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Education

1991-1996	B.Sc. University of Buenos Aires. <i>Physical Chemistry</i> (Argentine Chemistry Association <i>summa cum laude</i>)
1998-2002	M.Sc. California Institute of Technology . <i>Computation and Neural Systems</i> . Advisor = Professor Christof Koch
1996-2002	Ph.D. California Institute of Technology . <i>Biology Division</i> . Advisor = Professor Christof Koch (Caltech best Ph.D. Award and Caltech best biology Ph.D. Award)
2002-2006	Whitman Science Fellow and McGovern Institute Fellow. Massachusetts Institute of Technology . Dept. of Brain and Cognitive Science and Computation and Systems Biology Initiative. Advisor = Professor Tomaso Poggio.

Selected awards and honors

2000	Everhart Distinguished Graduate Student Lecture Award. Caltech.
2002	Lawrence L. and Audrey W. Ferguson Prize, Caltech. Best Biology Ph.D. Thesis.
2002	Milton and Francis Clauser Doctoral Prize, Caltech. Best Ph.D. Thesis.
2003	MIT Dean of Science Whitman Fellowship
2007	Children's Hospital Boston Career Development Award
2008	Klingenstein Fund Award
2008	Whitehall Foundation Award
2009	NIH New Innovator Award
2010	NSF Career Award
2010	Career Development Award, Society for Neuroscience
2015	Pisart Award for Vision Research
2017	McKnight Award for Neuroscience

Publications

Books

1. [Kreiman G](#). Biological and Computer Vision. **Cambridge University Press**, 2021.
2. Fried I, Rutishauser U, Cerf M and [Kreiman G](#), eds. Single neuron studies of the human brain. Probing cognition. **MIT Press**. 2014.
3. Kriegeskorte N and [Kreiman G](#), eds. Understanding visual population codes. **MIT Press**. 2011.

Peer-reviewed primary publications

1. Xiao Y, Sanchez Lopez P, Wu R, Wei PH, Shan YZ, Weisholtz D, Cosgrove GR, Madsen JR, Stone S, Zhao GG, [Kreiman G](#) (2023). Integration of recognition, episodic, and associative memories during complex human behavior. **bioRxiv** 2023.03.27.534384
2. Xiao W, Sharma S, [Kreiman G](#), Livingstone MS (2023) Out of sight, out of mind: Responses in primate ventral visual cortex track individual fixations during natural vision. **bioRxiv** 2023.02.08.527666
3. Bricken T, Davies A, Singh D, Krotov D, [Kreiman G](#). (2023) Sparse distributed memory is a continual learner. International Conference on Learning Representations (**ICLR**)
4. Wang C, Subramaniam V, Yaari A, [Kreiman G](#), Katz B, Cases I, Barbu A. (2023). BrainBERT: Self-supervised representation learning for Intracranial Electrodes. International Conference on Learning Representations (**ICLR**)

5. Xiao Y, Chou C, Cosgrove GR, Crone NE, Stone S, Madsen JR, Reucroft I, Weisholtz D, Shih YC, Yu HY, Anderson WS, Kreiman G (2023) Cross-task specificity and within-task invariance of cognitive control processes. **Cell Reports** 42:111919
6. Zhang Y, Aghajan ZM, Ison M, Lu Q, Tang H, Kalender G, Monsoor T, Zheng J, Kreiman G, Roychowdhury V, Fried I (2023). Decoding of human identity by computer vision and neuronal vision. **Scientific Reports** 13:651
7. Melloni L, Mudrik L, Pitts M, Bentz K, Ferrante O, Gorska U, Hirschhorn R, Khalaf A, Kozma C, Lepauvre A, Liu L, Mazumder D, Richter D, Zhou H, Blumenfeld H, Chalmers DJ, Devore S, Fallon F, de Lange F, Jensen O, Kreiman G, Luo H, Dehaene S, Koch C, Tononi G (2023). An adversarial collaboration protocol for testing contrasting predictions of global neuronal workspace and integrated information theory. **PLoS One**
8. Casper S, Nadeau M, Kreiman G (2022). One thing to fool them all: generating interpretable, universal, and physically-realizable adversarial features. **NeurIPS**
9. Zhang M, Dellaferrera G, Sikarwar A, Armendariz M, Mudrik N, Agrawal P, Madan S, Barbu A, Yang H, Kumar T, Sadwani M, Dellaferrera S, Pizzochero M, Pfister H, Kreiman G (2022). Human or Machine? Turing Tests for Vision and Language. **arXiv** 2211.13087
10. Li C, Kreiman G, Ramanathan S (2022). Integrating artificial and biological neural networks to improve animal task performance using deep reinforcement learning. **bioRxiv** 2022.09.19.508590
11. Singh P, Li Y, Sikarwar A, Lei W, Gao D, Talbot MB, Sun Y, Shou MZ, Kreiman G, Zhang M. (2022). Learning to Learn: How to Continuously Teach Humans and Machines. **arXiv** 2211.15470
12. Talbot, MB, Zawar R, Badkundri R, Zhang M, Kreiman G. (2022). Lifelong Compositional Feature Replays Beat Image Replays in Stream Learning. **arXiv** 2104.02206
13. Aghajan Z, Kreiman G, Fried I (2022). Minute-scale periodicity of neuronal firing in the human entorhinal cortex. **bioRxiv** 2022.05.05.490703
14. Liu X, Sikarwar A, Lim JH, Kreiman G, Shi Z, Zhang M (2022). Reason from context with self-supervised learning. **arXiv** 2211.12817
15. Ding Z, Ren X, David E, Vo Melissa, Kreiman G, Zhang M (2022). Efficient Zero-shot Visual Search via Target and Context-aware Transformer. **arXiv** 2211.13470
16. Bardon A, Xiao W, Ponce CR, Livingstone MS, Kreiman G (2022). Face neurons encode nonsemantic features. **Proceedings of the National Academy of Sciences of the United States of America** 119, e2118705119, doi:10.1073/pnas.2118705119.
17. Zhang M, Armendariz M, Xiao W, Rose O, Bendtz K, Livingstone M, Ponce CR, Kreiman G (2022). Look Twice: A Computational Model of Return Fixations across Tasks and Species. **PLoS Comp Bio** 18(11):e1010654
18. Zheng J, Schjetnan AGP, Yebra M, Mosher C, Kalia S, Valiante TA, Mamelak A, Kreiman G, Rutishauser U (2022). Cognitive boundary signals in the human medial temporal lobe shape episodic memory representation. **Nature Neuroscience** 25:358-368
19. Hoogsteen KMP, Szpiro S, Kreiman G, Peli E (2022). Beyond the Cane: Describing Urban Scenes to Blind People for Mobility Tasks. **ACM Transactions on Accessible Computing** 2022-09-3
20. Armendariz M, Xiao W, Vinken K, Kreiman G (2022). Do computational models of vision need shape-based representations? Evidence from an individual with intriguing visual perceptions. **Cognitive Neuropsychology** 39:75-77.
21. Shaham N, Chandra J, Kreiman G, Sompolinsky H (2022). Stochastic consolidation of lifelong memory. **Scientific Reports**, 12:13107
22. Murugan R, Kreiman G (2022). Multiple transcription autoregulatory loops act as robust oscillators and decision making motifs. **Computational and Structural Biotechnology Journal** 20:5115-5135
23. Dellaferrera G, Kreiman G (2022). Error-driven Input Modulation: Solving the Credit Assignment Problem without a Backward Pass. **International Conference on Machine Learning (ICML)**. 162:4937-4955
24. Sikarwar, A, Kreiman G (2022). On the efficacy of co-attention transformer layers in visual question answering. **arXiv** 2201.03965.
25. Gupta SK, Zhang M, Wu CC, Wolfe JM, Kreiman G (2021). Visual Search Asymmetry: Deep Nets and Humans Share Similar Inherent Biases. **NeurIPS** 34:6946-6959
26. Weisholtz, DS, Kreiman G, Silbersweig DA, Stern E, Cha B, Butler T (2021). Localized Task-Invariant Emotional Valence Encoding Revealed by Intracranial Recordings. **Soc Cogn Affect Neurosci**, doi:10.1093/scan/nsab134
27. Wang J, Tao A, Anderson WS, Madsen JR, Kreiman G (2021). Mesoscopic physiological interactions in the human brain reveal small world properties. **Cell Reports** 36 (8) 109585
28. Bomatter P, Zhang M, Karev D, Madan S, Tseng C, Kreiman G (2021). When Pigs Fly: Contextual Reasoning in Synthetic and Natural Scenes. **International Conference on Computer Vision (ICCV)**
29. Zhang M, Badkundri R, Talbot M, Kreiman G (2021). Hypothesis-driven Stream Learning with Augmented

Memory. **arXiv** 2104.02206

30. Casper S, Boix X, D'Amaro V, Guo L, Schrimpf M, Vinken K, Kreiman G. (2021). Frivolous Units: Wider Networks are not really that Wide. **AAAI Conference on Artificial Intelligence**
31. Vinken K, Boix X, Kreiman G (2020). Incorporating intrinsic suppression in deep neural network models captures dynamics of adaptation in neurophysiology and perception. **Science Advances**, 6: eabd4205.
32. Xiao W. and Kreiman G. (2020). XDream: Finding preferred stimuli for visual neurons using generative networks and gradient-free optimization. **PLoS Computational Biology** 16(6): e1007973.
33. Lotter W, Kreiman G, Cox D. (2020) A neural network trained to predict future video frames mimics critical properties of biological neuronal responses and perception. **Nature Machine Learning**, 2:210-219.
34. Zhang M, Tseng C, Kreiman G. (2020) Putting visual object recognition in context. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 12985-12994.
35. Jacquot V, Ying J, Kreiman G. (2020) Can Deep Learning Recognize Subtle Human Activities? Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 14244-14253.
36. Ben-Yosef G, Kreiman G, Ullman S. (2020) Minimal videos: Trade-off between spatial and temporal information in human and machine vision. **Cognition** 201:104263.
37. Yuan L, Xiao W, Kreiman G, Tay FEH, Feng, JL, Livingstone, M (2020). Adversarial images for the primate brain. **arXiv**. 2011.05623
38. Olson J, Kreiman G. (2020). Simple learning rules generate complex canonical circuits. **arXiv**:2009.06118
39. Ponce C.R., Xiao W., Schade P.F., Hartmann T.S., Kreiman G., Livingstone M. (2019). Evolving Images for Visual Neurons Using a Deep Generative Network Reveals Coding Principles and Neuronal Preferences. **Cell**, 177:999-1009.
40. Madhavan R, Bansal AK, Madsen JR, Golby AJ, Tierney TS, Eskandar EN, Anderson WS, Kreiman G (2019). Neural interactions underlying visuomotor associations in the human brain. **Cerebral Cortex**, 29:4551-4567
41. O'Connell TP, Chun MM, Kreiman G. (2019) Zero-shot neural decoding of visual categories without prior exemplars. **bioRxiv** 10.1101/700344
42. Zhang M, Tseng C, Montejo K, Kwon J, Kreiman G. Lift-the-flap: what, where and when for context reasoning. **arXiv** 1902.00163
43. Misra P, Marconi A, Kreiman G. (2018) Minimal memory for details in real life events. **Scientific Reports**, 8, 16701.
44. Tang H, Schrimpf M, Lotter W, Moerman C, Paredes A, Ortega Caro J, Hardesty W, Cox D, Kreiman G. (2018) Recurrent computations for visual completion. **PNAS**, 115:8835-884.
45. Zhang M, Feng J, Ma KT, Lim JH, Zhao Q, Kreiman G. (2018) Finding any Waldo: zero-shot invariant and efficient visual search. **Nature Communications**, 9:3730.
46. Zhang M, Feng J, Lim JH, Zhao Q, Kreiman G. (2018) What am I searching for? **arXiv** 1807.11926
47. Palepu A, Premananthan CS, Azhar F, Vendrame M, Loddenkemper T, Reinsberger C, Kreiman G, Parkerson K, Sarma VS, Anderson WS (2018). Development of automated interictal spike detector. **IEEE Engineering in Medicine and Biology Society**.
48. Wu K, Wu E, Kreiman G (2018). Learning scene gist with convolutional neural networks to improve object recognition. **IEEE Information Sciences and Systems**.
49. Isik I, Singer J, Madsen JR, Kanwisher N, Kreiman G (2018). What is changing when: Decoding visual information in movies from human intracranial recordings. **Neuroimage**, 180:147-159.
50. Lotter, W, Kreiman G, Cox, D. (2017) Deep Predictive Coding Networks for Video Prediction and Unsupervised Learning. **International Conference on Learning Representations (ICLR)**.
51. Cheney N, Schrimpf M, Kreiman G. (2017) On the Robustness of Convolutional Neural Networks to Internal Architecture and Weight Perturbations. **arXiv**:1703.08245v1
52. Gomez-Laberge C, Smolyanskaya S, Nassi JJ, Kreiman G, Born R (2016). Bottom-up and Top-down Input Augment the Variability of Cortical Neurons. **Neuron**, 91:540-547.
53. Kreiman G. (2016). A null model for cortical representations with grandmothers galore. **Language, Cognition and Neuroscience**, 32, 274-285.
54. Tang H, Singer J, Ison M, Pivazyany G, Romaine M, Frias R, Meller E, Boulin A, Carroll J Perron V, Dowcett S, Arellano M, Kreiman G (2016). Predicting episodic memory formation for movie events. **Scientific Reports**, 6:30175.
55. Lotter W, Kreiman G, Cox D. Unsupervised Learning of Visual Structure using Predictive Generative Networks. International Conference on Learning Representations, **ICLR Conference Proceedings** 2016.
56. Tang S, Hemberg M, Cansizoglu E, Belin S, Kosik K, Kreiman G, Steen H, Steen J. (2016) f-divergence Cutoff Index to Simultaneously Identify Differential Expression in the Integrated Transcriptome and Proteome. **Nucleic Acids Research**. 44:e97.
57. Tang H, Yu H, Chou C, Crone N, Masen J, Anderson W, Kreiman G (2016) Cascade of neural processing

- orchestrates cognitive control in human frontal cortex. *eLife* e123532.
58. Miconi T., Grooms L. & Kreiman G (2016). There's Waldo! A Normalization Model of Visual Search Predicts Single-Trial Human Fixations in an Object Search Task. *Cerebral Cortex*, 26:3064-82
 59. Madhavan R, Millman D, Tang H, Crone NE, Lenz FA, Tierney TS, Madsen JR, Kreiman G, Anderson WS. (2015). Decrease in gamma-band activity tracks sequence learning. *Front Syst Neurosci.* 8:222.
 60. Singer JM, Madsen JR, Anderson WS, Kreiman G. (2015). Sensitivity to timing and order in human visual cortex. *Journal of Neurophysiology* 113:1656-69.
 61. Prabakaran S, Hemberg M, Chauhan R, Winter D, Tweedie-Cullen RY, Dittrich C, Hong E, Gunawardena J, Steen H, Kreiman G, Steen JA. (2014). Quantitative profiling of peptides from RNAs classified as noncoding. *Nature Communications.* 18;5:5429.
 62. Singer JM, Kreiman G. (2014). Short temporal asynchrony disrupts visual object recognition. *Journal of Vision* 14:7.
 63. Tang H, Buia C, Madhavan R, Crone NE, Madsen JR, Anderson WS, Kreiman G. (2014) Spatiotemporal dynamics underlying object completion in human ventral visual cortex. *Neuron*, 6:736-748.
 64. Bansal A, Madhavan R, Agam Y, Golby A, Madsen J and Kreiman G. Neural dynamics underlying target detection in the human brain. *Journal of Neuroscience*, 2014, **34**:3042-3055
 65. Nassi J, Gomez-Laberge C, Kreiman G, Born R. Corticocortical feedback increases the spatial extent of normalization. *Frontiers in Systems Neuroscience*, 2014, **8**:105.
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 67. Murugan R and Kreiman G. Theory on the coupled stochastic dynamics of transcription and splice-site recognition. *PLoS Computational Biology*, 2012. **8**:1-13.
 68. Bansal, A, Singer J, Anderson WS, Golby, A, Madsen JR, Kreiman G. Temporal stability of visually selective responses in intracranial field potentials recorded from human occipital and temporal lobes. *Journal of Neurophysiology*, 2012. **108**:3073-3086.
 69. Hemberg M, Gray JM, Cloonan N, Kuersten S, Grimmond S, Greenberg ME, Kreiman G (2012). Integrated genome analysis suggests that most conserved non-coding sequences are regulatory factor binding sites. *Nucleic Acids Research*, 2012. **40**:7858-7869.
 70. Burbank K and Kreiman G. Depression-biased reverse plasticity rule is required for stable learning at top-down connections. *PLoS Computational Biology*, 2012. **8**:1-16.
 71. Fried I, Mukamel R, Kreiman G. Internally generated preactivation of single neurons in human medial frontal cortex predicts volition. *Neuron*, 2011. **69**: 548-562.
 72. Kreiman G and Maunsell J. Nine criteria for a measure of scientific output. *Frontiers in Computational Neuroscience*, 2011. **5**:48.
 73. Murugan R and Kreiman G. On the minimization of fluctuations in the response times of autoregulatory gene networks. *Biophysical Journal*, 2011. **101**: 1297-1306.
 74. Hemberg M and Kreiman G. Conservation of transcription factor binding events predicts gene expression across species. *Nucleic Acids Research*, 2011. **39**:7092-7102.
 75. Agam Y, Liu H, Pappanastassiou A, Buia C, Golby AJ, Madsen JR, Kreiman G. Robust selectivity to two-object images in human visual cortex. *Current Biology*, 2010. **20**:872-879.
 76. Kim TK*, Hemberg M*, Gray JM*, Costa A, Bear DM, Wu J, Harmin DA, Laptewicz, M, Barbara-Haley K, Kuersten S, Markenscoff-Papadimitriou E, Kuhl D, Bito H, Worley PF, Kreiman G, Greenberg ME. Widespread transcription at thousands of enhancers during activity-dependent gene expression in neurons. (* = equal contribution) *Nature*, 2010. 465:182-187.
 77. Rasch M, Logothetis NK, Kreiman G. From neurons to circuits: linear estimation of local field potentials. *Journal of Neuroscience*, 2009. **29**:13785-13796
 78. Horng S, Kreiman G, Ellsworth C, Page D, Blank M, Millen K, Sur M. Differential Gene Expression in the Developing Lateral Geniculate Nucleus and Medial Geniculate Nucleus Reveals Novel Roles for Zic4 and Foxp2 in Visual and Auditory Pathway Development. *Journal of Neuroscience*, 2009. **29**:13672-13683
 79. Liu H, Agam Y, Madsen JR, Kreiman G. Timing, timing, timing: Fast decoding of object information from intracranial field potentials in human visual cortex. *Neuron* (2009) **62**:281-290
 80. Meyers E, Freedman D, Kreiman G, Miller E, Poggio T. Dynamic Population Coding of Category Information in ITC and PFC. *Journal of Neurophysiology*, (2008) **100**: 1407-1419
 81. Leamey C., Glendinning K., Kreiman G., Kang N., Kuan H., Fassler R., Sawatari A., Tonegawa S., and Sur M. Differential Gene Expression between Sensory Neocortical Areas: Potential Roles for Ten_m3 and Bcl6 in Patterning Visual and Somatosensory Pathways. *Cerebral Cortex* (2008), **18**:53-66
 82. Tropea D, Kreiman G, Lyckman AW, Mukherjee S, Yu H, Horng S, Sur, M. Distinct gene systems mediating activity-dependent plasticity in visual cortex. *Nature Neuroscience* (2006) **9**:660-668

83. Kreiman G*, Hung C*, Kraskov A, Quiroga R, Poggio T, DiCarlo J. Object selectivity by local field potentials in the macaque inferior temporal cortex. **Neuron** (2006) **49**:433-445 (*=equal contribution)
84. Hung C*, Kreiman G*, Poggio T, DiCarlo J. Fast read-out of object identity from macaque inferior temporal cortex. **Science** (2005), **310**:863-866. (*=equal contribution)
85. Quian-Quiroga R, Reddy L, Kreiman G, Koch C, Fried I. Invariant visual representation by single neurons in the human brain. **Nature** (2005), **435**:1102-1107
86. Kreiman G. Identification of sparsely distributed clusters of cis-regulatory elements in sets of co-expressed genes. **Nucleic Acids Research** (2004), **32**:2889-2900
87. Su AI, Wiltshire T, Batalov S, Lapp H, Ching KA, Block D, Zhang J, Soden R, Hayakawa M, Kreiman G, Cooke MP, Walker JR and Hogenesch JB. A gene atlas of the mouse and human protein-encoding transcriptomes. **PNAS** (2004), **101**:6062-6067
88. Yeo G., Holste D., Kreiman G. and Burge C. Variation in alternative splicing across human tissues. **Genome Biology** (2004), **5**:R74
89. Kreiman G, Fried I, Koch C. Single neuron responses in the human brain during flash suppression **PNAS** (2002), **99**:8378-8383
90. Krahe R., Kreiman G., Gabbiani F., Koch C. and Metzner W. Stimulus encoding and feature extraction by multiple pyramidal cells in the hindbrain of weakly electric fish. **J. Neuroscience** (2002), **22**:2374-2382
91. Zirlinger M., Kreiman G. and Anderson D. Amygdala-enriched genes identified by microarray technology are restricted to specific amygdaloid sub-nuclei. **PNAS** (2001), **98**:5270-5275
92. Kreiman G., Koch C. and Fried I. Imagery neurons in the human brain. **Nature** (2000), **408**:357-361.
93. Kreiman G., Krahe R., Metzner W., Koch C. and Gabbiani F. Robustness and variability of neuronal coding by amplitude sensitive afferents in the weakly electric fish *Eigenmannia*. **J. Neurophysiology** (2000), **84**:189-204
94. Kreiman G., Koch C. and Fried I. Category-specific visual responses of single neurons in the human medial temporal lobe. **Nat. Neurosci.** (2000), **3**:946-953
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96. Inon de Iannino N., Briones G., Kreiman G. and Ugalde R. Characterization of the biosynthesis of $\beta(1-2)$ cyclic glucan in *R. Freddii*. **Cell. Mol. Biol.** (1996), **42**:617-629

Reviews

1. Kreiman G and Serre T (2020). Beyond the feedforward sweep: feedback computations in the visual cortex. **Ann N Y Acad Sci.** 1464:222-241.
2. Blumberg J. and Kreiman, G. (2010). How cortical neurons help us see: visual recognition in the human brain. **Journal of Clinical Investigation** **120**:3054-3063.
3. Quian Quiroga R, Kreiman G (2010). Measuring sparseness in the brain. **Psych. Reviews**, 17:291-297
4. Quian Quiroga R, Kreiman G, Koch C, Fried I. (2008). Sparse but not 'Grandmother-cell' coding in the medial temporal lobe. **Trends in Cognitive Science** **12**, 87-91
5. Kreiman G. Single neuron approaches to human vision and memory. **Current Opinion in Neurobiology** (2007), **17**:471-475
6. Serre T, Kreiman G, Kouh M, Cadieu C, Knoblich U, Poggio T, A quantitative theory of immediate visual recognition. **Progress In Brain Research** (2007) **165C**: 33-56.
7. Rees G., Kreiman G. and Koch C. Neural correlates of consciousness in humans. **Nature Reviews Neuroscience** (2002), **3**:261-270
8. Crick F, Koch C, Kreiman G, Fried I. Consciousness and neurosurgery. **Neurosurgery** (2004), **55**:273-282
9. Kreiman G. Neural coding: computational and biophysical perspectives. **Physics of Life Reviews** (2004), **2**:71-102.

Book chapters

- Kreiman G (2019). What do neurons really want? The role of semantics in cortical representations. In Psychology of Learning and Motivation, Volume 70. Chapter 8.
- Tang H, Kreiman G. (2017). Recognition of occluded objects. In Computational and Cognitive Neuroscience of Vision. (ed Zhao, Q). Singapore: Springer-Verlag.
- Rutishauser U., Cerf M. & Kreiman G. Data analysis techniques for human microwire recordings: spike detection and sorting, decoding, relation between units and local field potentials. In Single neuron studies of

the human brain. Probing cognition. (eds I Fried, U Rutishauser, M Cerf, & G Kreiman) Ch 6, (MIT Press, 2014).

- Mormann F, Ison M, Quiroga RQ, Koch C, Fried I, Kreiman G. Visual cognitive adventures of single neurons in the human medial temporal lobe. In Single neuron studies of the human brain. Probing cognition. (eds I Fried, U Rutishauser, M Cerf, & G Kreiman) Ch. 8, (MIT Press, 2014).
- Kreiman G., Rutishauser U, Cerf M. & Fried I. The next ten years and beyond. In Single neuron studies of the human brain. Probing cognition. (eds I Fried, U Rutishauser, M Cerf, & G Kreiman) Ch. 19, (MIT Press, 2014).
- Kreiman G. Neural correlates of consciousness: perception and volition. In Cognitive Neuroscience Vol. V (ed M Gazzaniga) (MIT Press, In Press).
- Kreiman G. Computational Models of Visual Object Recognition. In Principles of neural coding (eds S Panzeri & R Quiroga) (CRC Press, 2013).
- Burbank K, Kreiman G. Introduction to the Anatomy and Function of Visual Cortex (Chapter 17). In Kriegeskorte N and Kreiman G, eds. Understanding visual population codes. MIT Press. 2011
- Singer J, Kreiman G. Introduction to Statistical Learning and Pattern Classification (Chapter 18). In Kriegeskorte N and Kreiman G, eds. Understanding visual population codes. MIT Press. 2011
- Meyers E, Kreiman G. Tutorial on Pattern Classification in Cell Recording (Chapter 19). In Kriegeskorte N and Kreiman G, eds. Understanding visual population codes. MIT Press. 2011
- Kreiman G. Models of visual recognition. (Chapter 29) In "Principles of neural coding", edited by Quiroga and Panzeri. CRC Press, 2013.
- Kreiman G, Fried I, Koch C. (2005) Responses of single neurons in the human brain during flash suppression. Ch.12, "*Binocular Rivalry*", edited by Alais/Blake, **MIT Press**. [Book chapter]
- Kreiman G. Single cell studies, human. In Encyclopedia of Consciousness, P. Wilken, ed. (Oxford, Oxford University Press). 2010

Commentaries

1. Kreiman G (2023). Neural coding: Stimulating cortex to alter visual perception. 33, R117-R118. **Current Biology** 33:R117-R118
2. Zhang M and Kreiman G. (2021) Beauty is in the eye of the machine. **Nature Human Behavior**, 5(6): 675-676
3. Kreiman G. (2019) It's a small dimensional world after all. Comment on "The unreasonable effectiveness of small neural ensembles in high-dimensional brains" by Gorban et al. **Physics of Life Reviews** 29:96-97.
4. Kreiman G (2013). Mind the quantum? **Trends in Cognitive Science**, 17(3): 109
5. Kreiman G. Literary inspiration. **Nature**, 2011. **475**:453-454.
6. Tang H, Kreiman G (2011). Face Recognition: Vision and Emotions beyond the Bubble. **Current Biology** 21:R888-890
7. Anderson WS and Kreiman G. (2011). Neuroscience: What We Cannot Model, We Do Not Understand. **Current Biology**. 21: R124-R125.
8. Anderson WS, Kreiman G (2011). What we cannot model, we cannot understand. **Current Biology**. 21:R124-R125.
9. Singer J, Kreiman G (2009). *Toward unmasking the dynamics of visual perception*. **Neuron**. **64**:446-447.
10. Tsuchiya N, Kreiman G. (2008). Psyche, attention and consciousness. **Psyche** **14**, 1-2.
11. Kreiman, G. (2008). Biological object recognition. **Scholarpedia** **3**, 2667.
12. Kreiman G, (2007) Neuroscience: from the very large to the very small. **Current Biology**, **17**:R768-R770
13. Serre, Kouh, Cadieu, Knoblich, Kreiman, Poggio. (2005) A theory of object recognition **MIT AI Memo** 2005-036.
14. Kreiman G. (2001). Moveo ergo sum. **BioEssays** **23**:662.
15. Kreiman G. (2001). On the neuronal activity in the human brain during visual recognition, imagery and binocular rivalry. California Institute of Technology. (Ph.D. Thesis)
16. Kreiman G. (2001). Neural coding and feature extraction of time-varying signals. California Institute of Technology. (M.Sc. Thesis)

Presentations

Selected Invited talks

NIH Consciousness Symposium, DC, 2023
A*Star. Singapore 2023

Janelia Farm, March 2023
 Sigtuna Conference on Free will. Sweden, 2023
 Caltech, Pasadena, 2023.
 ASSC, Amsterdam, Netherlands, 2022
 Cleveland Clinic, Cleveland, 2022
 Cognitive Neuroscience Annual Meeting, San Francisco 2022
 Cosyne conference, Lisbon, 2022.
 NeuIPS, New Orleans, 2022
 Free will conference, Palm Springs 2022.
 Memory and the brain. Tel Aviv, Israel 2022.
 Advanced Neuroscience School, Venice, Italy, 2022
 McKnight Foundation Conference, Aspen, 2021
 How to review interdisciplinary work. Berlin, Germany, 2021.
 Cognitive Neuroscience Symposium. Tel Aviv, Israel, 2020.
 Cosyne conference workshop. Denver, 2020.
 Neuroscience-inspired AI vision systems. Kyoto, Japan, 2020.
 AI and the brain. Beijing, China, 2020.
 Neuroscience-Inspired AI. Seoul, Korea, 2020.
 Models of visual recognition. SFN Workshop. 2020
 Volitional decisions and the brain. Sigtuna Conference, Sweden, 2020
 Limitations of Machine Learning. Sestri Levante, Italy. 2019.
 ECVP, Belgium. 2019.
 AI and Neuroscience. KAIST, South Korea. 2019.
 Cosyne conference workshop. Cascais, Portugal. 2019
 BrainMind Summit, Cambridge, MA. 2019.
 Google-X Symposium on Brains and Computation. Mountain View, CA. 2018
 University of Pennsylvania, Computational Neuroscience Initiative. Philadelphia, PA. 2018
 IEEE Conference on Information Science and Systems. Princeton, NJ. 2018
 Cognitive Neuroscience Annual Meeting. Boston, MA. 2018
 Vision Sciences Society Annual Meeting. St Pete Beach, FL. 2018
 ModVis Workshop. St Pete Beach, FL. 2018
 University of Washington, Seattle, WA. 2018
 Neurophilosophy of Free Will Conference. Orange, CA. 2018
 Global Pediatrics Leadership Program. 2018
 Invited talk. Advanced Methods in Theoretical Neuroscience. Goettingen, Germany. 2018
 Invited talk. Sigtuna Foundation. Stockholm, Sweden. 2017
 Invited talk. International Research Center for Neurointelligence. International Symposium. Tokyo, Japan. 2017.
 Google-X Symposium on Brains and Computation. Mountain View, CA. 2018
 University of Pennsylvania, Computational Neuroscience Initiative. Philadelphia, PA. 2018
 IEEE Conference on Information Science and Systems. Princeton, NJ. 2018
 Cognitive Neuroscience Annual Meeting. Boston, MA. 2018
 Vision Sciences Society Annual Meeting. Boston, MA. 2018
 Invited keynote talk. AAAI, The science of intelligence. Stanford, CA. 2017
 Computer Vision and Pattern Recognition. Hawaii, HI. 2017
 Caltech Computation and Neural Systems Program. Pasadena, CA. 2017
 Biology of Brain Disorders International Workshop. Dublin, Ireland, 2016.
 Brains, Minds and Machines International Workshop. Sestri Levante, Italy, 2016.
 Society of Industrial and Applied Mathematics. Recent Advances for Image Classification and Recognition. Albuquerque, 2016.
 IEEE Conference on Information Sciences and Systems, Princeton 2016.
 Cosyne Workshop. Snowbird, Utah, 2016.
 NIPS Symposium. Montreal 2015.
 Shilac conference. Puerto Rico 2015.
 Science Foo. June 2015.
 Renaissance Weekend. June 2015.
 Klingenstein Foundation. May 2015.
 University of Buenos Aires. April 2015.
 Singapore A*Star. March 2015.
 University of Vanderbilt. March 2015.
 Cosyne Workshop, February 2015.
 NIH High-Risk High Reward Symposium. November 2014.
 Columbia University. November 2014.
 Johns Hopkins University. October 2014.
 Areadne Computational Neuroscience Conference, June 2014.
 Johns Hopkins University, February 2014
 Caltech, Computation and Neural Systems. Feb 2013.
 British Neuroscience Association, London, Apr 2013.
 Cognitive Neuroscience, Lake Tahoe, Jul 2013
 Bernstein Center for Computational Neuroscience, Germany 2012.
 Mini-symposium. Society for Neuroscience, 2012.
 MIT Intelligence Initiative. August 2012.
 Portuguese Society of Neurology Annual Meeting. Portugal 2012.
 University of Chicago. Chicago. 2012.
 Brown University. Providence. 2012.
 Baylor College of Medicine. Houston, 2011.

NSF/NIH CRCNS Annual Meeting. Princeton 2011.
 NIH New Innovator Award Annual Symposium. Washington 2011.
 Università di Trento, Center for Brain/Mind Sciences. Rovereto, Italy. 2011.
 Satellite Symposium, ASSC Annual Meeting. Kyoto, Japan. 2011.
 RIKEN Institute. Tokyo, Japan. 2011.
 NIPS Institute. Okasaka, Japan. 2011.
 University of Pennsylvania. Philadelphia. 2011.
 University of Leuven, Leuven, Belgium. 2010.
 MEEI Annual Meeting, Boston, US. 2010.
 International Conference on Cognitive Neuroscience, Beijing, China. 2010.
 Computation and Systems Neuroscience conference. Local field potentials workshop. Salt Lake City, US. 2010.
 University of Birmingham. Birmingham, UK. 2010.
 SFN mini-symposium. Chicago, US. 2009.
 ECVP symposium, Regensburg, Germany. 2009.
 International Neuropsychology Society, Dubrovnik, Croatia. 2009.
 Chinese National Academy of Science, Beijing, China. 2008.
 Institute of Neuroscience and Brain Research Center, National Yang Ming University, Taipei, Taiwan. 2008.
 MEEI Annual Meeting, Boston, US. 2008.
 Cosyne 2008, Decoding Information Workshop, Salt Lake City, US. 2008.
 Harvard Vision Lab, Cambridge, US. 2007.
 Imperial College London, London, UK. 2007.
 University of Leicester, Leicester, UK. 2007.
 University of Trento, Rovereto, Italy. 2007.
 Workshop "A Journey through computation", Genova, Italy, June 2007.
 Visual Sciences Society, Workshop on decoding brain activity. Sarasota, US. 2007.
 Janelia Farm, Virginia, US. 2007.
 Dana Foundation Conference, Los Angeles, US. 2007.
 Center for Cognitive Science, Duke University, Durham, US. 2006.
 Department of Bioengineering, Duke University, Durham, US. 2006.
 Department of Computer Science, Columbia University, New York, US. 2006.
 Department of Bioengineering, Columbia University, New York, US. 2006.
 Stanford, Department of Bioengineering, Palo Alto, US. 2006.
 Children's Hospital Boston, Boston, US. 2006.
 Center for Brain Science, Boston, Harvard University, Boston, US. 2006.
 Memorial Sloan Kettering, New York, US. 2005.
 Stanford, Department of Computer Science, US. 2005.
 Institute for Neuroinformatics, Zurich, Switzerland. 2005.
 Salk Institute, San Diego, US. 2004.
 Harvard Vision Seminar, Cambridge, US. 2004.
 Caltech CNSE Special Symposium, Pasadena, US. 2004.
 New paradigms in Computational Neuroscience, Cordoba, Argentina. US. 2004.
 Computational Systems Biology Symposium 2004. Cambridge, US. 2004.
 Methods in Comp. Neuroscience, Marine Biological Laboratory, Woods Hole, US. 2003.
 Hamburg University, Germany. 2003.
 Gottingen Neurobiology Conference, Germany. 2003.
 ASSC Annual Meeting, Memphis. 2003.
 AAAS Meeting, Denver. 2003.
 UC Irvine, Irvine, US. 2002.
 Caltech. Everhart Distinguished Graduate Student Lecture. Pasadena, US. 2000.

Reviewing

Ad hoc reviewer for the following journals

Acta Astronomica, Bioinformatics, Biotechniques, BMC Bioinformatics, Brain, Cell Reports, Cerebral Cortex, Comparative Biochemistry and Physiology, Computational Intelligence and Neuroscience, Computational Neuroscience Annual Meeting, Computer Vision and Pattern Recognition (CVPR), Cognitive Computation, Current Biology, Experimental Brain Research, Frontiers in Computational Neuroscience, Frontiers in Perception Science, Frontiers in Neuroscience, Genome Biology, HFSP Journal, IEEE Journal of Selected Topics in Signal Processing, IEEE Spectrum, IEEE Transactions in Computational Biology and Bioinformatics, International Conference on Computer Vision (ICCV), International Conference on Learning Representations (ICLR), International Conference on Machine Learning (ICML), ISMB, Journal of Anatomy, Journal of Cognitive Neuroscience, Journal of Comparative Physiology A, Journal of Computational Neuroscience, Journal of Neural Engineering, Journal of Neurochemistry, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Neurophysiology, Nature, Nature Communications, Nature Machine Intelligence, Nature Methods, Nature Protocols, Nature Neuroscience, NeurIPS, Neural Computation, Neural Networks, Neurocomputation, Neuroimage, Neuron, Neuroscience, Nucleic Acids Research, PLoS Computational Biology, PLoS Biology, PNAS, RECOMB, Science Advances, Scholarpedia, Trends in Cognitive Science, Trends in Neuroscience.

Grant Review Panels

National Science Foundation (NSF, Robust Intelligence Panel, Collaborative Research in Computational Neuroscience Panel, Cognitive Neuroscience Panel, Graduate Research Fellowship); NIH (SPC, LAM, ZRG1, T32 Study Sections), King Trust,

World Class University (Korea), Rappaport Institution, Technion (Israel); Engineering and Physical Sciences Research Council (EPSRC, UK); Agence Nationale de la Recherche (ANR, France); Kolomb program (Poland), US-Israel Binational Science Foundation, FWO (Belgium), NWO (Netherlands), Wellcome Trust (UK).

Patent Review

Patent evaluation for US Patent and Trademark Office

Teaching

2018-2023	Harvard. HMS 140/240. Biological and Artificial Intelligence.
2014-2023	MBL, Woods. Brains, Minds and Machines Summer Course.
2007-2023	Harvard. HMS 130/230. Visual Object Recognition
2010-2023	Harvard Biophysics 300
2009-2012	Harvard HMS204. Neurophysiology of Central Circuits. (Wilson, Born)
2008-2012	Harvard. MCB145 (Uchida)
2004-2005	MIT IAP class: The quest for consciousness
2003	MIT 7.3444 Genomics and bioinformatics of transcription (with U.Ohler)
1998-1999	Caltech CNS/Bi 163

Patents

20090297573 Identifying and Modulating Molecular Pathways that Mediate Nervous System Plasticity (with Mriganka Sur and Daniela Tropea)

Mentorship

Postdocs: Yigal Agam (now: Instructor, MGH), William Anderson (now: Associate Professor, Johns Hopkins School of Medicine), Marcelo Armendariz (current), Frederico Azevedo (now: Postdoc, MIT), Feraz Azhar (now: Assistant Professor, University of Notre Dame), Arjun Bansal (now: co-founder and vice-president, Nervana Systems/Intel), Katarina Bendtz (now: independent consulting), Xavier Boix (now: Postdoc, MIT), Calin Buia (now: McKinsey Consulting), Kendra Burbank (now: Instructor, University of Chicago), Camille Gomez-Laberge (now: Instructor, Harvard University), Martin Hemberg (now: Associate Professor, Harvard Medical School), Leyla Isik (now: Assistant Professor, Johns Hopkins University), Jiye Kim (now: Research Scientist, DeepHealth), Hesheng Liu (now: Associate Professor, MGH), Radhika Madhavan (now: Research leader, GE), Thomas Miconi (now: Research Leader, Uber AI), Rajamanickam Murugan (now: Professor, IIT Madras), Carlos Ponce (now: Assistant Professor, Harvard Medical School), Nimrod Shaham (now: Research leader, MobileEye), Jed Singer (now: Data Scientist, Infinite Analytics), Sarit Szpiro (now: Assistant Professor, University of Haifa), Kasper Vinken (now: Postdoc, Harvard Medical School), Daniel Weisholtz (now: Instructor, Harvard Medical School), Mengmi Zhang (now: Assistant Professor, University of Singapore), Jie Zheng (current).

Ph.D. students: Trenton Bricken (current), Julie Blumberg (U. Freiburg, now: Instructor, University of Freiburg), Giorgia DellaFerrera (now: McKinsey Consulting), Emma Giles (now: CEO, startup), Dianna Hidalgo (current), William Lotter (now: Founder DeepHealth, Assistant Professor, Harvard Medical School), Chenguang Li (current), David Mazumder (current), Ethan Meyers (MIT w/Poggio, now Assistant Professor, Hampshire College and Visiting Professor, Yale University), Pranav Misra (current), Joseph Olson (now: Postdoc, U. Alabama), Elisa Pavarino (current), Leonardo Pollina (current), Shane Shang (current), Morgan Talbot (current), Hanlin Tang (now: CTO, MosaicML), Jerry Wang (now: Postdoc, Boehringer, Germany), Yuchen Xiao (now: Assistant Professor, Westlake University), Will Xiao (now: Postdoc, Harvard Medical School), Mengmi Zhang (now: Assistant Professor, University of Singapore),

Masters students: Phillipe Bommater, Serena Bono (now: PhD student, MIT), Aurelie Cordier, Sara Djambazovska, Camille Golley, Stephan Grzelkowski, Marana Hakobyan, Eleonora Iaselli, Vincent Jacquot, Alexandre Luster, Charlotte Moermann, Alice Motschi, Leonardo Pollina, Yael Porte, Paula Sanchez Lopez, Martin Schrimpf (now: Assistant Professor), Ravi Srinivasan, Matthias Tsai, Eric Wu, Kevin Wu, Zihao Xu.

MD students: Laura Groomes, Wui Ip, Nambi Nallasamy,

Undergraduate students (selected list) from Harvard, MIT, Boston College, Emmanuel College, Northeastern University, Caltech, Princeton, Johns Hopkins University (including current position where known): Stephen Casper, Alexander Davies, Victoria Eisenhauer, Ilai Gavish, Deepak Singh, Warren Sunada-Wong, Arielle Benico, Josiah Ryan, Allison Rosenberg, Joanna Li, Iulia Neagu (Grad. Student, Harvard University), Brenda Li, Jasmine Yan, Ben Tsuda (Associate Computational Biologist, Broad Institute), Enrique Tobis (Tools Developer, Two Sigma Investments), Vanesa Tan (Engineer Manager, Quora), Andre Souffrant (Quality Assurance Automation Engineer, HealthFortis), Melissa Romaine, Gnel Pivazy (MD student, Keck School of Medicine), Patricia Pedreira (Research Assistant, University of Miami), Jessie Pascal, Nida Nashaud, Nambi Nallasami (Ophthalmology Resident, Duke Medical School), Elizabeth Meller, Daniel Lopez Martinez (Grad. Student at MIT, Dept. of CBE), Frank Maldonado (Analyst at Peter J Solomon Company), Randall Lin (Research Engineer at Halo

Neuroscience), Hoey Lim, Ishika Kulatilaka, Phil Kuhnke (Grad. Student at University of Trento, Program in Cognitive Neuroscience), Andrew Kim, Tessa Kaslewicz (Neurologic Music Therapist, MT-BC), Sandra Hernandez, Rosa Frias (Research Technician, MGH), McKayla Finneran (Clinical Assistant, Dana Farber Cancer Institute), Sheila Drakeley (Research Assistant, Boston Children's Hospital), Danielle Christy (Mental Health Worker at Monte Nido & Affiliates), Veronica Camara (Grad. Student, Regis College), Adrianna Boulton (Founder, Jamakin Me Smart), Amir Bitran (Grad. Student, Harvard University), Katelyn Barry, Asante Badu, Walter Hardesty (MD student, The Ohio State University College of Medicine), Candace Ross (Grad. Student, MIT), Nicholas Knouf (Assistant Professor, Wellesley College), Angela Yu (Associate Professor, UCSD), Stacey Emile, Garrett Lam (Rhodes Scholar), Ege Yumusak (Grad. Student, University of Cambridge), Tais Alemar (Grad. Student, St. John's University), Pamela Ardizzone, Marlise Arrellano, Emma Barker, James Carroll, Sarah Dowcett, Katherine Fazioli (Research Assistant, Harvard Medical School), Wendy Fernandez, Melanie Fu, Meron Girmaiy (Program Coordinator at Ascentria Care Alliance), Caroline Harley, Kaley Jenny, Rohil Badkundry, Nicholas Lavorna, Christina Leahy (Emergency Room Technician, Brigham and Women's Hospital), Ana Paredes, Josue Ortega (Grad. Student, Baylor College of Medicine), Ayotunde Odejayi (Xeon Phi Design Verification Intern at Intel), Victoria Perron, Justin Sanchez, Jacky Sarette, Duncan Stothers, Claire Tseng, RunLin Wang, Michelle Lim, Grant Chau, Jay Chandra, Leonard Tang, Annabelle Tao, Gabriela Taveras, Tuyen Tran, Katterin Vargas, Pricila Viera-Gameiro, Ziyi Zhu (Rochester).

High-school students: Eshan Govil, Daniel Hanover, Martin Pleynt, Myles Epstein.