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Education:

University of Pennsylvania, 1985-87, Ph.D. Computer Science.
University of Pennsylvania, 1983-85, M.S.E. Computer Science.
University of Pennsylvania, 1979-83, B.A. Mathematics.

Selected Fellowships and Awards:

- Silver Professorship, New York University, 2014.
- National Academy of Sciences, elected 2013.
- Troland Research Award in psychology, National Academy of Sciences, 2002.
- David Marr Prize in computer vision, 1987.

Expertise: research, data science, statistics, machine learning, neural nets, computer vision, image processing, computer graphics, neurotechology, brain-computer interface, perceptual psychology, attention, visibility and perceptual appearance, computational and cognitive neuroscience, MRI, neuroimaging, EEG, scientific advising, patent applications, grant applications, IRB applications, expert witness.

Entrepreneurship:

- Chief Scientific Officer, Statespace Labs, 2017-present.
- Chief Scientific Officer and Co-Founder, Epistemic AI, 2018-present.

Selected Consulting and Scientific Advising:

- Scientific advisor and consultant: patent applications, grant applications, IRB applications, business model development, customer discovery, technical development, external review of academic programs (Facebook, KLA-Tencor, Hewlett-Packard, State Space Labs, Army Research Laboratory, Safra Foundation, Dana Foundation, Simons Foundation, National Institutes of Health, National Science Foundation).
- Expert witness: patent infringement & ITC cases involving computer vision & image processing technology for vehicle safety (iOnRoad, Magna); liability cases in which visual detection/visibility was a critical issue (NYC MTA).
- Instructor for series of seminars on neuroscience and neuroimaging for Federal & State judges (AAAS, Dana Foundation, NJ Judicial College).
- Scientific expert: science news stories (NBC Nightly News, Ski Magazine).
- Speaker for industry and public events (GE, NY Academy of Sciences, Jazz at Lincoln Center, Louise Blouin Foundation).

Patents:

- Heeger DJ, Mackey WE, System, method, and apparatus for recurrent neural networks, US Patent application US 2019/0265950 A1, 2019.
- Fuller JR, Heeger DJ, Mackey WE, Sensorimotor assessment and training, US Patent application US 2019/0070512 A1, 2019.
- Samadani U, Offen S, Carrasco M, Heeger D, Methods and kits for assessing central nervous system integrity, US Patent #9,642,522, 2017.
- Hasson U, Malach R, Heeger, DJ, Computer-accessible medium, system and method for assessing effect of a stimulus using intersubject correlation, US Patent #9,179,858, 2015.
- Cass TA, Fleet DJ, Hecht DL, Heeger DJ, Method for embedding signals in a color image, EP0912042A2, 2004.
- Fleet DJ, Heeger DJ, Cass T, Hecht DL, Automatic geometric image transformations using embedded signals, US Patent #5,949,055, 1999.
- Heeger AJ, Langen J, Heeger DJ, Smart polymer image processor, US Patent #5,804,836, 1998.
- Heeger DJ & Jepson AD, Method and apparatus for image processing to obtain three dimensional motion and depth, US Patent #4,980,762, 1990.

Selected Journal Publications (out of > 150, available at https://scholar.google.com/citations?user=6ggnUzYAAAAJ&hl=en&oi=ao):

- Listman JB, Tsay J, Kim HE, Mackey WE, Heeger DJ, Long-term Motor Learning in the “Wild” with High

Volume Video Game Data, *Frontiers in Human Neuroscience*, DOI: 10.3389/fnhum.2021.777779, 2021.
- Denison RN, Carrasco M, Heeger DJ, A dynamic normalization model of temporal attention, *Nat Human Behav*, **5:**1674-1685, 2021.
- Barbot A, Das A, Melnick MD, Cavanaugh MR, Merriam EP, Heeger DJ, Huxlin KR, Spared perilesional V1 activity underlies training-induced recovery in cortically-blind patients, *Nat Commun*, **12:**1-18, 2021.
- Jigo M, Heeger DJ, Carrasco M, An image-computable model on how endogenous and exogenous attention differentially alter visual perception, *PNAS*, **118** (33) e2106436118; DOI: 10.1073/pnas.2106436118, 2021.
- Burlingham CS, Heeger DJ, Heading perception depends on time-varying evolution of optic flow, *PNAS*, **117:**33161-33169, 2020.
- Heeger DJ, Zemlianova KO, A recurrent circuit implements normalization, simulating the dynamics of V1 activity, *PNAS*, **117:**22494-22505, 2020.
- McClain K, Tingley D, Heeger DJ, Buzsaki G, Position-theta-phase model of hippocampal place cell activity applied ot quantification of running speed modulation of firing rate, *PNAS*, **116:**27035-27042, 2019.
- Heeger DJ, Mackey, WE, **O**scillatory **R**ecurrent **Ga**ted **N**eural **I**ntegrator **C**ircuit**s** (ORGaNICs), a unifying theoretical framework for neural dynamics, *PNAS*, **116:**22783-22794, 2019.
- Heeger DJ, Theory of cortical function, *PNAS*, **114**:1773-1782, 2017.
- Heeger DJ, Behrmann M, Dinstein I, Vision as a beachhead, *Biological Psychiatry*, **81**:832-837, 2017.
- Harris H, Israeli D, Minshew N, Bonneh Y, Heeger DJ, Behrmann M, Sagi S, Perceptual learning in autism: over-specificity and possible remedies, *Nat Neurosci*, **18**:1574-1576, 2015.
- Freeman J, Ziemba CM, Heeger DJ, Simoncelli EP, Movshon JA, A functional and perceptual signature of the second visual area in primates, *Nat Neurosci*, **16**:974-981, 2013.
- Dinstein I, Heeger DJ, Lorenzi L, Minshew NJ, Malach R, Behrmann M, Unreliable evoked responses in autism, *Neuron*, **75**:981-991, 2012.
- Carandini M, Heeger DJ, Normalization as a canonical neural computation, *Nat Rev Neurosci*, **13**:51-62, 2012.
- Freeman J, Brouwer GJ, Heeger DJ, Merriam EP, Orientation decoding depends on maps, not columns, *J Neurosci*, **31**:4792-4804, 2011.
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- Hasson U, Malach R, Heeger DJ, Reliability of cortical activity during natural stimulation, *Trends Cogn Sci*, **14**:40-48, 2010.
- Reynolds JH & Heeger DJ, The normalization model of attention, *Neuron*, **61**:168-185, 2009.
- Hasson U, Yang E, Vallines I, Heeger DJ, Rubin N, A hierarchy of temporal receptive windows in human cortex, *J Neurosci*, 28:2539-2550, 2008.
- Lee SH, Blake R, Heeger DJ, Hierarchy of cortical responses underlying binocular rivalry, *Nat Neurosci*, **10**:1048-1054, 2007.
- Larsson J & Heeger DJ, Two retinotopic areas in human lateral occipital cortex, *J Neurosci*, **26**:13128-13142, 2006.
- Silver MA, Ress D, & Heeger DJ, Topographic maps of visual spatial attention in human parietal cortex, *J Neurophysiol*, **94**:1358-1371, 2005.
- Lee SH, Blake R, & Heeger DJ, Travelling waves of activity in primary visual cortex during binocular rivalry, *Nat Neurosci*, **8**:22-23, 2005.
- Ress D & Heeger DJ, Neuronal correlates of perception in early visual cortex, *Nat Neurosci*, **6**:414-420, 2003.
- Huk AC, Dougherty RF, & Heeger DJ, Retinotopy and functional subdivision of human areas MT and MST, *J Neurosci*, **22**:7195-7205, 2002.
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- Heeger DJ, Huk AC, Geisler WS, & Albrecht DG. Spikes vs BOLD: What does neuroimaging tell us about neuronal activity? *Nat Neurosci*, **3**:631-633, 2000.
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- Boynton GM, Engel SA, Glover GH, & Heeger DJ, Linear systems analysis of fMRI in human V1, *J Neurosci*, **16**:4207-4221, 1996.
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