

**Associate Professor**  
**Department of Ophthalmology**  
**Children's Hospital Boston, Harvard Medical School**  
**Program in Biophysics, Program in Neuroscience at Harvard**  
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## Education

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

## Selected awards and honors

1984	Metropolitan Chess Champion. Buenos Aires. Argentina. (category < 15 yrs old)
1990	Sub-champion. National Math Olympiads. Argentina. (high school)
1994	Outstanding Youth Award. Buenos Aires Stock Exchange Foundation.
1995	A. Luna Honor Award. Dow Chemical Company.
1997	Argentine Chemistry Association, Best B.Sc. in Physical Chemistry.
2000	Everhart Distinguished Graduate Student Lecture Award. Caltech.
2002	Lawrence L. and Audrey W. Ferguzon Prize, Caltech. Best Biology Ph.D. Thesis.
2002	Milton and Francis Clauser Doctoral Prize, Caltech. Best Ph.D. Thesis.
2003	MIT Dean of Science Whiteman 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
2016	McKnight Award for Neuroscience

## Publications

### Books

- Fried I, Rutishauser U, Cerf M and Kreiman G, eds. Single neuron studies of the human brain. MIT Press. 2014.
- Kriegeskorte N and [Kreiman G](#), eds. Understanding visual population codes. MIT Press. 2011.

### Peer-reviewed primary publications

- 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.
- Kreiman G. (2016). A null model for cortical representations with grandmothers galore. *Language, Cognition and Neuroscience*, In Press.
- Tang H, Singer J, Ison M, Pivazyanyan 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.
- Kreiman G. A null model for cortical representations with grandmothers galore. **Language, Cognition and Neuroscience**, In Press.
  - Lotter W, Kreiman G, Cox D. Unsupervised Learning of Visual Structure using Predictive Generative Networks. International Conference on Learning Representations, **ICLR Conference Proceedings** 2016.
  - 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.
  - 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.
  - 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
  - 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.
  - Singer JM, Madsen JR, Anderson WS, Kreiman G. (2015). Sensitivity to timing and order in human visual cortex. **Journal of Neurophysiology** 113:1656-69.
  - 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.
  - Singer JM, Kreiman G. (2014). Short temporal asynchrony disrupts visual object recognition. **Journal of Vision** 14:7.
  - 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.
  - 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
  - Nassi J, Gomez-Laberge C, Kreiman G, Born R. Corticocortical feedback increases the spatial extent of normalization. **Frontiers in Systems Neuroscience**, 2014, **8**:105.
  - Singer JM, Kreiman G. Short temporal asynchrony disrupts visual object recognition. **Journal of Vision**, 2014, **12**:14
  - Murugan R and Kreiman G. Theory on the coupled stochastic dynamics of transcription and splice-site recognition. **PLoS Computational Biology**, 2012. **8**:1-13.
  - 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.
  - 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.
  - 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.
  - Fried I, Mukamel R, Kreiman G. Internally generated preactivation of single neurons in human medial frontal cortex predicts volition. **Neuron**, 2011. **69**: 548-562.
  - Kreiman G and Maunsell J. Nine criteria for a measure of scientific output. **Frontiers in Computational Neuroscience**, 2011. **5**:48.
  - Murugan R and Kreiman G. On the minimization of fluctuations in the response times of autoregulatory gene networks. **Biophysical Journal**, 2011. **101**: 1297-1306.
  - Hemberg M and Kreiman G. Conservation of transcription factor binding events predicts gene expression across species. **Nucleic Acids Research**, 2011. **39**:7092-7102.
  - 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.
  - 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.
  - Rasch M, Logothetis NK, Kreiman G, From neurons to circuits: linear estimation of local field potentials. **Journal of Neuroscience**, 2009. **29**:13785-13796
  - 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
- 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
  - 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
  - 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
  - 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
  - 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)
  - 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)
  - 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
  - Kreiman G. Identification of sparsely distributed clusters of cis-regulatory elements in sets of co-expressed genes. *Nucleic Acids Research* (2004), **32**:2889-2900
  - 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
  - Yeo G., Holste D., Kreiman G. and Burge C. Variation in alternative splicing across human tissues. *Genome Biology* (2004), **5**:R74
  - Kreiman G, Fried I, Koch C. Single neuron responses in the human brain during flash suppression *PNAS* (2002), **99**:8378-8383
  - 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
  - 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
  - Kreiman G., Koch C. and Fried I. Imagery neurons in the human brain. *Nature* (2000), **408**:357-361.
  - 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
  - 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
  - Ouyang Y., Rosenstein A., Kreiman G., Schuman E. M. and Kennedy M. B. Tetanic stimulation leads to increased accumulation of CaMKII via dendritic protein synthesis in hippocampal neurons. *Journal of Neuroscience* (1999), **19**:7823-7833.
  - 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

- 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.
- Quian Quiroga R, Kreiman G (2010). Measuring sparseness in the brain. *Psych. Reviews*, 17:291-297
- 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
- Kreiman G. Single neuron approaches to human vision and memory. *Current Opinion in Neurobiology* (2007), **17**:471-475
- 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.
- Rees G., Kreiman G. and Koch C. Neural correlates of consciousness in humans. *Nature Reviews Neuroscience* (2002), **3**:261-270
- Crick F, Koch C, Kreiman G, Fried I. Consciousness and neurosurgery. *Neurosurgery* (2004), **55**:273-282
- Kreiman G. Neural coding: computational and biophysical perspectives. *Physics of Life Reviews* (2004), **2**:71-102.

## Book chapters

- 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

## Other

- [Kreiman G](#) (2013). Mind the quantum? **Trends in Cognitive Science**, 17(3): 109
- [Kreiman G](#). Literary inspiration. **Nature**, 2011. **475**:453-454. [Comment]
- [Tang H, Kreiman G](#). Face Recognition: Vision and Emotions beyond the Bubble. **Current Biology**, 2011. 21:R888-890 [Comment]
- Anderson WS and [Kreiman G](#). (2011). Neuroscience: What We Cannot Model, We Do Not Understand. **Current Biology**. 21: R124-R125. [Comment]
- Anderson WS, [Kreiman G](#). What we cannot model, we cannot understand. **Current Biology**, 2011. **21**:R124-R125. [Comment]
- Singer J, [Kreiman G](#), *Toward unmasking the dynamics of visual perception*. **Neuron**, 2009. **64**:446-447. [Comment]
- Tsuchiya N, [Kreiman G](#). (2008). Psyche, attention and consciousness. **Psyche** **14**, 1-2. [Editorial]
- Kreiman, G. (2008). Biological object recognition. **Scholarpedia** **3**, 2667. [Peer-reviewed Web entry]
- [Kreiman G](#), (2007) Neuroscience: from the very large to the very small. **Current Biology**, **17**:R768-R770 [Comment]
- Serre, Kouh, Cadieu, Knoblich, [Kreiman](#), Poggio. (2005) A theory of object recognition **MIT AI Memo** 2005-036. [Technical Report]
- [Kreiman G](#). (2001). Moveo ergo sum. **BioEssays** **23**:662. [Comment]
- [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) [Thesis]
- [Kreiman G](#). (2001). Neural coding and feature extraction of time-varying signals. California Institute of Technology. (M.Sc. Thesis) [Thesis]

## Presentations

### Selected Invited talks

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.  
Universita di Trento, Center for Brain/Mind Sciences. Roveretto, 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, Roveretto, 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, Cerebral Cortex, Cognitive Computation, Genome Biology, Journal of Anatomy, Journal of Computational Neuroscience, Biotechniques, Journal of Cognitive Neuroscience, Experimental Brain Research, Nature Neuroscience, Journal of Comparative Physiology A, RECOMB, Neurocomputation, Bioinformatics, Nucleic Acids Research, PLoS Computational Biology, Neuroscience, Journal of Neurochemistry, Journal of Neuroscience, PNAS, HFSP Journal, Computational Neuroscience Annual Meeting, Neural Networks, Nature Methods, Brain, Journal of Neuroscience Methods, Journal of Neurophysiology, Computational Intelligence and Neuroscience, Scholarpedia, IEEE Journal of Selected Topics in Signal Processing, IEEE transactions in Computational Biology and Bioinformatics, Comparative Biochemistry and Physiology, PLoS Biology, Neural Computation, Current Biology, Journal of Neural Engineering, Nature Protocols, ISMB, Neuroimage, BMC Bioinformatics, Trends in Neuroscience, IEEE Spectrum, Neuron, Frontiers in Perception Science / Computational Neuroscience, Trends in Cognitive Science.*

### **Grant Review Panels**

*National Science Foundation (NSF, Robust Intelligence Panel, Collaborative Research in Computational Neuroscience Panel, Cognitive Neuroscience Panel); NIH (SPC, LAM, ZRG1 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); Kolumb program (Poland), US-Israel Binational Science Foundation, FWO (Belgium), NWO (Netherlands).*

### **Patent Review**

*Patent evaluation for US Patent and Trademark Office*

## Teaching

2014-2016	MBL, Woods. Brains, Minds and Machines Summer Course.
2007-2015	Harvard. HMS 130/230. Visual Object Recognition
2010-2016	Harvard Biophysics 300 (Hogle)
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)