Curriculum Vitae

July 2024

MARTIN IRENAEUS SERENO

Personal Details

Name:	Martin I. Sereno
Department:	Psychology, Cognitive Science
Present appointments:	Emeritus Professor of Psychology, San Diego State University
	Adjunct Professor, Cognitive Science, Univ. California San Diego

Education/Qualifications

Dates	Detail of degree	Institution
1978	B.S. Geology	Northern Illinois University
1984	M.S. Neurobiology	University of Chicago
1984	Ph.D. Philosophy of Science	University of Chicago
1988	Postdoc. Neurophysiology	California Institute of Technology

Professional History (in chronological order)

Dates	Detail of position held	Institution
1985-1988	NIH Post-doctoral Fellow	California Institute of Technology
1989-1994	Assistant Prof Cognitive Science	University of California San Diego
1995-1999	Associate Prof Cognitive Science	University of California San Diego
2000-2006	Full Professor Cognitive Science	University of California San Diego
2007-2016	Chair Cognitive Neuroimaging	Univ College London and Birkbeck
2017-2022	Professor Psychology	San Diego State University
2023-present	Emeritus Professor Psychology	San Diego State University
2023-present	Adjunct Professor Cognitive Science	University of California San Diego

Other Appointments and Affiliations

Co-director (2003-2007) UCSD Neuroimaging Center (data analysis)
Wellcome Trust Centre for Neuroimaging (WTCN) Physics Group (2007-2016)
Director (2007-2016), Birkbeck/UCL Neuroimaging Centre (BUCNI), London
Director (2016-2022), San Diego State University Neuroimaging Center

Prizes, Awards and other Honors:

Dates	Detail of prize, award or honour	Awarding/electing body
1978-1981	Graduate Fellowship	National Science Foundation
1986-1988	Post-doctoral Fellowship	National Institutes of Health
2007-2012	Research Merit Award	Royal Society-Wolfson

Grants:

I was funded by individual investigator grants (P.I. Sereno) from NIMH, ONR, NSF, and The Royal Society, and was co-investigator on grants with the following P.I.'s: Rick Buxton, Eric Wong, Joan Stiles, Doug Bowden, Scott Makeig, Eric Halgren, Doris Trauner, Patrick Haggard, Jeremy Skipper, Alan Johnston, Danny Alexander, Axel Mueller, and Ruth Carper.

Recent invited talks:

10 May 2024 Univ. Oregon Psychology, "Topological Brain Maps & the Shape of Thought"
https://pages.ucsd.edu/~msereno/movies/talks/Sereno-Shape-Of-Thought2-HD.mp4
22 Aug 2023 MaxPlanck Tübingen, Keynote:"Topological Brainmaps & Shape of Thought"
17 Aug 2023 MaxPlanck Tübingen, "Formation of MRI images"
17 Jun 2022 SDSU BioMath, "Come for the parcellation, stay for the speculation"
10 Mar 2021 UCSD Cognitive Science, "On Brainmaps"
22 Jan 2021 SDSU Mind Brain Colloquium, "DNA and Language"
https://pages.ucsd.edu/~msereno/movies/talks/Sereno-DNA-Language.mp4
18 Feb 2020 UCSD Functional MRI seminars, University of California San Diego
25 Jan 2019 Conceptual and Historical Studies of Science, University of Chicago
24 Jan 2019 From Fossils to Fermi's Paradox: Orig & Evol of Intelligence, UChicago
29 Nov 2018 Information, Intention, Memory and Time, SDSU, San Diego
17 Nov 2017 Invited talk: 20 years of FreeSurfer, Mass. Gen. Hospital, Boston
25 Jun 2017 Acoustic Society of America, Boston, invited address on Neuroimaging
31 Jan 2017 Annual Interdisciplinary Conference, CO, "Cell and Human Language"
20 Jan 2017 San Diego State University, Computation Science Research Center
03 Nov 2015 San Diego State University, Psychology Dept
17 July 2015 Bloomsbury Theatre Science Night
24 Oct 2014 Donders Institute, Nijmegen
25 Apr 2014 City University London, UK
26 Feb 2014 Psychology Department, Nottingham, UK
19 Jun 2013 Keynote lecture, Human Brain Mapping 2013, "It's maps all the way up"
12 Jun 2012 HBM Workshop "Quantitative Anatomical MRI"
11 May 2012 VSS Symposium "What does fMRI tell us about brain homologies?"
24 Apr 2012 Max Planck Inst Leipzig, In-vivo Brodmann Mapping of Human Brain
04 Jan 2012 Experimental Psychol. Soc. Conf. on Signed & Spoken Language, UCL
01 Dec 2011 Institute of Child Health, London, UK
21 June 2011 Imperial College London, UK
01 Feb 2011 Cognitive, Perceptual, and Brain Sciences, UCL, "Peak oil, peak energy"
19 May 2010 CNRS Lyon, Neuroimaging parietal cortex
12 Feb 2010 Psychology Department, Cambridge University
25 Nov 2009 FMRIB, Oxford University, UK
03 Jul 2009 Cancer & Communication, Salzburg, "Cells, Language, and Communication"

Academic supervision:

PhD students for whom I was primary (internal or external) *thesis examiner*:

2022, San Diego, Bosi Chen

2022, San Diego, Lindsey Aguilar
2022, San Diego, Joseph Happer
2021, San Diego, Amritha Harikumar
2014, Nijmegen, Frank Leone
2014, Oxford, Adam Thomas
2014, UCL, Thomas Ditye
2013, Maastricht, Michelle Moerel
2012, UCL, Maren Urner
2012, UCSD, Richard Snow (music)
2010, Helsinki, Linda Henriksson
2009, UCL, Christian Kaul
2009, UCL, Richard Sylvester
2008, Paris, Benoit Cottereau

PhD students and postdocs for whom I was *primary advisor*:

Bosi Chen, SDSU, PhD. 2022, structural and functional analysis ASD
Sara Di Marco, visiting predoc. 2020, representation of sensation and action in lower limb
Davide Bono, visiting predoc., 2019, representation of the human mouth
Pablo Cuesta, SDSU, current postdoc., fMRI/MEG resting state
Tara Ganepola, UCL, Ph.D. 2017, diffusion-based cortical parcellation
Mariam Sood, BBK, Ph.D. 2016, sensorimotor maps and language
Rebecca Lyness, UCL, Ph.D. 2015, brain plasticity deafness motor learning
Flavia Mancini, UCL, former postdoc., curr: Res Assoc UCL
Ursula Budnik, UCL, former postdoc., curr: Res Assoc Maastricht, R. Goebbel
Inci Ayhan, UCL, postdoc. 2012, curr: Asst Prof, Bogazici University, Istanbul
Lorelei Howard, UCL, Ph.D. 2011, curr: postdoc w/Thomas Wolbers, Magdeburg
Tessa Dekker, BBK, Ph.D. 2011, curr: Res Assoc Institute of Ophthalmology, UCL
Adam Tierney, Ph.D. 2010, curr: Assist Professor Birkbeck, London
Alan Robinson, Ph.D. 2009, currently: Cognitive Science, UCSD
Flavia Filimon, Ph.D. 2008, curr: Res Fellow, Humboldt Univ, Berlin
Ayse Pinar Saygin, Ph.D., 2005, curr: Assoc Prof, Cognitive Science, UCSD
Jonathan Nelson, Ph.D., 2005, curr: Researcher, Adapt Behav & Cog, Berlin
Ruey-Song Huang, Ph.D., 2006, curr : Assist Proj Scientist, INC, UCSD
Hsin-Hao Yu, Ph.D., 2008, curr: Research Fellow, Monash Univ, Australia
John Hershey, Ph.D., 2004, curr: Mitsubishi Electric Res Labs (MERL), Boston
Sabrina Pitzalis, postdoc, 2001, currently: Santa Lucia Hospital, Rome, Italy
Adrian Robert, Ph.D., 2000, currently: Helsinki, Finland
Randy Gobbel, Ph.D., 1997, currently: Head of Eng., CollabRx, Inc., San Fran.
Irina Gorodnitzky, postdoc., 1996-1997, currently: Founder Luce Communications
Monica Paolini, Ph.D., 1997, currently: Director, Senza Fili Consulting
Giorgio Ganis, Ph.D., 1997, currently: Plymouth University
Kechen Zhang, Ph.D., 1996, currently: Assoc Professor, Johns Hopkins Univ
Hillary Rodman, postdoc, 1992, currently: Assoc Professor, Emory Univ
Anders Dale, Ph.D., 1994, currently: Professor, UCSD
Maureen Gremillion, Ph.D., 1993, currently: Los Alamos National Laboratory

Publications (pdf/movie links also at: https://pages.ucsd.edu/~msereno)

total citations = ~48,000 (google)
h-index = 59 (google)
i10 index = 124 (number of papers with >10 citations)

2024

Lei, V.L.C., T.I. Leong, C.T. Leong, L. Liu, C.U. Choi, M.I. Sereno, D. Li, and R.-S. Huang (2024) Phase-encoded fMRI tracks down brainstorms of natural language processing with sub-second precision. *Human Brain Mapping* **45**:e26617. (doi: 10.1002/hbm.26617)
https://pages.ucsd.edu/~msereno/papers/PhaseEncodedLang24.pdf
https://pages.ucsd.edu/~msereno/papers/PhaseEncodedLangSuppl24.pdf
https://pages.ucsd.edu/~msereno/papers/PhaseEncodedLangMovies24/

2023

Haenelt, D., R. Trampel , S. Nasr, J.R. Polimeni, R.B.H. Tootell, M.I. Sereno, K.J. Pine, L.J. Edwards, S. Helbling, and N. Weiskop (2023) High-resolution quantitative and functional MRI indicate lower myelination of thin and thick stripes in human secondary visual cortex. *eLife* **12**:e78756. (doi: 10.7554/eLife.78756)
https://pages.ucsd.edu/~msereno/papers/V2MyelinHuman23.pdf
https://pages.ucsd.edu/~msereno/papers/V2MyelinHuman23-Appendix.pdf

2022

Sereno, M.I., M.R. Sood, and R.-S. Huang (2022) Topological maps and brain computations from low to high. *Frontiers in System Neuroscience* **16**:787737. (doi: 10.3389/fnsys.2022.787737)
https://pages.ucsd.edu/~msereno/papers/MapsLowToHigh22.pdf
https://pages.ucsd.edu/~msereno/csurf/fsaverage-labels

Haenelt, D., R. Trampel , S. Nasr, J.R. Polimeni, R.B.H. Tootell, M.I. Sereno, K.J. Pine, L.J. Edwards, S. Helbling, and N. Weiskop (2022) High resolution quantitative and functional MRI indicate lower myelination of thin and thick stripes in human secondary visual cortex. *bioRxiv* 489865. (doi: 10.1101/2022.04.28.489865)
https://pages.ucsd.edu/~msereno/papers/V2MyelinHuman22.pdf

Chen, B., A. Linke, L. Olson, J. Kohli, M. Kinnear, M.I. Sereno, R.-A. Muller, R. Carper, and I. Fishman (2022) Cortical myelination in toddlers and preschoolers with autism epectrum disorder. *Developmental Neurobiology* **82**: 261-274. (doi: 10.1002/dneu.22874)
https://pages.ucsd.edu/~msereno/papers/ASDMyelin22.pdf

Sereno, M.I., M. Paolini, R. Jeo, A. Dobbins, and J.M. Allman (2022) Retinotopic organization of extrastriate cortex in a lemuriform primate, *Cheirogaleus medius*. *Cerebral Cortex* (re-submitted).
https://pages.ucsd.edu/~msereno/papers/Cheirogaleus22.pdf

2021

de Haas, B., M.I. Sereno, and D. Samuel Schwarzkopf (2021) Inferior occipital gyrus is organised along common gradients of spatial and face-part selectivity. *Journal of Neuroscience* **41**:5511-5521.
https://pages.ucsd.edu/~msereno/papers/FacePartMap21.pdf

Ganepola, T., Y. Lee, D.C. Alexander, M.I. Sereno, and Z. Nagy (2021) Multiple b-values improve discrimination of cortical gray matter regions using diffusion MRI: an experimental validation with a data-driven approach *Magnetic Resonance Materials in Physics, Biology and Medicine* **34**:677-687.
https://pages.ucsd.edu/~msereno/papers/DTiCortexMultibval21.pdf

Tame, L. R. Tucciarelli, R. Sadibolova, M.I. Sereno, and M.R.Longo (2021) Reconstructing neural representations of tactile space *Neuroimage* **229**:117730.
https://pages.ucsd.edu/~msereno/papers/TactileSpace21.pdf

2020

Sereno, M.I., J. Diedrichsen, M. Tachrount, G. Testa-Silva, H. d'Arceuil, and C. De Zeeuw (2020) The human cerebellum has almost 80% of the surface area of the neocortex. *Proceedings of the National Academy of Sciences USA* **117**:19538-19543.
https://pages.ucsd.edu/~msereno/papers/Cereb20.pdf
https://pages.ucsd.edu/~msereno/papers/CerebSuppl20.pdf
https://pages.ucsd.edu/~msereno/papers/Cereb20InThisIssue.pdf
https://pages.ucsd.edu/~msereno/cereb/

Filimon, F. J.D. Nelson, T.J. Sejnowski, M.I. Sereno, and G.W. Cottrell (2020) The ventral striatum dissociates information expectation, reward anticipation, and reward receipt. *Proceedings of the National Academy of Sciences USA* **117**:15200-15208.
https://pages.ucsd.edu/~msereno/papers/Striatum20.pdf

Samuelsson, J.G, P. Sundaram, S. Kahan, M.I. Sereno, and M. Hamalainen (2020) Detectability of cerebellar activity with magnetoencephalography and electroencephalography. Human Brain Mapping 41:2357-2372.
https://pages.ucsd.edu/~msereno/papers/CerebEEGMEG20.pdf

Alvarez, I., R. Smittenaar , S.E. Handley, A. Liasis, M.I. Sereno, D.S. Schwarzkopf, C.A. Clark (2020) Altered visual population receptive fields in human albinism. imaging. *Cortex* **128**:107-123.
https://pages.ucsd.edu/~msereno/papers/AlbinoMaps20.pdf

2019

Nimbalkar, S., E. Fuhrer, P. Silva, T. Nguyen, M. Sereno, S. Kassegne, and J. Korvink (2019) Glassy carbon microelectrodes minimize induced voltages, mechanical vibrations, and artifacts in magnetic resonance imaging. *Microsystems & Nanoengineering - Nature* **5**:61.
https://pages.ucsd.edu/~msereno/papers/GlassyCarbon19.pdf

Mancini, F., A.P Wang, M.M. Schira, Z.J. Isherwood, J. McAuley, G.D. Iannetti, M.I. Sereno, G.L. Moseley, C.D. Rae (2019) Fine-grained mapping of cortical somatotopies in chronic Complex Regional Pain Syndrome. *Journal of Neuroscience* **39**:9185-919.
https://pages.ucsd.edu/~msereno/papers/PainMapChronic19.pdf

Diedrichsen, J., M. King, C. Hernandez-Castillo, M. Sereno, and R.B. Ivry (2019) Universal transform or multiple functionality? Understanding the contribution of the human cerebellum across task domains. *Neuron* **102**:918-928.
https://pages.ucsd.edu/~msereno/papers/CerebReview19.pdf

Mancini, F., M.I. Sereno, M.-H. Lee, G. Iannetti, and I. Tracey (2019) Within-finger maps of tactile and nociceptive input in the human parietal cortex. *bioRxiv* 599167. https://www.biorxiv.org/content/10.1101/599167v1.full.pdf

Dekker, T., S. Schwarzkopf, B. de Haas, M. Nardini, and M.I. Sereno (2019) Population receptive field tuning properties of visual cortex during childhood. *Developmental Cognitive Neuroscience* **37**:100614. https://pages.ucsd.edu/~msereno/papers/ChildRetinotopy19.pdf

2018

Pasqualotto, A., M. Furlan, M.J. Proulx, and M.I. Sereno (2018) Visual loss alters multisensory face maps in humans. *Brain Structure and Function* **223**:3731-3738. https://pages.ucsd.edu/~msereno/papers/BlindAirPuffs18.pdf

Ching-fu Chen, C.-F., K. Kreutz-Delgado, M.I. Sereno, and R.-S. Huang (2018) Unraveling the spatiotemporal brain dynamics during a simulated reach-to-eat task. *Neuroimage* **185**:58-71. https://pages.ucsd.edu/~msereno/papers/ReachToEat18.pdf https://pages.ucsd.edu/~msereno/papers/ReachToEatSuppl18.pdf https://pages.ucsd.edu/~msereno/movies/reach/ReachToEatVid1Sub18.mp4 https://pages.ucsd.edu/~msereno/movies/reach/ReachToEatVidAvg18.mp4

Kuehn, E. and M.I. Sereno (2018) Modeling the human cortex in three dimensions. *Trends in Cognitive Sciences* **22** :1073-1075. (doi: 10.1016/j.tics.2018.08.010) https://pages.ucsd.edu/~msereno/papers/LaminarNeuro18.pdf

Moutsiana, C., R. Soliman, L. de Wit, M. James-Galton, M.I. Sereno, G.T. Plant, and D.S. Schwarzkopf (2018) Unexplained progressive visual field loss in the presence of normal retinotopic maps. *Frontiers in Psychology* **9**:1722. (doi: 10.3389/fpsyg.2018.01722) https://pages.ucsd.edu/~msereno/papers/VisualFieldLossWithNormalMaps18.pdf

Rosenthal, C.R., I. Mallik, C. Caballero-Gaudes, M.I. Sereno, and David Soto (2018) Learning of goal-relevant and -irrelevant complex visual sequences in human V1. *NeuroImage* **179**: 215-224. https://pages.ucsd.edu/~msereno/papers/V1SequenceLearn18.pdf

Sood, M. and M.I. Sereno (2018) Estimating the cortex-wide overlap between wordless narrative scene comprehension, reading comprehension, and topological visual, auditory, and somatomotor maps. *bioRxiv* 264002. (doi:10.1101/264002) https://pages.ucsd.edu/~msereno/papers/ScenesLangMaps18.pdf

Huang, R.-S. and M.I. Sereno (2018) Chapter 7. Multisensory and Sensorimotor Maps. In: *The Parietal Lobe. Neurological and Neuropsychological Deficits (Handbook of Clinical Neurology)*, G. Vallar, H.B. Coslett (eds.), volume 21, Elsevier, pp. 1-21. (doi:10.1016/B978-0-444-63622-5.00007-3) https://pages.ucsd.edu/~msereno/papers/VisualAreas18.pdf

Sood, M.R. A. Toornstra, M.I. Sereno, M. Boland, D. Filaretti, and A. Sood (2018) A Digital App to Aid Detection, Monitoring, and Management of Dyslexia in Young Children (DIMMAND): protocol for a digital health and education solution. *JMIR Research Protocols* **7**(5):e135. https://pubmed.ncbi.nlm.nih.gov/29773528/

Fischl, B. and M.I. Sereno (2018) Microstructural parcellation of the human brain. *Neuroimage* **182**:219-231. (doi:10.1016/j.neuroimage.2018.01.036)

https://pages.ucsd.edu/~msereno/papers/Parcellate18.pdf

Huang, R.-S., C.-F. Chen, and M.I. Sereno (2018) Spatiotemporal integration of looming visual and tactile stimuli near the face. *Human Brain Mapping* **39**:2156-2176. (doi: 10.1002/hbm.23995)
https://pages.ucsd.edu/~msereno/papers/MultisensoryLooming18.pdf

Ganepola, T., Z.N. Nagy, A. Ghosh, T. Papadopoulo, D.C. Alexander, and M.I. Sereno (2018) Using diffusion MRI to discriminate areas of cortical grey matter. *Neuroimage* **182**:456-468. (doi:10.1016/j.neuroimage.2017.12.046)
https://pages.ucsd.edu/~msereno/papers/DTiCortex18.pdf

Kuehn, E., P. Haggard, A. Villringer, B. Pleger, and M.I. Sereno (2018) Visually-driven maps in area 3b. *Journal of Neuroscience* **38**:1295-1310. (doi:10.1523/JNEUROSCI. 0491-17.2017)
https://pages.ucsd.edu/~msereno/papers/VisDrivenSomato18.pdf

Dick, F., M. Lehet, M.F. Callaghan, T. Keller, M.I. Sereno, and L. Holt (2017) Extensive tonotopic mapping across auditory cortex is recapitulated by spectrally-directed attention and systematically related to cortical myeloarchitecture. *Journal of Neuroscience* **37**:12187-12201. (doi:10.1523/JNEUROSCI.1436-17.2017)
https://pages.ucsd.edu/~msereno/papers/AttenTono17.pdf

2017

Huang, R.-S., C.-F. Chen, and M.I. Sereno (2017) Mapping the complex topological organization of the human parietal face area. *Neuroimage* **163**:459-470. (doi: 10.1016/j.neuroimage.2017.09.004)
https://pages.ucsd.edu/~msereno/papers/VIP3Human17.pdf

Ganepola, T, Z. Nagy, D.C. Alexander, and M.I. Sereno (2017) An unsupervised group average cortical parcellation using diffusion MRI to probe cytoarchitecture. In: A. Fuster, A. Ghosh, E. Kaden, Y. Rathi, R. Reisert (eds.) *Computational Diffusion MRI. MICCAI 2016*. Mathematics and Visualization. Springer International Publishing, pp. 145-156. (doi:10.1007/978-3-319-54130-3_12)
https://pages.ucsd.edu/~msereno/papers/DTiCortexCluster17.pdf

Huang, R.-S., C.-F. Chen, K. Kreutz-Delgado, and M.I. Sereno (2017) Validation of periodic fMRI signals in response to wearable tactile stimulation. *Neuroimage* **150**:99-111. (doi:10.1016/j.neuroimage.2017.02.024)
https://pages.ucsd.edu/~msereno/papers/PeriodicTactile17.pdf

Kuehn, E., J. Dinse, E. Jakobsen, X. Long, A. Schafer, P.-L. Bazin, A. Villringer, M.I. Sereno, and D.S. Margulies (2017) Body topography parcellates human sensory and motor cortex. *Cerebral Cortex* **27**:3790-3805. (doi:10.1093/cercor/bhx026)
https://pages.ucsd.edu/~msereno/papers/HandFace17.pdf

Carey, D., S. Krishnan, M.F. Callaghan, M.I. Sereno, and F. Dick (2017) Functional and quantitative MRI mapping of somatomotor representations of human supralaryngeal vocal tract. *Cerebral Cortex* **27**:265-278. (doi:10.1093/cercor/bhw393)
https://pages.ucsd.edu/~msereno/papers/MouthMap17.pdf

2016

Roseman, L., M.I. Sereno, R. Leech, M. Kaelen, C. Orban, J. McGonigle, A. Feilding, D.J. Nutt, and R.L. Carhart-Harris (2016) LSD alters eyes-closed functional

connectivity within the early visual cortex in a retinotopic fashion. *Human Brain Mapping* **37**:3031-3040. (doi:10.1002/hbm.23224)
https://pages.ucsd.edu/~msereno/papers/LSDMaps16.pdf

Carhart-Harris, R.L., S. Muthukumaraswamy, L. Roseman, M. Kaelena, W. Droogb, K. Murphy, E. Tagliazucchi, E.E. Schenberg, T. Nest, C. Orbana, R. Leech, L.T. Williams, T.M. Williams, M. Bolstridge, B. Sessa,J. McGonigle, M.I. Sereno, D. Nichols, P.J. Hellyer, P. Hobden, J. Evans, K.D. Singh, R.G. Wise, H.V. Curran, A. Feilding, and D.J. Nutt (2016) Neural correlates of the LSD experience revealed by multimodal neuroimaging. *PNAS* **113**:4853-4858. (doi:10.1073/pnas.1518377113)
https://pages.ucsd.edu/~msereno/papers/LSDCorrelates16.pdf

Sood, M. and M.I. Sereno (2016) Areas activated during naturalistic reading comprehension overlap topological visual, auditory, and somatotomotor maps. *Human Brain Mapping* **37**:2784-2810. (doi:10.1002/hbm.23208)
https://pages.ucsd.edu/~msereno/papers/LangMaps16.pdf

Smittenaar, C.R, M. MacSweeney, M.I. Sereno, and D.S. Schwarzkopf (2016) Does congenital deafness affect the structural and functional architecture of primary visual vortex? *The Open Neuroimaging Journal* **10**:1-19. (doi: 10.2174/1874440001610010001)
https://pages.ucsd.edu/~msereno/papers/DeafPrimaryVis16.pdf

2015

Mohammadi, S., D. Carey, F. Dick, J. Diedrichsen, M.I. Sereno, M. Reisert, M.F. Callaghan, and N. Weiskopf (2015) Whole-Brain In-vivo Measurements of the Axonal G-Ratio in a Group of 37 Healthy Volunteers. *Frontiers in Neuroscience* **9**:441. (doi:10.3389/fnins.2015.00441)
https://pages.ucsd.edu/~msereno/papers/qGRatio15.pdf

Dekker, T.M., H. Ban, B. van der Velde, M.I. Sereno, A. Welchman, and M. Nardini (2015) Late development of cue integration is linked to sensory fusion in cortex. *Current Biology* **25**:2856-2861. (doi:10.1016/j.cub.2015.09.043)
https://pages.ucsd.edu/~msereno/papers/DevCueFusion15.pdf

Sereno, M.I., C.T. McDonald, and J.M. Allman (2015) Retinotopic organization of extrastriate cortex in the owl monkey -- dorsal and lateral areas. *Visual Neuroscience* **32**:e021, 39 pages. (doi:10.1017/S0952523815000206)
https://pages.ucsd.edu/~msereno/papers/OwlMonk15.pdf

Huang, R.-S., C.-F. Chen, and M.I. Sereno (2015) Neural substrates underlying the passive observation and active control of translational egomotion. *Journal of Neuroscience* **35**:4258-4267. (doi:10.1523/JNEUROSCI.2647-14.2015)
https://pages.ucsd.edu/~msereno/papers/Egomotion15.pdf

2014

Filimon, F, C.A. Rieth, M.I. Sereno, and G.W. Cottrell (2014) Observed, executed, and imagined action representations can be decoded from ventral and dorsal areas. *Cerebral Cortex* **35**:1468-1480. (doi:10.1093/cercor/bhu110)
https://pages.ucsd.edu/~msereno/papers/ReachMVPA14.pdf

Dekker, T.M., D. Mareschal, M.H. Johnson, and M.I. Sereno (2014) Picturing words? Sensorimotor cortex activation for printed words in child and adult readers. Brain & Language **139**:58-67. (doi:10.1016/j.bandl.2014.09.009)
https://pages.ucsd.edu/~msereno/papers/DevPictWord14.pdf

Strappini, F., S. Pitzalis, A.Z. Snyder, M. McAvoy, M.I. Sereno, M. Corbetta, and S. Gordon (2014) Eye position modulates retinotopic responses in early visual areas: a bias for the straight-ahead direction. *Brain Structure and Function* doi:10.1007/s00429-014-0808-7.
https://pages.ucsd.edu/~msereno/papers/EyePos14.pdf

Lyness, C.R., I. Alvarez, M.I. Sereno, and M. MacSweeney (2014) Microstructural differences in the thalamus and thalamic radiations in the congenitally deaf. *Neuroimage* **100**:347-357. (doi:10.1016/j.neuroimage.2014.05.077)
https://pages.ucsd.edu/~msereno/papers/DeafThalamus14.pdf

Sereno, M.I. (2014) Origin of symbol-using systems: speech, but not sign, without the semantic urge. *Philosophical Transactions of the Royal Society B* **369**(1651): 20130303. (doi:10.1098/rstb.2013.0303)
https://pages.ucsd.edu/~msereno/papers/LangOrigins14.pdf

Sereno, M.I. and R.-S. Huang (2014) Multisensory maps in parietal cortex. *Current Opinion in Neurobiology* **24**:39-46. (doi:10.1016/j.conb.2013.08.014)
https://pages.ucsd.edu/~msereno/papers/VisualAreas14.pdf

Lutti, A, F. Dick, M.I. Sereno, and N. Weiskopf (2014) Using high-resolution quantitative mapping of R1 as an index of cortical myelination. *Neuroimage* **93**:176-188. (doi: 10.1016/j.neuroimage.2013.06.005)
https://pages.ucsd.edu/~msereno/papers/qT1Meth13.pdf

2013

Huang, R.-S. and M.I. Sereno (2013) Botton-up retinotopic organization support top-down mental imagery. *The Open Neuroimaging Journal* **7**:58-67. (doi: 10.2174/1874440001307010058)
https://pages.ucsd.edu/~msereno/papers/ImaginedNav13.pdf

Budnik, U., M.I. Sereno, R. Trampel, V. Walsh, and R. Turner (2013) Visuelle and somatotope kartierung des pulvinar nukleus mittels 7 Tesla MRT [Visuotopic and somatotopic mapping of the pulvinar nucleus at 7T]. *Klinische Neurophysiologie* **44**:P155. (doi:10.1055/s-0033-1337296))
https://pages.ucsd.edu/~msereno/papers/PulvinarVisSom13.pdf

Apps, M.A.J., A. Tajadura-Jimenez, M. Sereno, O. Blanke, and M. Tsakiris (2013) Plasticity in unimodal and multimodal brain areas reflects multisensory changes in self-face identification. *Cerebral Cortex* **25**:46–55. (doi:10.1093/cercor/bht199)
https://pages.ucsd.edu/~msereno/papers/FaceSelfOther13.pdf

Pitzalis, S., M.I. Sereno, G. Committeri, P. Fattori, G. Galati, A. Tosoni, C. Galletti (2013) The human homologue of macaque area V6A (2013) *Neuroimage* **82**:517-530. (doi:10.1016/j.neuroimage.2013.06.026)
https://pages.ucsd.edu/~msereno/papers/V6AHuman13.pdf

Nagy, Z., D.C. Alexander, D.L. Thomas, N. Weiskopf, and M.I. Sereno (2013) Using high angular resolution diffusion imaging data to discriminate cortical regions. *PLoS ONE* 8(5):e63842. (doi:10.1371/journal.pone.0063842)

https://pages.ucsd.edu/~msereno/papers/DTiCortex13.pdf

2012

Mancini, F., P. Haggard, G.D. Iannetti, M. Longo, and M.I. Sereno (2012) Fine-grained nociceptive maps in primary somatosensory cortex. *Journal of Neuroscience* **32**:17155-17162. (doi:10.1523/JNEUROSCI.3059-12.2012)
https://pages.ucsd.edu/~msereno/papers/PainMap12.pdf

Dick, F., A.T. Tierney, A. Lutti, O. Josephs, M.I. Sereno, and N. Weiskopf (2012) In vivo functional and myeloarchitectonic mapping of human primary auditory areas. *Journal of Neuroscience* **32**:16095-16105.
https://pages.ucsd.edu/~msereno/papers/qT1Tono12.pdf

Huang, R.-S., C.-F. Chen, A.T. Tran, K.L. Holstein, and M.I. Sereno (2012) Mapping multisensory parietal face and body areas in humans. *Proc Natl Acad Sci U S A* **109**:18114-18119.
https://pages.ucsd.edu/~msereno/papers/VIP2Human12.pdf

Sereno, M.I., A. Lutti, N. Weiskopf, and F. Dick (2012) Mapping the human cortical surface by combining quantitative T1 with retinotopy. *Cerebral Cortex* **23**:2261-2268. (doi:10.1093/cercor/bhs213)
https://pages.ucsd.edu/~msereno/papers/qT1Retin12.pdf

Tierney, A., F. Dick, D. Deutsch, and M. Sereno (2012) Speech versus song: multiple pitch-sensitive areas revealed by a naturally occurring musical illusion. *Cerebral Cortex*. 23:249-254. (doi:10.1093/cercor/bhs003)
https://pages.ucsd.edu/~msereno/papers/SpeechSong12.pdf

2011

Ye, Z., M. Kutas, M. St. George, M.I. Sereno, and T.F. Muente (2011) Rearranging the world: neural networks supporting the processing of temporal connectives. *Neuroimage* **59**:3662-3669. (doi:10.1016/j.neuroimage.2011.11.039)
https://pages.ucsd.edu/~msereno/papers/BeforeAfter12.pdf

Woodhead, Z.J.W., R.J.S. Wise, M. Sereno, and R. Leech (2011) Dissociation of sensitivity to spatial frequency in word and face preferential areas of the fusiform gyrus. *Cerebral Cortex* **21**:2307-2312. (doi:10.1093/cercor/bhr008)
https://pages.ucsd.edu/~msereno/papers/SpaFreqWordFace11.pdf

Dekker, T., D. Mareschal, M.I. Sereno, and M.H. Johnson (2011) Dorsal and ventral stream activation patterns predict object recognition performance in school-age children. *Neuroimage* 57:659-670.
https://pages.ucsd.edu/~msereno/papers/DevDorsalVentral10.pdf

2010

Pitzalis, S., M.I. Sereno, G. Committeri, P. Fattori, G. Galati, F. Patria, and C. Galletti (2010). Human V6: the medial motion area. *Cerebral Cortex* **20**:411-424.
https://pages.ucsd.edu/~msereno/papers/V6Motion09.pdf

2009

Filimon, F., J. Nelson, R.-S. Huang, and M.I. Sereno (2009) Multiple parietal reach regions in humans: cortical representations for visual and proprioceptive feedback during online reaching. *Journal of Neuroscience* **29**:2961-2971. https://pages.ucsd.edu/~msereno/papers/ReachVisNonVis09.pdf

2008

Lewis, J.D., R.J. Theilmannm, M.I. Sereno, and J. Townsend (2008) The relation between connection length and degree of connectivity in young adults: a DTI analysis. *Cerebral Cortex* **19**:554-562. https://pages.ucsd.edu/~msereno/papers/CallosalDTi08.pdf

Huang, R.-S. and M.I. Sereno (2008) Visual stimulus presentation using fiber optics in the MRI scanner. *Journal of Neuroscience Methods* **169**:76-83. https://pages.ucsd.edu/~msereno/papers/FiberOpticRunway08.pdf

Saygin, A.P. and M.I. Sereno (2008) Retinotopy and attention in human occipital, temporal, parietal, and frontal cortex. *Cerebral Cortex* **18**:2158-2168. https://pages.ucsd.edu/~msereno/papers/BioMotionMap08.pdf https://pages.ucsd.edu/~msereno/papers/BioMotionMapSuppl08.pdf https://pages.ucsd.edu/~msereno/papers/BioMotionMapMovies08/

2007

Filimon, F., J.D. Nelson, D.J. Hagler Jr., and M.I. Sereno (2007) Human cortical representations for reaching: mirror neurons for execution, observation, and imagery. *Neuroimage* **37**:1315-1328 https://pages.ucsd.edu/~msereno/papers/ReachObsImagine07.pdf

Hagler, D.J. Jr., L. Riecke, and M.I. Sereno (2007) Pointing and saccades rely on common parietal and superior frontal visuospatial maps. *Neuroimage* **35**:1562-1577. https://pages.ucsd.edu/~msereno/papers/PointVsSacc07.pdf

Huang, R.-S. and M.I. Sereno (2007) Dodecapus: An MR-compatible system for somatosensory stimulation. *Neuroimage* **34**:1060-1073. https://pages.ucsd.edu/~msereno/papers/SomatoSpider07.pdf

Grether, D.M., C.R. Plott, D.B. Rowe, M.I. Sereno, and J.M. Allman (2007) Mental processes and strategic equilibration: An fMRI study of selling strategies in second price auctions. *Experimental Economics* **10**:105-122. https://pages.ucsd.edu/~msereno/papers/Grether07.pdf

2006

Hagler, D.J. Jr., A.P. Saygin, and M.I. Sereno (2006) Smoothing and cluster thresholding for cortical surface-based group analysis of fMRI data. *Neuroimage* **33**:1093-1103. https://pages.ucsd.edu/~msereno/papers/SurfCluster06.pdf

Sereno, M.I. and R.-S. Huang (2006) A human parietal face area contains aligned head-centered visual and tactile maps. *Nature Neuroscience* **9**:1337-1343. https://pages.ucsd.edu/~msereno/papers/VIPHuman06.pdf

Pitzalis, S., C. Galletti, R.S. Huang, F. Patria, G. Committeri, G. Galati, P. Fattori, and M.I. Sereno (2006) Wide-field retinotopy reveals human cortical visual area V6. *Journal of Neuroscience* **26**:7962-7973. https://pages.ucsd.edu/~msereno/papers/V6Human06.pdf

Hagler, D.J. and M.I. Sereno (2006) Spatial maps in frontal and prefrontal cortex. *Neuroimage* **29**:567-577. https://pages.ucsd.edu/~msereno/papers/FrontalMaps06.pdf

2005

Sereno, M.I. (2005) Neuroscience: plasticity and its limits. *Nature* **435**:288-289. https://pages.ucsd.edu/~msereno/papers/LimitsPlasticity05.pdf

Sereno, M.I. and R.B. Tootell (2005) From monkeys to humans: what do we now know about brain homologies. *Current Opinion in Neurobiology* **15**:135-144. https://pages.ucsd.edu/~msereno/papers/VisualAreas05.pdf

Sereno, M.I. (2005) Language origins without the semantic urge. *Cognitive Science Online* **3**:1-12. https://pages.ucsd.edu/~msereno/papers/LangOrigins05.pdf

McCullough, S., K. Emmorey, and M.I. Sereno (2005) Neural organization for recognition of grammatical and emotional facial expressions in deaf ASL signers and hearing nonsigners. *Cognitive Brain Research* **22**:193-203. https://pages.ucsd.edu/~msereno/papers/DeafEmotSyn05.pdf

2004

Saygin A.P., S.M. Wilson, D.J. Hagler Jr, E. Bates, and M.I. Sereno (2004) Point-light biological motion perception activates human premotor cortex. *Journal of Neuroscience* **24**:6181-6188. https://pages.ucsd.edu/~msereno/papers/BioMotion04.pdf

Wilson S.M., A.P. Saygin, M.I. Sereno, and M. Iacoboni (2004) Listening to speech activates motor areas involved in speech production. *Nature Neuroscience* **7**:701-702. https://pages.ucsd.edu/~msereno/papers/ListenSpeech04.pdf

Talavage, T.M., M.I. Sereno, J.R. Melcher, P.J. Ledden, B.R. Rosen, and A.M. Dale (2004) Tonotopic organization in human auditory cortex revealed by progressions of frequency sensitivity. *Journal of Neurophysiology* **91**:1282-1296. https://pages.ucsd.edu/~msereno/papers/AuditoryMaps04.pdf

2003

Bates, E., S.M. Wilson, A.P. Saygin, F. Dick, M.I. Sereno, R.T. Knight, and N.F. Dronkers (2003) Voxel-based lesion-symptom mapping. *Nature Neuroscience* **6**:448-450. https://pages.ucsd.edu/~msereno/papers/VoxLesSymMap03.pdf

2002

Di Russo, F., A. Martinez, M.I. Sereno, S. Pitzalis, and S.A. Hillyard (2002) Cortical sources of the early components of the visual evoked potential. *Human Brain Mapping* **15**:95-111. https://pages.ucsd.edu/~msereno/papers/CortSourceVEP02.pdf

2001

Sereno, M.I., S. Pitzalis, and A. Martinez (2001) Mapping of contralateral space in retinotopic coordinates by a parietal cortical area in humans. *Science* **294**:1350-1353. https://pages.ucsd.edu/~msereno/papers/LIP01.pdf

Martinez, A., F. DiRusso, L. Anllo-Vento, M.I. Sereno, R.B. Buxton, and S.A Hillyard (2001) Putting spatial attention on the map: timing and localization of stimulus selection processes in striate and extrastriate visual areas. *Vision Research* **41**:1437-1457. https://pages.ucsd.edu/~msereno/papers/SpatialAttnEPs01.pdf

1999

Sereno, M.E. and M.I. Sereno (1999) 2-D center-surround effects on 3-D structure from motion. *Journal of Experimental Psychology--Human Perception and Performance* **25**:1834-1854. https://pages.ucsd.edu/~msereno/papers/SphereBeltDepth.pdf

Fischl B., M.I. Sereno, R.B.H. Tootell and A.M. Dale (1999) High-resolution inter-subject averaging and a surface-based coordinate system. *Human Brain Mapping* **8**:272-284. https://pages.ucsd.edu/~msereno/papers/Morphing99.pdf

St. George, M., M. Kutas, A. Martinez, and M.I. Sereno (1999) Semantic integration in reading: Engagement of the right hemisphere during discourse processing. *Brain* **122**:1317-1325. https://pages.ucsd.edu/~msereno/papers/BransJohnsMRI99.pdf

Martinez, A., L. Anllo-Vento, M.I. Sereno, L.R. Frank, R.B. Buxton, D.J. Dubowitz, E.C. Wong, H. Hinrichs, H.J. Heinze and S.A. Hillyard (1999) Involvement of striate and extrastriate visual cortical areas in spatial-selective attention: combined evidence from fMRI and event-related potentials. *Nature Neuroscience* **2**:364-369. https://pages.ucsd.edu/~msereno/papers/SpatialAttnEPs99.pdf

Dale, A.M., B. Fischl, and M.I. Sereno (1999) Cortical surface-based analysis I: Segmentation and surface reconstruction. *NeuroImage* **9**:179-194. https://pages.ucsd.edu/~msereno/papers/CorticalSurface99a.pdf

Fischl, B., M.I. Sereno and A.M. Dale (1999) Cortical surface-based analysis II: Inflation, flattening, and a surface-based coordinate system. *NeuroImage* **9**:195-207. https://pages.ucsd.edu/~msereno/papers/CorticalSurface99b.pdf

Kutas, M. K.D. Federmeier, and M.I. Sereno (1999) Current approaches to mapping language in electromagnetic space. In C.M. Brown and P. Hagoort (eds.), *The Neurocognition of Language*. Oxford University Press, pp. 359-392. https://pages.ucsd.edu/~msereno/papers/LangMapByEeg99.pdf

1998

Halgren, E., A.M. Dale, M.I. Sereno, R.B.H. Tootell, K. Marinkovic, and B.R. Rosen (1998) Location of human face-selective cortex with respect to retinotopic areas. *Human Brain Mapping* **7**:29-37. https://pages.ucsd.edu/~msereno/papers/FaceVsRetin99.pdf

Sereno, M.I. (1998) Brain mapping in animals and humans. *Current Opinion in Neurobiology* **8**:188-194. https://pages.ucsd.edu/~msereno/papers/VisualAreas98.pdf

Paolini, M. and M.I. Sereno (1998) Direction selectivity in the middle lateral and lateral (ML and L) visual areas in the California ground squirrel. *Cerebral Cortex* **8**:362-371.
https://pages.ucsd.edu/~msereno/papers/SquirrelDirSelect98.pdf

Tootell R.B., N.K. Hadjikhani, W. Vanduffel, A.K. Liu, J.D. Mendola, M.I. Sereno, A.M. Dale (1998) Functional analysis of primary visual cortex (V1) in humans. *Proceedings of the National Academy of Sciences USA* **95**:811-817.
https://pages.ucsd.edu/~msereno/papers/V1Human98.pdf

1997

Tootell, R.B.H., J.D. Mendola, N.K. Hadjikhani, P.J. Ledden, A.K. Liu, J.B. Reppas, M.I. Sereno, and A.M. Dale (1997) Functional analysis of V3A and related areas in human visual cortex. *Journal of Neuroscience* **17**:1060-7078.
https://pages.ucsd.edu/~msereno/papers/V3AHuman97.pdf

Reppas, J.B., S. Niyogi, A.M. Dale, M.I. Sereno, and R.B.H. Tootell (1997) Motion segmentation in retinotopic areas of the human visual cortex. *Nature* **388**:175-179.
https://pages.ucsd.edu/~msereno/papers/MotionBoundaries97.pdf

Zhang, K., G. Ganis, and M.I. Sereno (1997) Anti-Hebbian synapses as a linear equation solver. *Proceedings of International Conference on Neural Networks* (ICNN'97), IEEE, Vol. 1, p. 387-389.
https://pages.ucsd.edu/~msereno/papers/AntiHebb97.pdf

1996

Sereno, M.I., A.M. Dale, A. Liu, and R.B.H. Tootell (1996) A surface-based coordinate system for a canonical cortex. In Proceedings of the 2nd International Conference on Human Brain Mapping, Boston, MA. *Neuroimage* **3**:S252.
https://pages.ucsd.edu/~msereno/papers/HBMMorphAbstr96.pdf

Tootell, R.B.H., A.M. Dale, M.I. Sereno, and R. Malach (1996) New images from human visual cortex. *Trends in Neurosciences* **19**:481-489.
https://pages.ucsd.edu/~msereno/papers/VisualAreas96.pdf

Reppas, J.B., A.M. Dale, M.I. Sereno, and R.B.H. Tootell (1996) La Vision: une perception subjective. *La Recherche* **269**.

Ganis, G, M. Kutas, and M.I. Sereno (1996) The search for the common sense--an electrophysiological study of the comprehension of words. *Journal of Cognitive Neuroscience* **8**:89-106.
https://pages.ucsd.edu/~msereno/papers/PictureWordEPs96.pdf

1995

Sereno, M.I., A.M. Dale, J.B. Reppas, K.K. Kwong, J.W. Belliveau, T.J. Brady, B.R. Rosen, and R.B.H. Tootell (1995) Borders of multiple visual areas in human revealed by functional magnetic resonance imaging. *Science* **268**:889-893.
https://pages.ucsd.edu/~msereno/papers/HumanRetin95.pdf (journal scan)
https://pages.ucsd.edu/~msereno/papers/HumanRetin95ms.pdf (better figures)

Tootell, R.B.H., J. B. Reppas, A. M. Dale, R. B. Look, M. I. Sereno, T. J. Brady, and B. R. Rosen (1995) Functional MRI evidence for a visual motion after effect in human cortical area MT/V5. *Nature* **375**:139-141.

https://pages.ucsd.edu/~msereno/papers/MotionAfterMT95.pdf

1994

Sereno, M.I., C.T. McDonald, and J.M. Allman (1994) Analysis of retinotopic maps in extrastriate cortex. *Cerebral Cortex* **4**:601-620.
https://pages.ucsd.edu/~msereno/papers/FieldSign94.pdf

Allman, J.M., R. Jeo, and M.I. Sereno (1994) The functional organization of visual cortex in owl monkeys. In J.F. Baer, R.E. Weller, and I. Kakoma (eds.), *Aotus: the owl monkey*. Academic Press, pp. 287-320.

1993

Zhang, K.E., M.I. Sereno, and M.E. Sereno (1993) Emergence of position-independent detectors of sense of rotation and dilation with Hebbian learning: an analysis. *Neural Computation* **5**:597-612.
https://pages.ucsd.edu/~msereno/papers/FlowFieldHebb93.pdf

Dale, A.M. and M.I. Sereno (1993) Improved localization of cortical activity by combining EEG and MEG with MRI cortical surface reconstruction: A linear approach. *Journal of Cognitive Neuroscience* **5**:162-176.
https://pages.ucsd.edu/~msereno/papers/DaleSereno93.pdf (journal scan)
https://pages.ucsd.edu/~msereno/papers/DaleSereno93ms.pdf (easier-to-read equations)

1992

Ulinski, P.S., D.M. Dacey, and M.I. Sereno (1992) Organization of the optic tectum. In C. Gans and P.S. Ulinski (eds.), *Sensorimotor Integration, Biology of the Reptilia, Vol. 17, Neurology C*. University of Chicago Press, pp. 241-366.

1991

Sereno, M.I (1991b) Four analogies between biological and cultural/linguistic evolution. *Journal of Theoretical Biology* **151**:467-507.
https://pages.ucsd.edu/~msereno/papers/Analogy91.pdf

Sereno, M.I. (1991a) Language and the primate brain. *Proceedings, Thirteenth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, pp. 79-84.
https://pages.ucsd.edu/~msereno/papers/BrainLang91.pdf

Sereno, M.I. and M.E. Sereno (1991) Learning to see rotation and dilation with a Hebb rule. In R.P. Lippmann, J.E. Moody, and D.S. Touretzky (eds.), *Advances in Neural Information Processing Systems* 3. Morgan Kaufmann Publishers, pp. 320-326.
https://pages.ucsd.edu/~msereno/papers/FlowFieldHebb91.pdf

Sereno, M.I. and J.M. Allman (1991) Cortical visual areas in mammals. In A.G. Leventhal (ed.), *The Neural Basis of Visual Function*. London: Macmillan, pp. 160-172.
https://pages.ucsd.edu/~msereno/papers/VisualAreas91.pdf

1990

Sereno, M.I. (1990) Language and the primate brain. *Center for Research in Language Newsletter, University of California, San Diego* **4**(4), 12 pp.

1989

Sereno, M.I. (1989) Learning the solution to the aperture problem for pattern motion with a Hebb rule. In D.S. Touretzky (ed.), *Advances in Neural Information Processing Systems I*. Morgan Kaufmann Publishers, pp. 468-476.
https://pages.ucsd.edu/~msereno/papers/ApertureHebb89.pdf

1988

Sereno, M.I. (1988) The visual system. In I.W.v. Seelen, U.M. Leinhos, and G. Shaw (eds.), *Organization of Neural Networks*. Weinheim: VCH Verlagsgesellschaft, pp. 176-184.
https://pages.ucsd.edu/~msereno/papers/VisualSystRev88.pdf

1987

Sereno, M.I., and P.S. Ulinski (1987) Caudal topographic nucleus isthmi and the rostral nontopographic nucleus isthmi in the turtle, *Pseudemys scripta*. *Journal of Comparative Neurology* **261**:319-346.
https://pages.ucsd.edu/~msereno/papers/Isthmi87.pdf

1986

Sereno, M.I. (1986) A program for the neurobiology of mind. *Inquiry* **29**:217-240.
https://pages.ucsd.edu/~msereno/papers/ProgNeurMind86.pdf

1985

Sereno, M.I. (1985) Tectoreticular pathways in the turtle, *Pseudemys scripta*. I. Morphology of tectoreticular axons. *Journal of Comparative Neurology* **233**:48-90.
https://pages.ucsd.edu/~msereno/papers/TectoReticAxons85.pdf

Sereno, M.I., and P.S. Ulinski (1985) Tectoreticular pathways in the turtle, *Pseudemys scripta*. II. Morphology of tectoreticular cells. *Journal of Comparative Neurology* **233**:91-114.
https://pages.ucsd.edu/~msereno/papers/TectoReticCells85.pdf

1984

Sereno, M.I. (1984) 'DNA' and Language: the nature of the symbolic-representational system in cellular protein synthesis and human language comprehension. Ph.D. dissertation, University of Chicago, 346 pp.
https://pages.ucsd.edu/~msereno/papers/Dissertation84.pdf

References

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Research Statement including Scientific Administration

Overview

My undergraduate education was in geology and biology. I then turned to neuroanatomy (superior colliculus with Phil Ulinski) and philosophy of science (coding systems at the cellular and linguistic levels with Bill Wimsatt) at the University of Chicago. After a post-doc with John Allman at the California Institute of Technology on mapping primate extrastriate cortex and developing new methods for analyzing retinotopic maps, I came to University of California San Diego as a comparative visual neurophysiologist, psychophysicist, and neural modeler.

UCSD

Several years after arriving, my research program branched again, this time in the direction of neuroimaging as MEG and MRI technology matured and especially as *functional* MRI became practical. This move involved additional study of the mathematics and physics of EEG, MEG, and MRI as well as substantial effort in software development. I was, originally with Anders Dale and later with Bruce Fischl, one of the primary co-authors of the FreeSurfer cortical-surface-based fMRI analysis and cross-subject surface morphing package now in use in laboratories across the world. Throughout, I retained a strong interest in the evolution of vision and of the brain in general, and still strongly emphasize evolution in my courses and writing.

I am perhaps best known for my work in mapping early visual areas in humans (Sereno et al., 1995, *Science*). Since then, I developed methods (e.g., masked naturalistic videos, phase-encoded delayed saccades) for mapping successively higher visual areas in postcentral sensory cortices, as well as areas in prefrontal cortex. This work has established, for example, that in parietal cortex, there is continuous stream of retinotopically organized areas that runs directly into somatotopically-organized areas. At the boundary between the visual and somatosensory modalities we found a newly identified set of human parietal face and body areas (one of which was originally named the macaque ventral intraparietal area, VIP) that extend from face all the way down to the toes, where visual and somatosensory responses are overlaid and coordinated in a head- and body-centered frame (research with Ruey-Song Huang). Thus, at least in this part of the human cortex, maps extend all the way from the lowest level areas up to the highest level areas.

My research has been continuously funded by a series of extramural grants from the National Institutes of Health, the Office of Naval Research, and the National Science Foundation, and the Royal Society.

London

In April 2007, I moved to University College London and Birkbeck to set up and direct the Birkbeck/UCL Neuroimaging Centre (BUCNI) (https://www.ucl.ac.uk/pals/birkbeck-ucl-centre-neuroimaging-bucni). I also joined the MR Physics Group at the Wellcome Trust Centre for Neuroimaging directed by Nikolaus Weiskopf. London was attractive for the combined intellectual resources in neuroscience and cognitive neuroscience at University College London, the Institute of Cognitive Neuroscience, Birkbeck College, the Wellcome

Trust Centre for Neuroimaging, the Institute for Cognitive Neuroscience, the Institute of Neurology, the Gatsby Computational Neuroscience Institute, and last but not least, the opportunity to build a neuroimaging center from the ground up.

Over the course of 9 years (2007-2016), under my direction, BUCNI grew into a vibrant new neuroimaging center in competitive London. We raised money to acquire a 32-channel surface coil array in 2009, and then a high resolution video-based prospective motion correction system in 2013. In 2014, I modified a second 32-channel head coil to greatly reduce its occlusion of visual stimuli.

The center became known for its extensive and flexible array of multisensory stimulus and behavioral measurement facilities, unique across the many other London functional MRI centers. This in turn attracted business from neuroimaging groups across London, including from the high profile Wellcome-funded groups at Queen Square. Some of the unique capabilities we set up included high-resolution video front projection (including direct-view) as well back visual projection (including stereo presentation), a high performance noise-cancelling auditory system with optical microphone, a purpose-built multichannel computer driven spatial somatosensory air puff system (that also works on the teeth), and electrical and laser pain stimulation. Finally, we had transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) in the magnet. We set up extensive movement and electrical response monitoring capabilities including bimanual keys, an MR-compatible trackball, an MR-compatible driving simulator, a force-feedback robot arm, in-bore face and hand cameras, precision and power grasp squeeze transducers, a magnet-compatible driving stimulator, high speed binocular eye movement monitoring, prospective realtime video-based motion correction (Kineticor), and finally, full simultaneous-MR-compatible EEG recording capability.

BUCNI also became known in the London neuroimaging community for being especially child-friendly as well as deaf- and blind-friendly. Multiple projects on children and deaf and blind subjects have been completed, forming the content of several PhD's theses. Finally, we scanned a large number of stroke patients (aphasia collaboration with Cathy Price).

Via my participation in the Wellcome Trust Center for Neuroimaging physics group (directed by Nikolaus Weiskopf and Martina Callaghan, and including physicist Oliver Josephs), we supported home-written pulse sequences such as echo volume imaging, multi-echo independently Z-shimmed EPI, and quantitative T1 imaging (multi-parameter mapping), as well as the latest Minnesota multi-band sequences.

I left London and BUCNI with over £1.1M in the 'BUCNI bank', which together with UCL and Wellcome funds, was recently used to purchase and set up a second scanner suite (3T Siemens Prisma) there.

SDSU

In September 2016, I moved back to San Diego to direct a neuroimaging center that was being constructed in the new Engineering and Interdisciplinary Sciences Complex (EISC) building on campus. The EISC building officially opened in February 2018, and a 3T Siemens Prisma MRI magnet was installed, brought up to field and shimmed in April 2018.

A wide array of MR-compatible stimulus/response devices including a 20-channel somatosensory air-puff system designed and fabricated by Ruey-Song Huang (which I used to map the human lower limbs in detail), a high-speed prospective video motion tracking, an optical fiber based noise-cancelling microphone and headphone system, and a mock scanner have been installed. The center opened for business for the local imaging community in early 2019, and has now definitively recovered from the covid lockdown.

After Usha Sinha and I took the Siemens IDEA pulse sequence programming course, we have begnu to write and compile our own, home-written pulse sequences. The first in line was the quantitative multi-echo FLASH sequence (by Nikolaus Weiskopf and Martina Callaghan) I had been using in London for quantitative T1, T2*, PD, and MT (magnetization transfer).

Five Recent Research Directions

Mapping

Over the past ten years, I developed my own research program in 5 new directions, and I have initiated scientific collaborations with a number of new research groups.

I have retained my earlier interest in surface-based receptotopic mapping. I extended my phase-encoded cortical mapping studies in early visual cortex to higher level visual cortex, and to auditory, somatosensory, and motor cortex using naturalistic stimuli and tasks. Some examples include mapping place of consonant articulation in somatomotor and frontal cortex (with Fred Dick), mapping polar angle representations in the inferotemporal 'visual word form areas' using eccentric reading, mapping retinotopy and somatotopy in the visual and somatosensory pulvinar (collaboration with Bob Turner's 7T group in Leipzig), mapping the relation between pure touch (air puff) compared with pure pain (infrared laser) in S-I (with Flavia Mancini, Patrick Haggard, and Giandomenico Ianetti), mapping higher auditory area tonotopy (including frontal cortex) with band-pass filtered naturalistic stimuli, pure 'attention-o-tonotopy' using spectrally-balanced stimuli (with Fred Dick), and mapping the complete representation of the body surface (with Mariam Sood).

I have finally begun to put my money where my mouth is (Sereno, 1991, *Language and the Primate Brain*) by directly comparing topological receptor and effector mapping (retinotopy, tonotopy, somatotopy, and movement-o-topy) with activations generated by higher level cognitive tasks in the same subjects. Some examples of the cognitive tasks I have used include time-metaphor interpretation ("the holidays are approaching" vs. "we are coming up on the holidays" with Rafael Nunez, for VIP), eyes-closed imagined navigation (with Ruey-Song Huang), controlled naturalistic reading (including actual saccades!) (*Human Brain Mapping*), and finally wordless picture-story versus scrambled-picture-story interpretation (last two with Mariam Sood). Here are some recent lectures (2021-2022) lecture I gave summarizing these accomplishments:

https://pages.ucsd.edu/~msereno/movies/talks/Sereno-On-Brainmaps.mp4
https://pages.ucsd.edu/~msereno/movies/talks/Sereno-Shape-Of-Thought2-HD.mp4

I developed a new collaboration with the ultra-high-field neuroimaging center in Leipzig (Esther Kuehn, Burkhard Pleger, and Nik Weiskopf, the last who moved from London to Leipzig in 2016) showing that simply observing another person's finger tip being touched

slightly activates the corresponding individual finger representations in primary somatosensory cortex, mapped with real touch in the same subjects. This occurs in both first and third-person views of the touched finger, and is extinguished if the touch is seen to almost, but not quite, occur.

The unexpected penetration of a visual signal all the way back to a particular finger representation in primary somatosensory cortex, which requires non-trivial computations in the third-person view, gives a whole new perspective on the debate about 'mirror neurons'. This paper emerged from the long-winded rigors of peer review and finally appeared in *Journal of Neuroscience*, followed by an invited perspective on the topic of 'Layers and Cognition' in *Trends in Cognitive Science*.

Quantitative architectonics

Second, I have made several advances in *quantitative cortical architectonics* in living subjects. Together with Nik Weiskopf, Antoine Lutti, and Fred Dick, I helped develop and test new MR pulse sequences and processing pipelines for quantitatively estimating cortical (qT1, a myelination proxy) and quantitative proton density (qPD), and then showed in subsequent papers how qT1 relates to retinotopy, tonotopy, somatotopy, and frontal areas (*Cerebral Cortex*, 2012; *Journal of Neuroscience*, 2013; *Neuroimage*, 2014).

Then with Zoltan Nagy, Tara Ganepola, and Danny Alexander at UCL (*PLoS One, MICCAI, Neuroimage*), I developed a surface-normal-informed characterization and classification of high angular resolution cortical gray matter diffusion profiles, in order to provide *in vivo* estimates of textural differences between different *gray* matter regions that have historically been used to distinguish cortical areas by microscopic examination of post-mortem sections stained either for cell bodies or myelin.

Both of these projects involved writing a substantial amount of new code to extend the capability of my retinotopy-enabled fork of FreeSurfer, *csurf*, to allow it to generate and manipulate considerably higher resolution cortical meshes than those produced and manipulated by the standard MGH freesurfer pipeline.

Development

Third, I began to investigate the *development* of visual and auditory areas. With Tessa Dekker, Mark Johnson and Marko Nardini at the Birkbeck Centre for Brain and Cognitive Development and UCL, we showed that adult-like higher visual area activations in response to words takes a surprisingly long time to emerge. Similarly, adult-like sensory cue fusion (visual motion and stereopsis) in visual area V3A (as assessed by multi-voxel pattern classification) doesn't appear until age 10 (published in *Current Biology*), despite presence of adult-like retinotopic organization much earlier (Dekker, Sereno et al., 2019).

I have also examined developmental plasticity resulting from visual sensory loss (plasticity in area VIP in congenital and late blind with Michael Proulx and Achille Pasqualatto), retinal axon re-routing in albinism (with Ivan Alvarez and Sam Swartzkopf), and auditory sensory loss (the effects of deafness on thalamocortical connections and on population receptive field size in early visual areas (with Rebecca Lyness).

Ultra-high resolution imaging in the cerebellum

Fourth, and finally, I have revisited work scanning fixed tissue specimens at high-fields in small bore magnets. I had originally begun this work in 2003 at UCSD with Jacopo Annese in an early attempt at detecting interareal myelination differences. In 2015, I produced the first ever reconstruction and unfolding of the entire human cerebellar cortex that captures its smallest folia (with J. Diedrichsen, M. Tachrount, C. de Zeeuw). Incidentally, I 'warmed up' by reconstructing a dolphin cortex, which is more convoluted than human neocortex but less so than the cerebellum. My high resolution (5 million vertex) reconstruction of this isotropic 0.19 mm 9.4T cerebellar scan showed that the total surface area of the human cerebellar cortex almost equal to the surface area of the human neocortex, despite the much smaller size of the cerebellum. Strikingly, the human cerebellum has expanded relative to the neocortex, suggesting a prominent role in human-specific behaviors. After unfolding this highly convoluted surface -- which turned out to be a project within itself -- I found that it extended to almost 1 meter in an anterior-posterior direction (but only about 10 cm mediolaterally). This work was published as a high profile paper in *PNAS* in 2020 and was featured in PNAS's front page section "In this issue". It caused a bit of a twitter/X storm according to Altmetrics (https://pnas.altmetric.com/details/86692633).

This work was immediately taken up by several other groups, including Bruce Rosen's group at MGH who used it develop a forward model of cerebellar EEG and MEG activity, and was used as the basis for a cerebellar surface atlas (together with J.D Schmahmann).

I am currently using DTi in order to delineate parasagittal cerebellar 'zones' in humans, heretofore only known from work in animals (e.g., as defined by zebrin staining). The human cerebellum, which has expanded substantially more than the human neocortex has when compared to macaque monkeys, may be just as unique a marker of 'human-ness' as the neocortex.

Effect of lipids on the brain hemodynamic response

It has been known for several decades that the ingestion of lipids strongly impairs nitric oxide-mediate arterial dilation (e.g., reduces it by one-half). However, there are virtually no studies of this in the brain, despite the fact that the principal method for detecting brain activity (fMRI) is blood oxygen level dependent (BOLD) scans that rely on indirectly detecting local dilation of blood vessels by measuring local magnetic field disturbances due to the paramagnetic properties of deoxyhemoglobin. We are currently collecting preliminary data for an NIH R01 grant submission measuring the effects of lipid ingestion on the brain hemodynamic response function. These results could have implications for the relationship between diet and brain health.

Prospect

I am particularly excited about the research threshold on which we currently stand. The combined effect of three current technical advances -- (1) one more generation of tighter geometry flexible surface coil arrays on the way, (2) refined multiband and echo-volume pulse sequences, and (3) video- and MR-navigator-based prospective motion correction methods -- is likely to provide another effective doubling or tripling of signal-to-noise, which can be exploited to obtain yet higher spatial or temporal resolution. Higher resolution

scanning is ideally suited to the surface-based mapping and morphing methods that I helped to introduce to the neuroimaging community over two decades ago, and especially including looking for 'fractured-map'-style organization originally discovered in the somatosensory cerebellum in other parts of the 'cognitive cerebellum'.

In 2022, I published a new parcellation of all topological maps (visual, auditory, and somatosensory) in the human neocortex. These maps cover almost 50% of the neocortex. I have made this new FreeSurfer parcellation publicly available for other laboratories to use (see https://pages.ucsd.edu/~msereno/csurf/fsaverage-labels/) so it can be compared and contrasted with other well-known parcellations (such as the Human Connectome Project Multi Modal Parcellation 1, HCP-MMP1). Given its encyclopedic coverage and ease of use (no mapping required!), this parcellation will likely attract a lot of attention from the neuroimaging community. The parcellation paper is also a theoretical position paper on what might be going on in the remaining 50% of the neocortex (hint, it might involve moveable, spatially localized activity that 'escapes' from areas with fixed topological maps and then 're-enters' mapped areas to cause motor activity).

Our view of human cortex is literally about to come into substantially improved focus. As this occurs, we will be in a better-than-ever position to begin to experimentally address some of the more speculative proposals laid out in my upcoming MIT Press book, *DNA and Language*. I recently published a *précis* of the book in *Philosophical Transactions of the Royal Society*. Finally, here is a recent lecture I gave on this topic:

https://pages.ucsd.edu/~msereno/movies/talks/Sereno-DNA-Language.mp4

Impact

My current *h*-index is 59, with about 50,000 total citations. My top 5 papers have more than 2400 citations each. 52 papers have been cited more than 100 times. 126 papers have been cited more than 10 times.

Cortical surface analysis methods have virtually become *de rigeur* in modern neuroimaging.Virtually every issue of *Neuroimage*, *Neuron*, and *Human Brain Mapping* now contain papers using surface-based methods, most commonly using FreeSurfer. Over the past two decades, many laboratories have replicated and extended my pioneering work on mapping higher level visual areas (Sereno et al., 2001, *Science*), including, for example, the laboratories of David Heeger at New York University, Maurizio Corbetta at St Louis, Brian Wandell at Stanford, W.P. Medendorp at Nijmegen, David Somers at Boston University, and Sabine Kastner at Princeton University. The notion that many higher level and even prefrontal areas contain maps -- initially considered heretical -- has become the consensus view. The complete cerebellar surface reconstruction is likely to motivate a new mapping frontier there, across a surface that turned out to have 80% of the surface area of the entire neocortex.

Teaching

Classes

UCSD

For 18 years at UCSD, I taught four out of the following five full-time lecture courses every year (a total of 120 hours of class lectures by me, per year) in the UCSD Cognitive Science Department until 2007: 107B, 170, 201, 275, 276. The home pages for these courses can be found at:

https://pages.ucsd.edu/~msereno/107B	Systems Neuroscience (undergraduate)
https://pages.ucsd.edu/~msereno/170	Natural & Artificial Symbol-Using Syst.
https://pages.ucsd.edu/~msereno/201	Systems Neuroscience (graduate)
https://pages.ucsd.edu/~msereno/275	Visual Modeling
https://pages.ucsd.edu/~msereno/276	Neuroimaging

and are still routinely accessed from the web. For example, the *Neuroimaging* course typically averages 10K hits a month.

Cogsci 107B, "Systems Neuroscience", was a large upper-division core course that attracted enrollment from outside the Cogsci department (Neuroscience, Computer Science, and Electrical Engineering), while Cogsci 201 was a graduate version of that course. Cogsci 170, "Natural and Artificial Symbol-Using Systems", was a popular undergraduate elective course. I taught two upper division graduate lecture courses. The first was Cogsci 275, "Visual Modeling", covering visual neurophysiology and neurally-realistic computational modeling methods. The second, Cogsci 276, "Neuroimaging", was a mathematically rigorous introduction to MRI, fMRI, MEG, EEG, and surface-based analysis.

My *systems neuroscience* course is a unique combination of systems neurophysiology and signals-and-systems mathematics and forms the basis for a upper undergraduate/beginning postgraduate textbook currently under negotiation with Garland. The content of the *symbol systems* course will be coming out next year as an MIT Press book, *DNA and Language*. The *neuroimaging* course is one of the few out there that attempts to take students with a psychology or cognitive science background through enough of the rigorous mathematics to bridge the unfortunately still very deep divide between neuroimaging physics (physics, engineering) and neuroimaging applications (psychology, neuroscience).

London

Upon arriving in London to direct the new Birkbeck/UCL Neuroimaging Centre, I organized a new joint UCL/Birkbeck Neuroimaging MSc. I taught a core course in that MSc that combined elements of my previous systems neuroscience (neuroanatomy and neurophysiology) and neuroimaging courses. For the past 7 years the MSc has had classes of 50 to 100 students drawn from psychology, neurobiology, computer science, and medicine:

https://pages.ucsd.edu/~msereno/MSc	Structure and Function of the Brain

I also taught an MR physics seminar in London for PhD students most years that covering material in my original UCSD Neuroimaging course, including MATLAB exercises.

SDSU

Upon arriving back in San Diego to direct the SDSU Neuroimaging Center, I prepared and taught two new courses on Systems Neuroscience and Foundations of Neuroimaging, every year (2017-2022). Both of these classes capitalized on the innovative Learning Glass lecture recording system developed by SDSU physicist Matt Anderson, which is like a 'face-forward' blackboard. In addition to looking cool, the Learning Glass provides one of the most engaging ways to present, record, and distribute the diagram- and equation-heavy material of neuroscience and neuroimaging. After retiring, I selected the best videos and posted two publicly available complete online courses (videos hosted at youtube):

Systems Neuroscience 2024
https://pages.ucsd.edu/~msereno/systneurosci

Foundations of Neuroimaging 2024
https://pages.ucsd.edu/~msereno/neuroimaging

They have been viewed not only by SDSU students, but by many other students and professors interested in neuroscience and neuroimaging around the world.

Outreach

Given my background in the history and philosophy of science (which included a year working as an exhibit designer at the Chicago Museum of Science and Industry), I have had a long-standing interest in communicating science to the public. When I was in San Diego, I gave a public talk at the San Diego Natural History museum attended by 500 people on the evolution of the human mind. This lecture was made into a one hour program that has been broadcast on UCSD-TV, who also uploaded it to youtube (https://www.youtube.com/watch?v=rconzwB422s) where it has been viewed 120,000 times. In June 2015, I participated in a Bloomsbury Theatre public science night (all tickets sold out). A Nov 2017 TDLC Seminar at UCSD on maps in the brain was uploaded here: https://www.youtube.com/watch?v=ye4In9drrx4&t=240s. Finally, here my latest recorded seminars are here:

Jun 2022: https://pages.ucsd.edu/~msereno/movies/talks/Sereno-Shape-Of-Thought.mp4
Jan 2021: https://pages.ucsd.edu/~msereno/movies/talks/Sereno-DNA-Language.mp4
Jan 2021: https://pages.ucsd.edu/~msereno/movies/talks/Sereno-On-Brainmaps.mp4
May 2024:
https://pages.ucsd.edu/~msereno/movies/talks/Sereno-Shape-Of-Thought2-HD.mp4

Drawing on my geology background, I have also given public speeches (most recently at UCL) and maintain a web presentation on problems surrounding the use, drawdown, and eventual replacement of fossil fuels (https://pages.ucsd.edu/~msereno/oil11.pdf) as well as helium (which comes out of a small number of natural gas wells).

I have worked with UCSD and London technology transfer offices on several occasions, first on a non-radially symmetric lens to optically implement a retina-to-dLGN-like map for a foveated video system (not optioned), a multielectrode system for high density cortical EEG based on polyamide printed circuit cables (with Jeffrey Walker, M.D.), a new high-fidelity B0-driven audio transducer for use in an MRI magnet (in London with Oliver Josephs), and

most recently, Ruey-Song Huang and I have obtained a patent on wearable devices for somatosensory stimulation using air puffs that has attracted commercial interest from entertainment companies. The siting of the new SDSU neuroimaging center in the Engineering and Interdisciplinary Sciences building provided an immediate opportunity to collaborate with Sam Kassegne's lab to investigate the MR-compatibility of glassy carbon fiber subdural electrodes.

I am one of the two original co-authors of *FreeSurfer*, a software package for cortical surface reconstruction, unfolding, flattening, surface-based inter-brain alignment, fMRI statistical analysis, and rendering. It was originally released free at the 2000 Human Brain Mapping Conference and is currently maintained for free public download. The main core of the code was initially written by Anders Dale, myself, and Bruce Fischl. The standard distribution can be downloaded from: http://surfer.nmr.mgh.harvard.edu/download.html. I also distribute an extended version, *csurf* (https://pages.ucsd.edu/~msereno/csurf), that includes Mac and Linux facilities for making ultra-high-resolution surfaces, as well as interface support for surface-based cross subject averaging (including retinotopy, tonotopy, etc) and surface-based cluster filtering of retinotopic and other mapping data.

Finally, I maintain and distribute a standalone X11/OpenGL Mac/Linux software package, *mapper* (http://pages.ucsd.edu/~msereno/mapper), for generating temporally precise visual, auditory, and somatosensory mapping stimuli. It includes hundreds of customizable built-in stimulus types, but also supports a general purpose scripting language.

Service

Journal reviewer for:

Journal of Neuroscience
Neuroimage
Human Brain Mapping
Cerebral Cortex
Cortex
Brain
PNAS
Vision Research
Nature Neuroscience
Journal of Neurophysiology
Current Biology
Science
Nature
Visual Neuroscience

Presenter/summarizer for UCSD NSF Science of Learning Center ($20 million) site visit (P.I.'s: Gary Cottrell and Andrea Chiba)

Member, Scientific Advisory Board MGH P41 multi-center grant (10 years until present)

Member, Scientific Advisory Board for Max Planck Institute for Biological Cybernetics Tubingen, Germany (starting 2021)

Contributions to diversity

Past experience

My mother was an art teacher in the elementary school system in Naperville. Because of her slightly dark skin (she is of Italian descent), she was sometimes mistaken for being of Mexican descent early in her career. She related to me a number of instances where this resulted in discrimination against her early in her career in the 1960's.

My father, who was near Pearl Harbor as a child when it was bombed, and who lost several relatives when flack from a stray anti-aircraft shell hit his neighborhood, was a conscientious objector during the Korean War. As a result of this, he was given a non-1A draft classification that made it difficult for him to get a job until it finally cleared when he reached age 55.

I also remember marching as a child in an equal employment opportunity march with African Americans in the 1960's (with my parents) near Argonne National Laboratories, and the experience of angry people passing us in cars and shouting epithets at us. This has led to a life long interest in social justice.

Activities

Mentoring activities

I have mentored students from a diversity of ethnicities, genders (15/26 of my graduate students and postdocs were female, 7/26 non-white), ages (MSc and undergraduate research project students up to students of age 55), religions, native languages (graduate students: Norwegian, Chinese, Italian, Spanish, American Sign Language, Romanian, Turkish, Hindi, Sinhala), and socioeconomic statuses.

Committee service

I have been involved in a number of hiring committees where the focus was on ensuring diversity as well as fairness in both interviews as well as final hiring decisions in San Diego, London, and now back at SDSU.

Research activities

I have not done any research specifically on the topic of diversity, equity and inclusion of underrepresented groups. However, in my own research activities, I have rigorously included local human subjects from underrepresented groups.

Other activities (recruitment/retention/teaching/community)

I have done outreach work in local high schools (with UCSD TDLC). I sponsored a UCSD LEADS student (Maysha Mohamedi) and attended the University wide Annual Symposium (in Riverside). I host regular outreach open houses at the SDSU MRI imaging center.

I have had involvement in primary school and high school outreach programs. For example, I have hosted a large number of tours for students ranging from age 6 to high school of the new magnet facility in the SDSU Engineering and Interdiscipinary Science building (see e.g., https://mri.sdsu.edu/news.html#190323).