Neuron</i> , 2015, 86, 428-441.   | 3.8  | 75        |
| 13 | Critical and maximally informative encoding between neural populations in the retina. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 2533-2538. | 3.3  | 69        |
| 14 | Emergence of Learned Categorical Representations within an Auditory Forebrain Circuit. <i>Journal of Neuroscience</i> , 2011, 31, 2595-2606.   | 1.7  | 58        |
| 15 | Hyperbolic geometry of the olfactory space. <i>Science Advances</i> , 2018, 4, eaaq1458.   | 4.7  | 56        |
| 16 | Preserving Information in Neural Transmission. <i>Journal of Neuroscience</i> , 2009, 29, 6207-6216.   | 1.7  | 54        |
| 17 | Second Order Dimensionality Reduction Using Minimum and Maximum Mutual Information Models. <i>PLoS Computational Biology</i> , 2011, 7, e1002249.  | 1.5  | 53        |
| 18 | Trade-off between curvature tuning and position invariance in visual area V4. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 11618-11623.       | 3.3  | 48        |

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|----|---|-----|-----------|
| 19 | Receptive field dimensionality increases from the auditory midbrain to cortex. <i>Journal of Neurophysiology</i> , 2012, 107, 2594-2603.  | 0.9 | 47        |
| 20 | Spinal Locomotor Circuits Develop Using Hierarchical Rules Based on Motorneuron Position and Identity. <i>Neuron</i> , 2015, 87, 1008-1021.                                       | 3.8 | 47        |
| 21 | Predictable irregularities in retinal receptive fields. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 16499-16504.          | 3.3 | 46        |
| 22 | On the Importance of Static Nonlinearity in Estimating Spatiotemporal Neural Filters With Natural Stimuli. <i>Journal of Neurophysiology</i> , 2008, 99, 2496-2509.               | 0.9 | 44        |
| 23 | Responses of V1 Neurons to Two-Dimensional Hermite Functions. <i>Journal of Neurophysiology</i> , 2006, 95, 379-400.  | 0.9 | 39        |
| 24 | Mathematical approaches to modeling development and reprogramming. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 5076-5082. | 3.3 | 39        |
| 25 | Toward Functional Classification of Neuronal Types. <i>Neuron</i> , 2014, 83, 1329-1334.  | 3.8 | 38        |
| 26 | A Robust Feedforward Model of the Olfactory System. <i>PLoS Computational Biology</i> , 2016, 12, e1004850.   | 1.5 | 36        |
| 27 | Minimal Models of Multidimensional Computations. <i>PLoS Computational Biology</i> , 2011, 7, e1001111.   | 1.5 | 34        |
| 28 | Information theory of adaptation in neurons, behavior, and mood. <i>Current Opinion in Neurobiology</i> , 2014, 25, 47-53.  | 2.0 | 27        |
| 29 | Encoding of Temporal Information by Timing, Rate, and Place in Cat Auditory Cortex. <i>PLoS ONE</i> , 2010, 5, e11531.  | 1.1 | 27        |
| 30 | Estimating linear and nonlinear models using Rényi divergences. <i>Network: Computation in Neural Systems</i> , 2009, 20, 49-68.  | 2.2 | 26        |
| 31 | Identifying Functional Bases for Multidimensional Neural Computations. <i>Neural Computation</i> , 2013, 25, 1870-1890.   | 1.3 | 25        |
| 32 | Low-dimensional dynamics of structured random networks. <i>Physical Review E</i> , 2016, 93, 022302.  | 0.8 | 25        |
| 33 | Two-dimensional adaptation in the auditory forebrain. <i>Journal of Neurophysiology</i> , 2011, 106, 1841-1861.   | 0.9 | 22        |
| 34 | Analyzing multicomponent receptive fields from neural responses to natural stimuli. <i>Network: Computation in Neural Systems</i> , 2011, 22, 45-73.                              | 2.2 | 21        |
| 35 | Cross-orientation suppression in visual area V2. <i>Nature Communications</i> , 2017, 8, 15739.   | 5.8 | 21        |
| 36 | Comparison of information and variance maximization strategies for characterizing neural feature selectivity. <i>Statistics in Medicine</i> , 2007, 26, 4009-4031.                | 0.8 | 16        |

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|----|--|-----|-----------|
| 37 | Neural Decision Boundaries for Maximal Information Transmission. PLoS ONE, 2007, 2, e646.  | 1.1 | 15        |
| 38 | Characterizing Responses of Translation-Invariant Neurons to Natural Stimuli: Maximally Informative Invariant Dimensions. Neural Computation, 2012, 24, 2384-2421. | 1.3 | 15        |
| 39 | Hyperbolic geometry of gene expression. IScience, 2021, 24, 102225.  | 1.9 | 15        |
| 40 | Contextual modulation of V1 receptive fields depends on their spatial symmetry. Journal of Computational Neuroscience, 2009, 26, 203-218.                          | 0.6 | 13        |
| 41 | Multidimensional receptive field processing by cat primary auditory cortical neurons. Neuroscience, 2017, 359, 130-141.  | 1.1 | 13        |
| 42 | Dynamical Electrical Complexity Is Reduced during Neuronal Differentiation in Autism Spectrum Disorder. Stem Cell Reports, 2019, 13, 474-484.                      | 2.3 | 13        |
| 43 | Eigenvalue spectra of large correlated random matrices. Physical Review E, 2016, 94, 050101.   | 0.8 | 12        |
| 44 | Linking neural responses to behavior with information-preserving population vectors. Current Opinion in Behavioral Sciences, 2019, 29, 37-44.                      | 2.0 | 11        |
| 45 | Optimizing Neural Information Capacity through Discretization. Neuron, 2017, 94, 954-960.  | 3.8 | 10        |
| 46 | An argument for hyperbolic geometry in neural circuits. Current Opinion in Neurobiology, 2019, 58, 101-104.  | 2.0 | 10        |
| 47 | Maximally informative pairwise interactions in networks. Physical Review E, 2009, 80, 031914.  | 0.8 | 9         |
| 48 | Defining rhythmic locomotor burst patterns using a continuous wavelet transform. Annals of the New York Academy of Sciences, 2010, 1198, 133-139.                  | 1.8 | 8         |
| 49 | Spike Triggered Covariance in Strongly Correlated Gaussian Stimuli. PLoS Computational Biology, 2013, 9, e1003206.   | 1.5 | 8         |
| 50 | Double-Gabor Filters Are Independent Components of Small Translation-Invariant Image Patches. Neural Computation, 2013, 25, 922-939.                               | 1.3 | 7         |
| 51 | A Low-Rank Method for Characterizing High-Level Neural Computations. Frontiers in Computational Neuroscience, 2017, 11, 68.  | 1.2 | 6         |
| 52 | How inhibitory neurons increase information transmission under threshold modulation. Cell Reports, 2021, 35, 109158.   | 2.9 | 4         |
| 53 | Using Global t-SNE to Preserve Intercluster Data Structure. Neural Computation, 2022, 34, 1637-1651.   | 1.3 | 4         |
| 54 | Adaptive Switches in Midbrain Circuits. Neuron, 2012, 73, 6-7.   | 3.8 | 3         |

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|----|--|-----|-----------|
| 55 | How Invariant Feature Selectivity Is Achieved in Cortex. <i>Frontiers in Synaptic Neuroscience</i> , 2016, 8, 26.  | 1.3 | 3         |
| 56 | Quantifying Information Conveyed by Large Neuronal Populations. <i>Neural Computation</i> , 2019, 31, 1015-1047.   | 1.3 | 3         |
| 57 | Hyperbolic odorant mixtures as a basis for more efficient signaling between flowering plants and bees. <i>PLoS ONE</i> , 2022, 17, e0270358.                             | 1.1 | 3         |
| 58 | The San Diego Nathan Shock Center: tackling the heterogeneity of aging. <i>GeroScience</i> , 2021, 43, 2139-2148.  | 2.1 | 2         |
| 59 | Probing feature selectivity of neurons in primary visual cortex with natural stimuli. , 2004, 5467, 212-222.   |     | 1         |
| 60 | Function determines structure in complex neural networks. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 8327-8328. | 3.3 | 1         |
| 61 | On texture, form, and fixational eye movements. <i>Current Opinion in Neurobiology</i> , 2017, 46, 228-233.  | 2.0 | 1         |
| 62 | Plasticity to the Rescue. <i>Neuron</i> , 2016, 92, 935-936.   | 3.8 | 0         |
| 63 | Optimal information transmission by overlapping retinal cell mosaics. , 2018, 2018, .  |     | 0         |
| 64 | Protein Epistasis Revealed from Thermostability Profiles of <i>Nicotiana tabacum</i> 5-epi-Aristolochene Synthase. <i>FASEB Journal</i> , 2013, 27, 561.5.               | 0.2 | 0         |
| 65 | Taking a close look at electrosensing. <i>ELife</i> , 2016, 5, .   | 2.8 | 0         |