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EDUCATION and POSITIONS

- 9/15 – present **Oregon Health Sciences University** Portland, OR
Professor in Division of Neuroscience, Oregon National Primate Research Center (ONPRC)
Professor in Department of Behavioral Neuroscience, OHSU
- 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
- 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 University 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

PEER-REVIEWED PUBLICATIONS

- Roe AW** (2019) Columnar connectome: towards a mathematics of brain function. Network Neuroscience. April 22, 2019. https://doi.org/10.1162/netn_a_00088.
- Li M**, Song XM**, Xu T, Hu D*, **Roe AW***, Li C-Y* (2019) Subdomains within orientation columns of primary visual cortex Science Advances, 5:eaaw0807. [**co-first author, *co-corresponding]
- 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]
- Zhao ZY, Xu GJ, Xu KD, Zhu JM, **Roe AW**, Xu B, Zhang XT, Xu DR (2019) Magnetic Resonance Temperature Imaging of Laser-Induced Thermotherapy Using Proton Resonance Frequency: Evaluation of Different Sequences in Phantom and Porcine Brain at 7T. Lasers in Surgery and Medicine. *In press*.
- 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]
- Pálfi E, Zalányi L, Ashaber M, Palmer C, Kántor O, **Roe AW**, Friedman RM, Négyessy L (2018) Connectivity of neuronal populations within and between areas of primate somatosensory cortex. Brain Struct Funct. 223(6):2949-2971. [PMID: 29725759]
- Yin H, Fu P, Lu HD, Tanigawa H, **Roe AW**, Chen G (2018) Reply to Doi et al.: Functional architecture matters in the formation of perception. Proc Natl Acad Sci. 115(30):E6969-E6971. [PMC: 6065029] [PMID: 29980648]
- 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]
- Wang Y, Han X, Xi W, Li J, **Roe AW**, Lu P, Qian J. (2017) Bright AIE nanoparticles with F127 encapsulation for deep-tissue three-photon intravital brain angiography. Adv Healthc Mater. doi: 10.1002/adhm.201700685. [PMID: 28795507]
- Morone KA, Neimat J, **Roe AW**, Friedman RM (2017) Functional and clinical relevance of intrinsic signal optical imaging in human brain mapping. Neurophotonics, 4(3):031220. [PMC5466092] [PMID: 28630881]
- Roe AW**, Winberry J, Friedman RM (2017) Study of single and multidigit activation in monkey SI using voltage sensitive dye imaging. Neurophotonics, 4(3):031219. [PMC5446783] [PMID: 28573156] 11
- Alifu N, Yan L, Zhang H, Zebibula A, Zhu Z, Xi W, **Roe AW**, Xu B, Tian W, Qian J (2017) Organic dye doped nanoparticles with NIR emission and biocompatibility for ultra-deep in vivo two-photon microscopy under 1040 nm femtosecond excitation. Dyes and Pigments 143:76-85. [doi: 10.1016/j.dyepig.2017.04.017.]
- Lu HD, Chen G, Cai J, **Roe AW** (2017) Intrinsic signal optical imaging of visual brain activity: tracking of fast cortical dynamics. Neuroimage, 148:160-168. [PMC5344706] [PMID: 28063974]
- Tanigawa H, Chen G, **Roe AW** (2016) Spatial distribution of attentional modulation at columnar resolution in macaque area V4. Frontiers in Neural Circuits, 10:1-13. [PMC5149540][PMID: 28018181]

- Jennings C, Landman R, Zhou Y, Sharma J, Hyman J, Movshon JA, Qiu Q, Roberts A, **Roe AW**, Wang XQ, Zhou HH, Wang LP, Zhang F, Desimone R, Feng GP (2016) Modeling human brain disorders in transgenic primates: Opportunities and challenges. Nature Neuroscience, 19(9):1123-30. [PMID: 27571191]
- Pálfi E, Ashaber M, Palmer C, Friedman RM, **Roe AW**, Négyessy L (2016) Neuronal connections within the hand representation in areas 3b and 1 of the somatosensory cortex in primates. Orv Hetil. 157(33):1320-1325. Hungarian. [PMID: 27523315]
- Chernov M, Chen G, Luke A, Torre-Healy, Friedman RM, **Roe AW** (2016) Microelectrode array stimulation combined with intrinsic optical imaging: a novel tool for functional brain mapping. J Neurosci Meth, 263:7-14. [PMID: 26820903][PMC: 4801717]
- Roe AW**, Chernov M, Friedman RM, Chen G (2015) In vivo mapping of cortical columnar networks in the monkey with focal electrical and optical stimulation and imaging. Frontiers in Neuroanatomy, 9:135. [PMID: 26635539][PMC: 26635539]
- Roe AW**, Ts'o DY (2015) Specificity of V1-V2 orientation networks in the primate visual cortex Cortex,72:168-78. [PMID: 26314798][PMC4637188]
- Kaas JH, **Roe AW**, Baldwin MKL, Lyon DC (2015) Resolving the V3 question: knowns and unknowns and a new proposal, Visual Neurosci, 32:E016. [PMID: 26241553]
- Nassi JJ, Avery MC, Cetin AH, **Roe AW**, Reynolds JH (2015) Normalization through local excitation and inhibition in primate visual cortex. Neuron, 86(6):1504-1517. [PMID: 26087167][PMC4534089]
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- Ashaber M, Pálfi E, Friedman RM, Palmer C, Jákli B, Chen LM, **Roe AW**, Négyessy L. (2013) Connectivity of somatosensory cortical area 1 form an anatomical substrate for the emergence of multifinger receptive fields and complex features selectivity in the squirrel monkey (*Saimiri sciureus*). J Comp Neurol, 522(8):1769-85. [PMID:24214200][PMC4104306]
- 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]
- Wang Z, Qi H-X, Kaas JH, **Roe AW**, Chen LM, (2013) Functional signature of recovering cortex: dissociation of local field potentials and spiking activity in somatosensory cortices of spinal cord injure monkeys. Exp Neurol, 249:132-43. [PMID: 24017995][PMC3870899] 18
- 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] 18
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- Stepniewska I*, Friedman RM*, Gharbawie OA, Cerkevich CM, **Roe AW** and Kaas JH (2011) Optical imaging in Galagos reveals parietal-frontal circuits underlying motor behavior, Proc National Acad Sci, 108(37):E725-E732. [PMID: 21873212][PMC3174626]
- Friedman RM, Dillenburger BC, Wang F, Avison MJ, Gore JC, **Roe AW**, Chen LM (2011) Methods for fine scale functional imaging of tactile motion in human and nonhuman primates. Open Neuroimaging Journal, 5:160-71. [PMID: 22253658][PMC3257843]
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- 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]
- 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
- Tanigawa H, Lu HD, **Roe AW** (2010) Functional organization for color and orientation in macaque V4. Nature Neurosci, 13(12):1542-8. [PMID: 21076422][PMC3005205]
- Lu HD, Chen GC, Tanigawa H, **Roe AW** (2010) A motion direction map in Macaque V2, Neuron, 68(5):1002-1013. [video link: <http://www.cell.com/neuron/videos>] [PMID: 21145011][PMC3391546]

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- Dillenburger BC, **Roe AW** (2010) Influence of parallel and orthogonal real lines on illusory contour perception. J Neurophysiol, 103:55-64. [PMID: 19864444][PMC2807237]
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- Chen LM, Friedman RM, **Roe AW** (2009) Area-specific representation of mechanical nociceptive stimuli within SI cortex of squirrel monkeys. Pain, 141(3):258-68. [PMID: 19136211][PMC2680084]
- Lu HD*, Chen G*, Ts'o DY, **Roe AW** (2009) A rapid topographic mapping and eye alignment method using optical imaging in Macaque visual cortex. Neuroimage, 44:636-46. *equal contributions. [PMID: 19013530][PMC2674020]
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- Friedman RM, Chen LM, **Roe AW** (2008) Responses of areas 3b and 1 in anesthetized squirrel monkeys to single and dual site stimulation of the digits. J Neurophysiol, 100(6):3185-96. [PMID: 18922955][PMC2604853]
- Roe AW** (2008) Optical imaging of visual feature representation in the awake, fixating monkey. In Advances in Cognitive Neurodynamics ICCN 2007: Proceedings of the International Conference on Cognitive Neurodynamics 2007. (Eds: Rubin Wang, Fanji Gu and Enhua Shen). Springer, New York. ISBN: 978-1-4020-8386-0.
- Roe AW**, Chen LM (2008) High resolution fMRI maps of cortical activation in non-human primates: correlation with intrinsic signal optical images. ILAR Journal, National Research Council of the National Academies, 49(1):116-23. [PMID: 18172338][PMC2653868]
- Chen G, Lu HD, **Roe AW** (2008) A map of horizontal disparity in primate V2. Neuron, 58:442-450. [PMID: 18466753][PMC2441920]
- Kaskan PM, Lu HD, Dillenburger BD, **Roe AW**, Kaas JH (2007) Intrinsic-signal optical imaging reveals cryptic ocular dominance columns in primary visual cortex of New World owl monkeys. Frontiers in Neuroscience, 1:67-75. [PMID: 18974855][PMC 2518048]
- Chen LM, Turner G, Friedman RM, Gore JC, **Roe AW**, Avison MJ (2007) High resolution maps of real and illusory tactile activation in SI: intra-individual correlation with fMRI, optical imaging and electrophysiology. J Neurosci, 27(34):9181-9191. [PMID: 17715354]
- Hung CP, Ramsden RM, **Roe AW** (2007) A functional circuitry for edge-induced brightness perception. Nature Neurosci, 10:1185-1190. [PMID: 17704775] 18
<http://www.vanderbilt.edu/news/releases/2007/8/20/when-in-doubt-brain-relies-on-precise-timing-to-perceive-brightness>
<http://www.physorg.com/news106849780.html>
- Lu HD, **Roe AW** (2008) Functional organization of color domains in V1 and V2 of Macaque monkey revealed by optical imaging. Cerebral Cortex, 18(3):516-33. *Cover figure*. [PMID: 17576751] [PMC2657473]

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- Roe AW** (2007) Long-term optical imaging of intrinsic signals in anesthetized and awake monkeys. Applied Optics 46:1872-1880. [PMID: 17356633]
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- Roe AW**, Fristches K, Pettigrew JD (2005) Optical imaging of functional organization in V1 and V2 of marmoset visual cortex. Anat Rec 287:1213-25. [PMID: 16235264]
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Commentary: Eysel UT (2003) Illusions and perceived images in the primate brain. Science 31:789-791.
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- Roe AW**, Ts'o DY (1995) Visual topography in primate V2: multiple representation across functional stripes. J Neurosci 15:3689-3715. [PMID: 7751939]
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- 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]
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- 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 (Nothdruff 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]

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.

RECENT CONFERENCES

CONFERENCE ORGANIZER

- 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) Conference 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 (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.

RECENT CONFERENCES

(2015-2019)

- 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.
- 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.
- 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 Biennial 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 Neurosci 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 modulation in primate visual cortex. Beijing Vision Science Conference 2016, Beijing, China.
- Ashaber M, Pálfi E, Friedman RM, Kántor O, Kovács T, 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 modulation in 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.
- Négyessy L, Pálfi E, Ashaber M, Zalányi L, Palmer C, Friedman RM, Kántor O, Roe AW (2015) Complementary role of intra- and inter-areal cortical connections in somatosensory processing in primates. Soc Neurosci Meeting, Chicago IL.

- Roe AW (2015) Mapping columnar networks and cytoarchitecture in nonhuman primates. NeuroFutures2015, Portland OR.
- Roe AW (2015) The monkey connectome project: towards a connectional theory of brain function. Francis Crick Symposium: Advances in Neuroscience, Cold Spring Harbor Asia, Suzhou, China.
- Torre-Healy L, Chernov MM, Chen G, Roe AW (2015) Functional tract tracing in awake monkeys using implanted electrode arrays and optical imaging: a new approach to studying cortical circuitry and behavior. Organization Human Brain Mapping, Honolulu, Hawaii.
- Roe AW, Chernov MM, Chen G, Friedman RM (2015) Infrared neural stimulation: a new stimulation tool for CNS applications. Brain Stim 2015, Honolulu, Hawaii.
- Ashaber M, Pálfi E, Friedman RM, Kántor O, Kovács T, Stuber I, Roe AW, Négyessy L (2015) Ultrastructural characterization of postcentral somatosensory cortical synapses in primates: a 3D analyses. Hungarian Neuroscience Society Conference, Budapest, Hungary.
- Pálfi E, Ashaber M, Zalányi L, Palmer C, Friedman RM, Kántor O, Roe AW, Négyessy L (2015) Comparisons of intrinsic and associative connections of the primate somatosensory cortex. Hungarian Neuroscience Society Conference, Budapest, Hungary.

AWARDS and HONORS

- 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
- 2013 1000 Faculty Award, China
- 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
 2017 Chinese 1000 Talents Faculty Applications 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

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, Neuroimage, 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

Other

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.

MENTORSHIP

Current Trainees OHSU

Senior Staff Scientist: Robert Friedman (9/15 – present)
 Staff Scientist: Mykyta Chernov (7/15 – present)
 Postdoctoral Fellow: Derek Zaraza (5/16 – present)
 Research Assistant: Akshay Edathodathil (9/17-8/18)
 Summer Student: Jennifer Siu (6/18-8/18)

Current Trainees Zhejiang University

Postdoc: Guohua Xu
Jiaming Hu

Graduate student: Meizhen Qian (PhD)
Liang Zhu (PhD)
Tong An (MA)
Jianbao Wang
Mengqi Wang
Yunyun Rui
Ying Zhang
Xiao Du
Sunhang Shi

Research Associate: Fen Yang
Yin Liu

Past trainees still in science

Former Postdocs (in order of recency):

Benjamin Ramsden (8/97 – 6/02, now Senior Scientist at Indiana Univ, Bloomington IN)
Limin Chen (9/98 – 6/06, now tenured Associate Prof at Vanderbilt Med Sch Dept Radiology)
Haidong Lu (9/02-5/08, now Professor at Beijing Normal University, Beijing, China)
Gang Chen (6/05 – 2/11, now Assistant Professor at Zhejiang University, Hangzhou, China)
Hisashi Tanigawa (9/06 – 3/11, now Assistant Professor at Zhejiang University, Hangzhou, China)
Zheng Wang (8/09 – 8/11, now Assistant Professor at Institute of Neuroscience, Shanghai, China)
Omar Gharbawie (6/12 – present, now Assistant Professor at Univ Pittsburgh, Pittsburgh, PA, K99 awardee)
Ling Wang (8/13 – 8/14, now Assistant Professor at University of Electronic Science and Technology of China, Chengdu China), Chinese NSF awardee
Robert Friedman (9/03 – 9/14) now Senior Staff Scientist at OHSU
Mykyta Chernov (7/12 – 8/15) now Staff Scientist at OHSU

Former grad students:

Chou P. Hung, PhD Yale Neurobiology (1997 – 2002, now group director at US Army Division of Information Science)
Peter Kaskan, PhD 2008 Vanderbilt University (2004–2008), now Research Fellow at Louisville, KY
Reuben Fan, PhD 2012 Vanderbilt University (2008-2012), now postdoc with Dr. Dora Angelaki at Baylor College of Medicine
Andrea Brock, MD 2012 Vanderbilt University, now resident in neurosurgery at University of Utah
Jeremy Winberry MA 2014 (Fall 2010–Spring 2014), research asst U Chicago with Dr. Sliman Bensmaia

Former undergrad students:

Sooyum Yang, MD 2014 Vanderbilt University, now resident at Stanford in pathology
Joyce (Anqi) Jiang Summer 2017, undergrad at Macalester College, now at U Chicago Neuroscience PhD
Brian Lustig, research assistant 5/10 - 9/12, now PhD program at Janelia Farms
Yufeng Zhang, research assistant 9/15-8/16, now PhD program in Max Planck Frankfurt, Germany with Pascal Fries

INVITED TALKS (past 5 years)

12/18 Invited speaker. ISTBI Symposium on Functional and Molecular Imaging, Fudan University, Shanghai, China.

11/18 Invited panelist. Marmoset social. Society for Neuroscience Meeting 2018, San Diego, CA.

10/18 Invited speaker. Multiscale Brainnetome Atlas. World Life Science Conference. Beijing, China.

- 9/18 Invited speaker. 6th Biennial Conference on Resting State and Brain Connectivity. Montreal, Quebec City, Canada.
- 7/18 Invited speaker. City Univ of Hong Kong. Hong Kong, China.
- 6/18 Invited speaker. Siemens Users Meeting, Paris, France.
- 5/18 Invited speaker. International Symposium on Frontiers in Neuroscience. Hangzhou, China.
- 1/18 Invited speaker. Ministry of Education Defense of Zhejiang University BME State Key Labs.
- 10/17 Invited speaker. Brain & Cognitive Science, Beijing, China.
- 10/17 Invited speaker. Brainetome Conference. Beijing, China..
- 10/17 Invited speaker. CMRR Workshop. Minneapolis, Minnesota.
- 7/17 Invited speaker. IEEE Workshop. Jujee Island, Korea.
- 6/17 Symposium speaker. Cold Spring Harbor Symposium. Suzhou, China.
- 6/17 Keynote speaker. Oregon National Primate Research Center Annual Retreat. Portland OR
- 5/17 Speaker. SFN, Oregon Chapter, Troutdale OR.
- 5/17 Seminar speaker. AIRC, OHSU, Portland OR.
- 4/17 Plenary speaker. ISMRM, Honolulu Hawaii.
- 3/17 Speaker. Conference on Primate Cognition. Shenzhen, China.
- 12/16 Speaker. Frontiers of Interdisciplinary Cognitive Neuroscience. Guanghou, China.
- 7/16 Seminar speaker. Chinese Academy of Sciences, Beijing China.
- 3/16 Symposium speaker. Workshop on Magnetic Resonance Imaging. ZJU, Hangzhou, China.
- 2/16 Seminar speaker. Oregon National Primate Research Center, Portland OR.
- 1/16 Symposiium speaker. IBRO Brain Research Workshop 2016, Budapest, Hungary.
- 7/15 Symposium speaker. NeuroFutures2015. Oregon Health Sciences Univ, Portland OR
- 7/15 Symposium speaker. Cold Spring Harbor Asia: Francis Crick Symposium in Neuroscience. Suzhou, China.
- 4/15 Seminar speaker. Medical College of Georgia, Augusta GA.
- 3/15 Seminar speaker. Oregon Health Sciences Center, Portland OR.
- 3/15 Seminar speaker. University of South California, Los Angeles, CA.
- 2/15 Seminar speaker. Rutgers University, New Brunswick NJ.
- 1/15 Seminar speaker. Shaw Run Run Hospital, Hangzhou China.

SOCIETY MEMBERSHIPS

- | | |
|---|--|
| Society for Neuroscience | American Association of University Women |
| Women in Neuroscience | Society of Women Engineers |
| Association for Advancement of Science | Association for Women in Science |
| Cognitive Neuroscience Society | Biomedical Engineering Society |
| American Physiological Society | SPIE (Society Photonics, Imaging, & Engineering) |
| Oregon Chapter Society for Neuroscience | Organization for Human Brain Mapping |
| American Psychological Society | Chinese Society for Neuroscience |
| Optical Society of America | Vision Sciences Society |
| International Society Magnetic Resonance & Medicine | Zhejiang Optical Society |
| International Neuropsychological Symposium | |