ANNA WANG ROE ROE (王菁)

Director & Professor
Zhejiang University Interdisciplinary Institute of Neuroscience and Technology (ZIINT)
268 KaiXuan Road, KeXueLou Room 205, Huajiachi Campus
Zhejiang University
Hangzhou, China 310029
http://www.ziint.zju.edu.cn

EDUCATION and POSITIONS

4/13 – present	**Zhejiang University**	Hangzhou, China
	Director and Professor of Zhejiang University Interdisciplinary Institute of Neuroscience and Technology (ZIINT), Qiushi Academy of Advanced Science	
	co-Director of Zhejiang University-Siemens Joint Brain Imaging Research Center	
	Director of Neuroengineering Consortium	
	Professor of Biomedical Engineering	
	Professor of Neuroscience at Zhejiang University School of Medicine	
	Professor of Clinical Neuroscience at Zhejiang University Second Hospital	
9/15 – 8/20	Oregon Health Sciences University	Portland, OR
	Professor in Division of Neuroscience, Oregon National Primate Research Center (ONPRC)	
	Professor in Department of Behavioral Neuroscience, OHSU	
7/10 – 8/15	Vanderbilt University	Nashville, TN
	Professor in Department of Psychology	
	Professor in Dept of Radiology (secondary appointment).	
	Professor in Biomedical Engineering (secondary appointment).	
	Fellow of Vanderbilt Unversity Institute of Imaging Sciences	
2/12 – 7/12	Institute of Neuroscience, Chinese Academy of Sciences	Shanghai, China
	Visiting Scholar (sabbatical)	
9/03 – 6/10	Vanderbilt University	Nashville, TN
	Associate Professor (tenured) in Department of Psychology.	
	Associate Prof in Dept of Radiology (secondary appointment).	
	Associate Prof in Biomedical Engineering (secondary appointment).	
7/02 – 8/03	Yale University School of Medicine	New Haven, CT
	Associate Professor (tenure track) in Department of Neurobiology.	
9/96 – 6/02	Yale University School of Medicine	New Haven, CT
	Assistant Professor (tenure track) in Section of Neurobiology.	
3/96 - 8/96	University of Queensland	Brisbane, Australia
	Visiting Scholar at Vision Touch & Hearing Research Center.	
7/95 - 2/96	Baylor College of Medicine	Houston, TX
	Research Assistant Professor (non-tenure track) in Division of Neuroscience.	
12/92 - 6/95	Baylor College of Medicine	Houston, TX
	Post-doctoral fellow in Division of Neuroscience under Dr. Daniel Y. Ts'o.	
6/91 - 11/92	Rockefeller University	New York, NY
	Post-doctoral fellow in Dept. of Neurobiology under Dr. Daniel Y. Ts'o & Torsten Wiesel.	
9/86 – 5/91	M.I.T.	Cambridge, MA
	Ph.D. program in Dept. of Brain and Cognitive Sciences. (Thesis under Dr. Mriganka Sur)	
9/85 – 8/86	Yale University	New Haven, CT
	Doctoral program in Section in Neuroanatomy (lab moved to MIT).	
9/84 – 6/85	Harvard University	Boston, MA
	Doctoral program in Program in Neuroscience (transferred to Yale).	
9/79 – 6/84	Harvard University	Cambridge, MA
	B.A. *cum laude* 1984. Biochemistry major with special field of interest in neurobiology.	

PUBLICATIONS

2020 (16)

Hu J, Song XM, **Roe AW** (2020) Curvature domains in V4 of Macaque Monkey. Elife. 9:e57261. doi: 10.7554/eLife.57261.

Friedman RM, Chehade NG, **Roe AW**, Gharbawie OA (2020) Optical imaging reveals functional domains in primate sensorimotor cortex. Neuroimage, 221:117188. doi: 10.1016/j.neuroimage.2020.117188. [PMID 32711067]

Tremblay…**Roe AW**… et al (2020) An Open Resource for Non-Human Primate Optogenetics. Neuron, DOI:https://doi.org/10.1016/j.neuron.2020.09.027.

Zhang X*, Zhang J, Gao Y, Qian M, Qu S, Yu M, Chen X, Wang Y*, Pan G, Adriany G, **Roe AW** (2020) A 16-channel Dense Array for in vivo Animal Cortical MRI/fMRI on 7T Human Scanners. IEEE Trans Biomed Eng, *in press*.

Roe AW, Chen G, Xu AG, Hu JM (2020) A roadmap to a columnar visual cortical prosthetic. Curr Opin Physiol, 16:68–78. https://doi.org/10.1016/j.cophys.2020.06.009

Ashaber M, Zalányi L, Pálfi E, Stuber I, Kovács T, Friedman RM, **Roe AW**, Négyessy L (2020) Synaptic organization of cortico-cortical communication in primate somatosensory cortex. Eur J Neurosci, 52(9): 4037-4056. doi: 10.1111/ejn.14905. [PMID: 32654301][PMC7428863]

Hu J, Song XM, **Roe AW** (2020) Curvature domains in V4 of Macaque Monkey. bioRxiv. Posted Feb 28, 2020.

Song XM, Li M, Xu T, Hu D, **Roe AW*** (2020) Highly Accurate Determination of Pinwheel Center to Guide Electrode Penetration in Cat Visual Cortex. Bio-Protocol. 10(11): e3643. doi:10.21769/BioProtoc.3643.

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Zhang Y, Yang F, Yang SS, Li P, Edathodathil A, Xi W, **Roe AW*,** Li P* (2020) INS-fOCT: a label-free, all-optical method for simultaneously manipulating and mapping brain function. Neurophotonics. 7(1):015014. doi: 10.1117/1.NPh.7.1.015014. [PMID: 32258220][PMC7108754]

Friedman RM*, Morone K, Gharbawie OA, **Roe AW*** (2020) Mapping mesoscale cortical connectivity in monkey sensorimotor cortex with optical imaging and microstimulation. J Comp Neurol. 528(17):3095-3107. doi:10.1002/cne.24918. [PMID: 32255200]

Zaraza D, Chernov MM, Friedman RM, Yang Y, Rogers JA, **Roe AW** (2020) Going wireless: an optical imaging and optogenetics system for use in awake behaving primates. Proc. SPIE 11227, Optogenetics and Optical Manipulation, 1122705 (20 February 2020); https://doi.org/10.1117/12.2546289

Cai ZC, Zhu L, Wang MQ, **Roe AW***, Xi W*, Qian J* (2020) NIR-II fluorescence microscopic imaging in non-human primates. Theranostics. 10(9):4265-4276. doi:10.7150/thno.43533. [PMC: 7086344] [PMID: 32226552]

Quan QY, Gao Y, Qu SX, Wang XJ, Friedman RM, Chernov M, Kroenke C, **Roe AW**, Zhang XT (2020) A 16-Channel Loop Array for in vivo Macaque Multi-modal Neuroimaging at 3T MRI. MRI. 68:167-172. [PMID: 32081631]

Milham MP*, Petkov CI*, Margulies DS, Schroeder CE, …, **Roe AW**, … (2020) Accelerating the evolution of nonhuman primate neuroimaging: The PRIMatE Data Exchange (PRIME-DE) Global Collaboration Workshop & Consortium. Neuron. 105(4):600-603. https://doi.org/10.1016/j.neuron.2019.12.023 [PMID: 32078795]

Mekbib DW, Han JW, Zhang L, Fang S, Jiang HJ, Zhu JM, **Roe AW**, Xu DR (2020) Virtual reality therapy for upper limb rehabilitation in patients with stroke: a meta-analysis of randomized clinical trials. Brain Injury. 17:1-10. [PMID: 32064964]

Gao Y, Mareyam A, Sun Y, Witzel T, Arango N, Kuang I, White J, **Roe AW**, Wald L, Stockmann J*, Zhang XT* (2020) A 16-Channel AC/DC array coil for anesthetized monkey whole-brain imaging at 7T. Neuroimage. 207:116396.. [PMC:] [PMID: 31778818]

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Xu AG**, Qian M**, Tian F, Xu B, Friedman RM, Wang J, Song X, Sun Y, Chernov MM, Cayce JM, Jansen ED, Mahadevan-Jansen A, Zhang XT*, Chen G*, **Roe AW*** (2019) Focal infrared neural stimulation with high-field functional MRI: a rapid way to map mesoscale brain connections. Science Advances, 5(4):eaau7046 DOI: 10.1126/sciadv.aau7046. [PMC: 6482007][PMID: 31032400]

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Chernov M, Friedman RM, Chen G, **Roe AW** (2018) Functionally specific optogenetic modulation in primate visual cortex. Proc Natl Acad Sci. 115(41):10505-10510. [PMC6187135] [PMID: 30257948]

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Chen G, Lu HD, Tanigawa H, **Roe AW** (2017) Solving visual correspondence between the two eyes via domain-based population encoding in nonhuman primates. Proc Natl Acad Sci, 114(49):13024-13029. [PMC5724244] [PMID: 29180437]

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Chen M, Li PC, Zhu S, Han C, Xu H, Fang Y, Hu J, **Roe AW**, Lu HD (2014) An orientation map for motion boundaries in Macaque V2. Cereb Cortex, 26(1):279-87. [PMID: 25260703][PMC5006290]

Kántor O, Varga A, Kovács-Öller T, Enzsöly A, Balogh L, Baksa G, Szepessy Z, Fonta C, **Roe AW**, Nitschke R, Szél A, Négyessy L, Völgyi B, Lukáts A (2014) TNAP activity is localized at critical sites of retinal neurotransmission across various vertebrate species. Cell Tissue Res 358(1):85-98. [PMID: 24988913]

Chernov M, **Roe AW** (2014) Histological assessment of thermal damage in the brain following infrared neural stimulation. Brain Stimulation, 7(3): 476–482. [PMID: 2452964][PMC4011932]

Cayce J, Friedman RM, Jansen D, Mahadevan-Jansen A, **Roe AW** (2014) Infrared neural stimulation of primary visual cortex in non-human primates. Neuroimage, 84:181-190. [PMID: 23994125][PMC4120263]

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Brock AA, Friedman RM, Fan RH, **Roe AW** (2013) Optical imaging of cortical networks via intracortical microstimulation. J Neurophysiol, 110:2670-2678. [PMID: 24027103][PMC3882772]

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Commentary: Sporns O, Honey CJ (2013) Topographic dynamics in the resting brain. Neuron 78:1116-1126

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Rasch MJ, Chen M, Wu S, Lu HD, **Roe AW** (2012) Quantitative inference of population response properties across eccentricity from motion-induced maps in macaque V1. J Neurophysiol, 109(5):1233-49. [PMID: 23197457][PMC3602840]

Fan RH, Baldwin MKL, Jermakowicz WJ, Casagrande VA, Kaas JH, **Roe AW** (2012) Intrinsic signal optical imaging evidence for dorsal V3 in the prosimian galago (*Otolemur garnetti*). J Comp Neurol, 520(18):4254-74. [PMID 22628051] [NIHMSID 448275][PMC3593310]

Chen G, Wang F, Dillenburger CD, Friedman RM, Chen LM, Gore, JC, Avison MJ, **Roe AW** (2012) Functional magnetic resonance imaging of awake monkeys: some approaches for improving imaging quality. Magnetic Resonance Imaging 30(1):36-47. [PMID: 22055855][PMC3236665]

Chen G, Wang F, Gore, JC, **Roe AW** (2012) Identification of cortical lamination in awake monkeys by high resolution magnetic resonance imaging. Neuroimage. 59(4):3441-9. [PMID: 2208015][PMC3288753]

2011 (5)

Wang Z, **Roe AW** (2011) Columnar specificity of microvascular oxygenation and blood flow response in primary visual cortex: evaluation by local field potential and spiking activity. J Cereb Blood Flow & Metab. 32(1):6-16 [PMID: 22027939][PMC3323306]

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Cayce J, Friedman RM, Jansen D, Mahavaden-Jansen A, **Roe AW** (2011) Pulsed infrared light alters neural activity in rat somatosensory cortex in vivo. Neuroimage, 57(1):155-66. [PMID: 21513806][PMC3108823]

Wang Z, **Roe AW** (2011) Trial-to-trial noise cancellation of cortical field potentials in awake macaques by autoregression model with exogenous input (ARX). J Neurosci Methods, 194(2):266-73. [PMID: 21074560][PMC3016288]

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Mahadevan-Jansen A, Cayce JM, Friedman R, **Roe AW**, Konrad PE, Hillman E, Jansen E. (2010) Imaging optically induced neural activity in the brain. Conf Proc IEEE Eng Med Biol Soc. 1:3379-81. [PMID: 21097240][PMC3732797] 16

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Chino YM, Cheng H, Smith EL, Garraghty PE, **Roe AW**, Sur M (1994) Early discordant binocular vision disrupts signal transfer in the lateral geniculate nucleus. Proc Natl Acad Sci 91:6938-6942. [PMID: 8041725][PMC44313]

Garraghty PE, **Roe AW**, Chino YM, Sur M (1994) Abnormal development of retinogeniculate X axons in strabismic cats: a possible substrate for visual dysfunction. Neurosci Lett 165:223-226. [PMID: 8015731]

1993 (1)

Roe AW, Garraghty PE, Esguerra M, Sur M (1993) Experimentally induced visual projections to the auditory thalamus in ferrets: evidence for a W cell pathway. J Comp Neurol 334:263-280. [PMID: 8366196]

1992 (1)

Roe AW, Pallas SL, Kwon YH, Sur M (1992) Visual projections routed to the primary auditory cortex in ferrets: receptive fields of visual neurons in primary auditory cortex. J Neurosci 12:3651-3664. [PMID: 1527604]

1991 (1)

Roe AW (1991) Functional transformations of visual input by auditory thalamus and cortex: an experimentally induced visual pathway in ferrets. Doctoral dissertation, M.I.T., Cambridge, MA.

1990 (3)

Roe AW, Pallas SL, Hahm JO, Sur M (1990) A map of visual space induced into primary auditory cortex. Science, 250:818-820. [PMID: 2237432]

Pallas SL, **Roe AW**, Sur M (1990) Visual projections induced into the auditory pathway of ferrets. I. Novel inputs to primary auditory cortex (AI) from the LP/pulvinar complex and the topography of the MGN-AI projection. J Comp Neurol, 298:50-68. [PMID: 1698829]

White WF, O'Gorman S, **Roe AW** (1990) Three-dimensional autoradiographic localization of quench-corrected glycine receptor specific activity in the mouse brain using 3H-strychnine as the ligand. J Neurosci, 10:795-813. [PMID: 1690790]

1989 (1)

Garraghty PE, **Roe AW**, Chino YM, Sur M (1989) The effects of convergent strabismus on the development of physiologically identified retinogeniculate axons in cats. J Comp Neurol, 289:202-212. [PMID: 2808763]

1988 (2)

Roe AW, Garraghty PE, Sur M (1988) The terminal arbors of single on-center and off-center X and Y retinogeniculate axons within the ferret's lateral geniculate nucleus. J Comp Neurol, 288(2):208-242. [PMID: 2477415]

Sur M, Garraghty PE, **Roe AW** (1988) Experimentally induced projections into auditory thalamus and cortex. Science 242:1437-1441. [PMID: 2462279]

1987 (1)

White WF, Regan LJ, **Roe AW**, Messer A (1987) Behavior, genetics, and biochemistry of an allele of the mutant mouse spastic Spa^{ALB}. J Neurogenetics 4(5):253-258. [PMID: 3668730] 13

REVIEW ARTICLES, BOOK CHAPTERS, AND BOOKS (13)

Devor A, **Roe AW**, Mahadevan-Jansen, Boas DA (2014) The BRAIN Initiative. Neurophotonics.1(1):011001. Editorial. [PMID: 26157962] [PMC4489344]

Roe AW, Chelazzi L, Connor CE, Conway BR, Fujita I, Gallant J, Lu H, Vanduffel W (2012) Towards a unified theory of visual area V4. Neuron, 74(2):12-29. [PMID: 22500626][PMC2376798]

Roe AW (2009) Imaging the Brain with Optical Methods (Roe AW, ed). Springer, New York.

Roe AW, Chen G, Lu HD (2009) Visual System: Functional architecture of Area V2. In: Squire LR (ed.) Encyclopedia of Neuroscience, Vol 10, pp. 331-349. Oxford: Academic Press.

Roe AW, Parker AJ, Born RT, DeAngelis GC (2007) Disparity channels in early vision: a mini-review. J Neurosci, 27:11820-11831. *Cover figure*. [PMID: 17978018][PMC2376798]

Roe AW, Chen LM, Friedman RM (2007) Intrinsic signal imaging of somatosensory function in non-human primates. The Senses: A Comprehensive Reference, Vol 6: Somatosensation (Eds Allan Basbaum et al). Elsevier, Oxford, UK. (ISBN: 9780126394825) http://www1.elsevier.com/homepage/about/mrwd/snse/table_of_contents.htm

Roe AW, Friedman RM, Chen LM (2007) Multiple Representation in Primate SI: A View From A Window on the Brain. In Handbook of Neurochemistry and Molecular Neurobiology: Sensory Neurochemistry, Vol 26 (Johnson D, Lajtha A, eds). Springer, New York NY, pp. 1-16.

Roe AW (2004) Long-term optical imaging of intrinsic signals in anesthetized and awake monkeys. In: Visualizing large-scale patterns of activity in the brain: optical and electrical signals. (Buzsaki G ed) pp 34-42. Washington DC: Society for Neuroscience.

Roe AW (2003) Modular complexity of Area V2 in the Macaque monkey. In The Primate Visual System (Collins C, Kaas J, eds.). CRC Press, New York NY, pp 109-138.

Roe AW, Ts'o DY (1997) The functional architecture of Area V2 in the Macaque monkey. In Cerebral Cortex, Vol. 12: Extrastriate Cortex in Primates (Rockland K, Kaas JH, Peters A, eds.). Plenum Press, New York, pp. 295-333.

Ts'o DY, **Roe AW** (1995) Functional compartments in visual cortex: segregation and interactions. In The Cognitive Neurosciences (Gazzaniga MS, ed.). M.I.T. Press, Cambridge, MA, pp. 325-337.

Ts'o DY, **Roe AW** (1994) The organization and connectivity of color processing in visual cortex. Symposium for Otto Creutzfeldt. Springer-Verlag (Nothdruft C., ed.).

Sur M, Pallas SL, **Roe AW** (1990) Cross-modal plasticity in cortical development: differentiation and specification of sensory neocortex. Trends in Neurosci 13:227-233. [PMID: 1694329]

MANUSCRIPTS IN PREPARATION

Xu, Chernov, Chen, **Roe** (2020) stimulation induced behavior in primates.

Zhao A, Zhang YF, Song XM, Xu G, Antong D., **Roe AW** (2017) Cortical magnification of the central fovea in the nonhuman primate. In prep.

Tanigawa H, Zhang YF, Yang SR, Friedman RM, **Roe AW** (2017) Dual modes of domain modulation by attention in monkey V4. In prep.

Fan RH, Tanigawa H, Lustig B, **Roe AW** (2017) Macaque visual area V4 is a single visual area: evidence from foveal regions. [manuscript in preparation]

Fan RH, Tanigawa H, **Roe AW** (2017) Stimulus size and spatial frequency preference of functional domains in foveal V4. [manuscript in preparation]

Chen, G., Wang, F., Tang, C.H., Avison, M.J., Gore, J.C., **Roe, A.W**. (2017) An MR-compatible optical chamber for longitude functional imaging in non-human primates. [manuscript in preparation]

Dillenburger BC, Gu L, **Roe AW** (2017) A novel dynamic Illusory Contour Stimulus: the Pure IC. Plos One. *Under resubmission*.

Winberry JE, Friedman RM, **Roe AW.** (2017) Fast dynamics of apparent motion processing in primary somatosensory cortex. [manuscript in preparation]

Friedman RM, Winberry JE, Chen LM, **Roe AW**. (2017) Dynamic spatial temporal responses to tactile stimulation in primate somatosensory. [manuscript in preparation]

Winberry JE, Fan RE, Friedman RM, **Roe AW.** (2017) Fourier optical imaging of discrete stimuli in primate somatosensory cortex. Society for Neuroscience 2012 [abstract]

Friedman RM, Wang F, **Roe AW**, Avison CJ. (2017) Functional GE-CBV responses to simultaneous and sequential finger stimulation in primate somatosensory cortex. In preparation.

NEWS

O'meara S (2015) At the very heart of progress. Nature. 2015 Dec 17; 528(7582):S179-81. doi: 10.1038/528S179a. Includes interview with Anna Wang Roe regarding science progress at Zhejiang University in Hangzhou, China.

CONFERENCE & SYMPOSIUM ORGANIZER

CONFERENCE ORGANIZER

Roe AW (2020) Conference organizer. Gordon Research Conference on Neuroplasticity of Sensory Systems. June 7-12, 2020. Hong Kong [cancelled due to coronavirus]

Roe AW (2018) Conference organizer. Asia-Pacific Conference on Vision. July 13-16, 2018. Hangzhou, China.

Roe AW (2018) Conference organizer. Gordon Research Conference on Neuroplasticity of Sensory Systems. June 3-8, 2018. Hong Kong

Roe AW (2017) Conference organizer. Frontiers in Neuroscience & Technology 2017: Sensation & Emotions. Oct 28-Nov 3, 2017. Hangzhou, China.

Roe AW (2017) Retreat organizer. ZIINT Annual Retreat. Sept 21-22, 2017. Hangzhou, China.

Roe AW (2017) Conference organizer. Asia-Pacific Workshop on Advances in UHF MRI. May 2-3, 2017. Hangzhou, China.

Roe AW (2016) Conferennce organizer. West Lake Ultrahigh Field Conference. Dec 10, 2016. Hangzhou, China.

Roe AW (2016) Conference organizer. Frontiers in Neuroscience and Technology 2016: Audition. Sept 24-25, 2016. Hangzhou, China.

Roe AW (2015) Conference organizer. Frontiers in Neuroscience and Technology 2015. Hangzhou, China.

SYMPOSIUM ORGANIZER

Roe AW (2020) Program organizer: Neurophotonics. SPIE Photonics West, San Francisco CA.

Roe AW (2019) Co-organizer. Neuroimaging Techniques: from a single cell to the whole brain. 2019 CNS Meeting, Suzhou, China.

Roe AW (2019) Co-organizer. 2019 Annual ONPRC Scientific Symposium. ONPRC, OHSU. Beaverton, OR.

Roe AW (2018) Panelist. The Marmoset Social. Soc Neurosci Meeting. San Diego CA.

Roe AW (2018) Symposium organizer. Asia Communications and Photonics Conference (ACP). Oct 26-29, 2018. Hangzhou, China.

Roe AW (2018) Symposium organizer. Multisensory processing. Asia-Pacific Conference on Vision. July 13-16, 2018. Hangzhou, China.

Roe AW (2018) Symposium organizer. Binocular depth perception. Asia-Pacific Conference on Vision. July 13-16, 2018. Hangzhou, China.

Roe AW (2016) Symposium organizer on Primate Cognition. EMBO Conference 2016. Taipei, Taiwan.

Roe AW (2015) Program organizer: Neurophotonics. SPIE Photonics West, San Francisco CA.

Roe AW (2014) Program organizer: Neurophotonics. SPIE Photonics West, San Francisco CA.

Roe AW, Usuda Adachi, Wim Vanduffel, Bas Neggers (2013) Chair and organizer: Resting state connectivity: views from nonhuman primates. Organization for Human Brain Mapping, Seattle, WA.

Roe AW (2012) Chair and organizer: Primate optogenetics nanosymposium. Soc Neurosci Meeting, New Orleans, LA.

Roe AW (2011) Chair and organizer: Spatiotemporal profiles of cortical processing: a view from optical imaging studies in awake, behaving nonhuman primates, International Brain Research Organization Meeting, Florence, Italy.

Roe AW (2010) Symposium organizer. Symposium on Visual Function and Neuroimage/fMRI. Fourth Shanghai International Conference on Biophysics and Molecular Biology. Shanghai, China.

Roe AW (symposium organizer), Romo R, Hsiao S, Kaas J (2010) The power of touch. Current Issues In Developmental Psychobiology Manzaillo, Mexico.

Roe AW (2009) 'What is V4?' Nanosymposium organizer. Soc Neurosci Meeting, Chicago, IL.

Shou T, Roe AW (2007) Co-organizer of "Visual cortex: information processing and dynamics". International Conference on Cognitive Neurodynamics, Shanghai, China.

Roe AW (2003) Workshop speaker and organizer. “Columnar Interactions in Neural Computation” Swindale N, Tanifuji M, Hung C, Cohen L. Winter Conference on Brain Research, Snowbird, Utah.

Roe AW (2002) Vision social organizer. 2002 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2002. CD-ROM.

Roe AW (2002) Science and Technology Panel. Family Issues Panel. Dinner with Anna Roe. Rennaissance Weekend, Hilton Head, SC.

Roe AW, Wilson M, Garner C, Korte M, Rotter S (2001) Learning and Memory (Organizer). German-American Frontiers of Science Symposium. Frankfurt, Germany.

Roe AW, Schwartz A, Meyer U, Rotter S (2000) Neural Prostheses (Organizer). German-American Frontiers of Science Symposium. Irvine, CA.

Roe AW, Kaas JH, Recanzone GG, Hahm J, Montague PR (1994) (organizer) New views of cerebral cortical topography: discontinuities, non-topographies, and time-varying topographies. Winter Conference on Brain Research, Snowbird, Utah.

RECENT CONFERENCES

(2016-2020)

Roe AW (2020) A roadmap to a columnar visual cortical prothestic. Chinese Computational & Cognitive Neuroscience 2020, Beijing, China. [online conference]

Yang Gao, Meizhen Qian, Anna Wang Roe, Xiaotong Zhang (2020) Investigating the Optimal RF Coil Design for Functional MRI. International Soc Magnetic Reson & Medicine. Sydney, Australia. [cancelled: coronavirus]

Roe AW (2020) Optical Brain-Machine Interfaces. Gordon Research Conference on Neuroelectric Interfaces. Ventura, CA. [cancelled: coronavirus]

Zhang Y, Lin Y, Fen Y, Roe AW, Song XM, Li P (2020) Simultaneous three-dimensional detecting of neural activity and hemodynamics responses in cat cortex by optical coherence tomography. SPIE Photonics West 2020, San Francisco, CA.

Zaraza D, Chernov M, Friedman RM, Yang YY, RogersJ, Roe AW (2020) Going wireless: an optical imaging and optogenetics system for use in awake behaving primates. SPIE Photonics West 2020, San Francisco, CA.

Hu JM, Song XM, Roe AW (2019) Curvature domains in V4 of Macaque Monkey. Soc Neurosci Abstr, Chicago IL.

Rui YY, Xu AG, Wang JB, Zhou DF, Shi SH, Edathodathil A, Gothard KM, Roe AW (2019) Amygdalo-cortical networks revealed by high-field fMRI during infrared neural stimulation of amygdalar subnuclei in the primate. Soc Neurosci Abstr, Chicago IL.

Ashaber M, Zalányi L, Pálfi E, Stuber I, Kovács T, Friedman RM, Roe AW, Négyessy L (2019) Synaptic organization of cortico-cortical communication in primate somatosensory cortex. Soc Neurosci Abstr, Chicago IL.

Baldwin MKL, Fan R, Roe AW, Kaas JH. (2019) Connections of functionally distinct regions within and adjacent to visual area V3 in a primate. Soc Neurosci Abstr, Chicago IL.

Edathodathil A, Friedman RM, Roe AW (2019) Quantitative Analysis of Ocular Dominance Columns in Macaque Monkeys. Soc Neurosci Abstr, Chicago IL.

Chernov MM, Zaraza D, Friedman RM, Yang YY, Rogers JA, Roe AW (2019) Development of Multimodal Wireless Brain Interfaces in Nonhuman Primates. Soc Neurosci Abstr, Chicago IL.

Xu AG, Roe AW (2019) A novel method for mesoscale connectome mapping with infrared neural stimulation and high-field fMRI. 13th Biennial Conference of Chinese Neuroscience Society. Suzhou, China.

Zhu L, Wang Xi, Cai ZC, Wang MQ, Roe AW, Qian J (2019) High spatial and temporal resolution differentiation of cortical vessels in nonhuman primate. Asia-Pacific Conference on Vision, Osaka, Japan.

Du X, Kuriki I, Xinnui J, Tao Z, Roe AW, Tanigawa H (2019) Hue maps of the DKL color space at columnar resolution in the early visual cortex of macaques. Japanese Neuroscience Society, Kyoto, Japan.

Qian MZ, Hu JM, Wang PY, Gao Y, Zhang XT, Roe AW (2019) Awake Macaque Imaging on 7T Human Scanner Platform Organization for Human Brain Mapping. Rome, Italy.

Xu AG, Rui YY, Wang JB, Song XM, Gothard KM, Roe AW (2019) Infrared neural stimulation of monkey amygdala with fMRI reveals long-distance connections. Organization for Human Brain Mapping. Rome, Italy.

Zhang JL, Wang DX, Li XF, Ugurbil K, Roe AW, Zhang XT (2019) Evaluation of Diffusion-Weighted Imaging of the Macaque Brains Using Diffusion-Prepared TSE. International Soc Magnetic Reson & Medicine. Montreal, Canada.

Gao Y, Wang XJ, Friedman RM, Chernov M, Kroenke C, Roe AW, Zhang XT (2019) A 16-Channel Array Coil for Anesthetized Monkey Multi-modal Neuroimaging at 3T. International Soc Magnetic Reson & Medicine. Montreal, Canada.

Gao Y, Mareyam A, Zhang, Sun Y, Witzel T, Arango N, Kuang I, White J, Roe AW, Wald L, Stockmann J (2019) 16-Channel RF Receive Array with Integrated B0-shim Capability for Anesthetized Monkey Whole Brain Imaging at 7T. International Soc Magnetic Reson & Medicine. Montreal, Canada.

Gao Y, Qian MZ, Wang PY, Sun Y, Roe AW, Zhang XY (2019) Awake Macaque MRI Setup on 7T Human Scanner Platform for High-Resolution Anatomical and Functional Imaging. International Soc Magnetic Reson & Medicine. Montreal, Canada.

Kahler-Quesada S, Friedman RM, McGill TJ, Chernov MM, Zaraza D, Renner LM, Neuringer, Roe AW (2019) Neural Development of Macaque Monkey Foveal Vision. Neurofutures2019. OHSU, Portland OR.

Roe AW, Neuringer M (2019) Retinal and Cortical Development Underlying Foveal Vision. 2019 Annual ONPRC Scientific Symposium. ONPRC, OHSU. Beaverton, OR. [talk]

Xu AG**, Qian M**, Tian F, Xu B, Friedman RM, Wang J, Song X, Sun Y, Chernov M, Cayce J, Jansen ED, Mahadevan-Jansen A, Zhang XT*, Chen G*, Roe AW* (2019) Focal infrared neural stimulation with high-field functional MRI: a rapid way to map mesoscale brain connections. 2019 Annual ONPRC Scientific Symposium. ONPRC, OHSU. Beaverton, OR.

Roe AW (2019) Chair. 2nd International Primate Neuroscience Research Symposium. Shenzhen, China.

Xu AG*, Rui Y*, Wang J, Song X, Gothard K**, Roe AW** (2019) INS-fMRI reveals functional connections of amygdalar subnuclei in the Macaque monkey**.** SPIE Photonics West. San Francisco, CA.

Wang J*, Xu AG*, Qian M, Song X, Zhang X, Roe AW** (2019) INS-fMRI: a novel method for rapidly mapping brain networks in vivo. SPIE Photonics West. San Francisco, CA.

Zhang X, Xu AG, Xi W, Roe AW (2019) Quantifying tissue temperature change induced by infrared neural stimulation by 7T MR thermometry. SPIE Photonics West. San Francisco, CA.

Roe AW (2018) Multimodal imaging of columnar networks in nonhuman primates. ISTBI Symposium on Functional and Molecular Imaging, Shanghai, China.

Chernov M, Friedman RM, Chen G, Roe AW (2018) Functionally specific optogenetic modulation in primate visual cortex. World Life Science Conference (WLSC) 2018, Beijing, China.

Xu AG, Qian M, Wang J, Song X, Zhang X, Roe AW (2018) A novel connectome mapping method with infrared neural stimulation and ultra-high-field fMRI. Soc Neurosci Abstr, San Diego, CA.

Hu J, Qian M, Tanigawa H, Roe AW (2018) Exploring the response patterns induced by electrical stimulation in cat visual cortex. Soc Neurosci Abstr, San Diego, CA.

Roe AW (2018) Laser-fMRI: A new method for studying the columnar connectome. Sixth Bienniel Conference on Resting State and Brain Connectivity. Montreal, Canada.

Xu AG, Qian MZ, Li ZM, Li P, Wang JB, Gao Y, Li P, Song XM, Zhang XT, Roe AW (2018) A novel method for mesoscale connectome mapping: focal infrared neural stimulation in high-field functional MRI. International Soc Magnetic Reson & Medicine. Paris, France.

Zhang XT, Gao Y, Qian MZ, Sun Y, Roe AW (2018) A 16-channel Dense Array for Macaque Cortex Imaging at 7T. International Soc Magnetic Reson & Medicine. Paris, France.

Qian MZ, Xu AG, Li ZM, Li P, Wang JB, Gao Y, Li P, Song XM, Zhang XT, Roe AW (2018) A novel method for mesoscale connectome mapping: focal infrared neural stimulation. Organization Human Brain Mapping, Singapore.

Roe AW (2018) Discussant. XiangShan Science Conference "International large scientific plan for whole brain mesoscopic connectome". Beijing, China.

Chernov MM, Friedman RM, Zaraza D, Roe AW (2018) Activation of functional domains in the primate cortex with infrared neural stimulation. SPIE Photonics West, San Francisco, CA.

Zaraza D, Chernov MM, Friedman RM, Roe AW (2018) A lightweight camera system for intrinsic imaging of cortex in freely behaving primates. SPIE Photonics West, San Francisco, CA.

Friedman RM, Winberry JE, Roe AW (2018) Study of single and multidigit activation in monkey SI using voltage sensitive dye imaging. SPIE Photonics West, San Francisco, CA.

Friedman RM, Chernov MM, Zaraza DG, Roe AW (2017) Intrinsic signal optical imaging with intracortical microstimulation reveals specific intracortical circuitry within somatosensory cortex. Soc Neurosci Abstr, Washington DC.

Chernov MM, Friedman RM, Roe AW (2017) Mapping visual cortical processing networks with infrared neural stimulation. Soc Neurosci Abstr, Washington DC.

Xu AG, Zhao A, Roe AW (2017) Cortical magnification factors within 0.5 degree eccentricity in rhesus monkeys. Soc Neurosci Abstr, Washington DC.

Pei L, Edathodathil A, Wang X, Peng L, Roe AW (2017) Optical Coherence Tomography (OCT) reveals depth-resolved responses during functional cerebral activation by infrared neural stimulation. Soc Neurosci Abstr, Washington DC.

Roe AW (2017) Functional organization and connectivity of somatomotor cortex in nonhuman primates. Frontiers in Neuroscience & Technology: Sensation & Emotion, Hangzhou, China.

Roe AW (2017) Understanding brain function via MRI. Frontiers in Neuroscience & Technology: Sensation & Emotion, Hangzhou, China.

Roe AW (2017) Developing a network theory of brain function via a columnar connectome. 2017 China National Computer Congress, Fujian, China.

Roe AW (2017) A new method for studying the functional organization of cortical connectivity. Fourth International Symposium on Brainnetome Meets Genome, Beijing, China.

Roe AW (2017) A new method for studying the functional organization of cortical connectivity. Frontiers in Brain & Cognitive Science, Beijing, China.

Roe AW (2017) Imaging neural circuits in nonhuman primates. Minnesota CMRR Workshop on High and Ultra-high Field Imaging. Minneapolis, MN, USA.

Roe AW (2017) Neural development of Macaque monkey foveal vision. ZIINT Annual Retreat. Hangzhou, China.

Roe AW (2017) Focal optical stimulation for functional tract tracing and behavioral modulation in monkeys. IEEE Eng Medicine Biology Workshop: Neurophotonics: Imaging and manipulating the brain. Jeju Island, South Korea.

Roe AW, Neuringer M, Friedman RM, McGill, Chernov N, Zaraza D, Renner L (2017) Cortical development of Macaque monkey foveal vision. 2017 Qufu Vision Science Conference. Qufu, China.

Chernov M, Friedman RM, Chen G, Stoner G, Roe AW (2017) Functionally specific optogenetic modulation in primate visual cortex. Primate Neuroscience: Perception, Cognition & Disease Models. Suzhou, China.

Roe AW (2017) Imaging neural circuits in nonhuman primates. Asia-Pacific Workshop on Advances in UHF MRI. Hangzhou, China.

Roe AW, Neuringer M, Friedman RM, McGill T, Chernov M, Renner L, Zaraza D (2017) Neural development of Macaque monkey foveal vision. Oregon Chapter of Soc for Neurosci Meeting. Troutdale, OR.

Zaraza D, Chernov MM, Friedman RM, Roe AW. Towards a lightweight system for intrinsic imaging of cortex in freely behaving primates. Oregon Chapter of Soc for Neurosci Meeting. Troutdale, OR.

Chernov MM, Friedman RM, and Roe AW (2017) Mapping visual cortical processing networks with infrared neural stimulation. Oregon Society for Neuroscience Meeting, Troutdale, OR.

Roe AW (2017) Ultrahigh Field Imaging for Brain Science: Challenges and Approaches. Asia-Pacific Symposium on Advances in UHF MRI. Hangzhou, China.

Jiang Y, Yue Y, Ye R, Shen T, Roe AW, Zhang B, Lai H-Y (2017) Resting-state functional connectivity reveals the pattern of primary somatosensory cortex in sensorimotor circuit in Parkinson's disease. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.

Gao Y, Chen W, Tian J, Sun Y, Chen G, Roe AW, Zhang X (2017) Mixed dipole and loop coil for macaque brain imaging at 7T: a simulation study. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.

Chen W, Peng B, Sun Y, Chen G, Roe AW, Dai Y, Zhang X (2017) Subject-specific 3D modeling of Macaque brain via automatic tissue registration based on *in vivo* MR images acquired at 7T. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.

Roe AW (2017) High Spatial Resolution Brain Imaging at Ultrahigh Fields. Huashan International Glioma Summit. Shanghai, China.

Roe AW (2017) Modular monkey connectome. Xiang Shan Meeting on Nonhuman Primate Brain and Cognition. Shenzhen, China.

Roe AW (2016) Towards a functionally specific optical brain machine interface for vision. Interdisciplinary Frontiers of Cognitive Neuroscience. Guangzhou, China.

Li M, Xu T, Song XM, Roe AW, Hu D, Li CY (2016) Spatial summation sub-compartments embedded within the pinwheel-like-orientation column of the primary visual cortex. Soc Neurosc Meeting. San Diego, CA.

Roe AW (2016) Selective enhancement of functional domain networks by attention in macaque V4. Gordon Conference on Neurobiology of Cognition. Sunday River Newry, Maine.

Chernov M, Friedman RM, Chen G, Stoner G, Roe AW (2016) Functionally specific optogenetic modulationin primate visual cortex. Beijing Vision Science Conference 2016, Beijing, China.

Ashaber M, Pálfi E, Friedman RM, KántorO, KovácsT, Stuber I, Roe AW, Négyessy L (2016) Ultrastructural properties of large neuronal endings in the primate somatosensory cortex. Federation European Neuroscience Society, Copenhagen, Denmark.

Pálfi E, Zalányi L, Ashaber M, Palmer C, Friedman RM, Roe AW, Négyessy L (2016) Intrinsic and interareal connections in primate somatosensory cortex. Federation European Neuroscience Society, Copenhagen, Denmark.

Zhang YF, Tanigawa H, Yang SR, Friedman R, Roe AW (2016) Attentional enhancement of stimulus activation domains in Macaque V4. Vision Sciences Society Meeting, Sarasota, FL.

Chernov M, Friedman RM, Chen G, Stoner G, Roe AW (2016) Functionally specific optogenetic modulationin primate visual cortex. NeuroFutures 2016, Seattle WA.

Roe AW (2016) Introduction to ZIINT.at ISMRM China Night. International Society of Magnetic Resonance in Medicine, Singapore.

Roe AW (2016) MRI Studies of Brain Organization and Function in Nonhuman Primates. Workshop on Magnetic Resonance Imaging @ ZJU. Hangzhou, China.

Roe AW (2016) Discussion Leader. Future Primate Neuroscience Symposium. Shenzhen, China.

Roe AW (2016) Looking forward in the year of the monkey. Zhejiang University Medical School & ZIINT Retreat. Hangzhou, China.

Roe AW (2016) Towards a connectional theory of brain function. IBRO Workshop 2016, Budapest, Hungary.

INVENTIONS

Patent Serial No. 61/489,522: Method and apparatus of pulsed infrared light for the inhibition of central nervous system neurons

Chinese Patent No 201810935858.5: High spatial resolution infrared laser stimulation-fMRI whole brain mapping (红外神经刺激诱导 全脑功能磁共振 高分辨率成像方法) Approved May 2020.

AWARDS and HONORS

2019	Elected Fellow of SPIE
2018	Zhejiang Optical Society Council Member
2018, 2020	Gordon Research Conference Organizer
2017	International Neuropsychological Symposium Member
2017	Elected Senior Member of SPIE
2016	ISMRM Plenary Speaker
2015	AAAS Fellow
2008	Vanderbilt University International Grant "Exploring potential for conducting nonhuman primate brain research in China"
2007	Vanderbilt University College of Arts & Sciences Travel Award
2005-2007	Vanderbilt Discovery Grant: "Optical Imaging of Short-term Working Memory in Prefrontal Cortex of the Macaque Monkey" $30,000
2004	Vanderbilt University College of Arts & Sciences Travel Award
1998-2003	David and Lucile Packard Foundation Fellowship
1997-1999	Alfred P. Sloan Research Fellowship.
1996-1999	Whitehall Foundation Research Fellowship
1991-1994	NIH NRSA Post-doctoral Fellowship, Rockefeller Univ and Baylor College of Medicine.
1993	Winter Conference on Brain Research Fellowship Award, Whistler, Canada.
1992	Center for Visual Science Symposium Travel Fellowship, Rochester, NY.
1989-1991	Whittaker Health Sciences Fellowship, M.I.T.
1986-1989	NIGMS Graduate Traineeship, M.I.T.
1987	Gordon Research Conference Scholarship.
1985-1986	NIGMS Graduate Traineeship, Yale University.
1984-1986	NIGMS Graduate Traineeship, Harvard University.

SERVICE

ACADEMIC SERVICE

Grant Reviews

2019	US Brain Initiative grant reviewer
2018	Israel Science Foundation grant reviewer
2018	UK Medical Research Council grant reviewer
2011 – 2017	NIH study section, Sensorimotor Integration, member
2009	NIH study section, ad hoc
2006	NIH special review committee
2005	NIH special review committee
2002	NSF Cognitive Neuroscience Study Section, ad hoc
2000-2005	NIH IFCN-8 (COG) Study Section, member

Site Visit Reviews

June 2007	NIH/NIMH Board of Scientific Counselors review committee (ad hoc).

Oct 2006 NIH/NICHHD Site visit member.

Editorships, manuscript & abstract reviews

2019 -	Associate Editor, eLife
2017 -	Advisory Editorial Board, TINS
2016 -	Assoc Editor, Network Neuroscience
2014 - 2015	Special Issue Editor, Visual Neuroscience
2013 – present	Assoc Editor, Neurophotonics
2013 – present	Editor, Neuroimage
2012 – present	OHBM abstract review committee
2010 – present	Assoc Editor, Frontiers in Integrative Neuroscience
2007 - present	Editor, Frontiers in Systems Neuroscience
2003 - 2014	Assoc Editor, Neuroscience Letters
2006	Optical Soc America abstract review committee
2003 – 2011	Vision Sciences Society abstract review committee
9/96 – present	Ad hoc reviewer for Nature, Science, Neuron, Nature Neuroscience, Current Biology, J Neuroscience, J Neurophysiology, Nature NS, Neuroimage, Neurophotonics, Vision Research, PNAS, Frontiers of Neuroscience, J Neurosci Methods, Cerebral Cortex, American J Physiology, European J Neuroscience, BMC Journals, PLOS Biology, Attention Perception & Psychophysics, J Cereb Blood Flow & Metabolism, Neuroscience Letters, Neuroreport, Biomed Optics Express

Other

2020	ISMRM Overseas Chinese Awards Committee
2019-	Univ Marburger – Zhejiang Univ Partnership Ambassador
2019-2022	OHBM Awards Committee
2019	FENS Summer School Lecturer, Bologna, Italy
2018, 2020	Gordon Research Conference Organizer (Hong Kong, China)
2018 -	NIH Marmoset Advisory Committee, ONPRC representative
2019-2021	SFN Swartz Prize Selection Committee
2018 – present	Head of Neuroengineering Consortium, Zhejiang University.
2012 - present	Advisory committee to McGovern Institute at Beijing University, Beijing China.
2011 – present	SFN Peter Gruber International Research Award Selection Committee
2008 - present	Advisory committee to Systems Neuroscience Program at Tsinghua University, Beijing China.
1999-2001	German-American Frontiers of Science Symposia (Organizer and Participant)
2003 - present	Ad hoc reviewer on funding applications and promotion reviews for investigators from Europe, Asia, Australia.

TEACHING

FENS Summer School (June 2-8, 2019, Bologna, Italy)
Brain reading and writing: new perspectives of neurotechology

Zhejiang University, Hangzhou China
Fall 2015 Course director and lecturer. Systems Neuroscience.
Spring 2016 Graduate Student Journal Club.

Other courses:
Visual Neuroscience
Neuroanatomy
Neuroimaging
Systems Neuroscience