

**Jun Yamamoto, Ph.D.**

CURRICULUM VITAE

as of August 2024

**Assistant Professor**

(tenure track)

**Current Address and Contact**

Department of Psychiatry, Neuroscience Division  
The University of Texas Southwestern Medical Center  
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**EDUCATION:**

1990-1994 Keio University, Tokyo, Japan  
B.Sc. in Electrical Engineering (Robotics)  
1994-1996 Graduate School of Keio University, Tokyo, Japan  
M.S. in Computer Science (Artificial Intelligence / Neural Networks)  
1996-1999 Graduate School of Keio University, Tokyo, Japan  
Ph.D. in Computer Science (Neuroengineering and Computational Neuroscience)

**POSITIONS:**

2020 – Present Tenure Track Assistant Professor, Department of Psychiatry, Neuroscience Division, The University of Texas Southwestern Medical Center  
2017 – 2020 Research Track Assistant Professor, Department of Psychiatry, Neuroscience Division, The University of Texas Southwestern Medical Center  
2017 - 2017 Researcher, Mass General Institute for Neurodegenerative Disease (MIND), Department of Neurology, Massachusetts General Hospital, Harvard Medical School, Supervisor: Dr. Steve Gomperts  
2008 - 2017 Senior Research Scientist, The Picower Institute for Learning and Memory at MIT, Supervisor: Dr. Susumu Tonegawa  
2002-2008 Postdoctoral Associate, The Picower Institute for Learning and Memory at MIT, Supervisor: Dr. Matthew A. Wilson  
2001-2006 Researcher, RIKEN Brain Science Institute, Japan  
Supervisor: Dr. Jun Tani  
2000-2001 Instructor, Brain Science Institute, Tamagawa University, Tokyo  
Supervisor: Dr. Minoru Tsukada  
1999-2000 Visiting Scholar, Faculty of Medicine, University of Strasbourg (ULP), France,  
Supervisor: Dr. Guy Sandner  
1994-1999 Student Developer, SONY Computer Science Laboratory, Tokyo  
Supervisor: Dr. Jun Tani

**PUBLICATIONS** (\* are correspondence, sorted by year)**Peer-Reviewed Research Articles**

1. Scott SD, Subramanian M, **Yamamoto J**, Tamminga TA, Schizophrenia Pathology Reverse-translated into Mouse Shows Hippocampal Hyperactivity, Psychosis Behaviors and Hypersynchronous Events, ***Molecular Psychiatry***, (*under revision, re-submitted*).
2. Osanai H, **Yamamoto J**, Kitamura T, Extracting electromyographic signals from multi-channel LFPs using independent component analysis without direct muscular recording, ***Cell Reports Methods***, May 17;3(6):100482. doi: 10.1016/j.crmeth.2023.100482 (2023)
3. Murano T, Nakajima R, Nakao A, Hirata N, Amemori S, Murakami A, Kamitani Y, **Yamamoto J**, Tsuyoshi Miyakawa, Multiple types of navigational information are independently encoded in the population activities of the dentate gyrus neurons, ***PNAS***, Aug 9; 9;119(32) (2022)
4. Terranova J, Yokose J, Osanai H, Marks WD, **Yamamoto J**, Ogawa SK, Kitamura T, Hippocampal-Amygdala Memory Circuits Govern Experience-Dependent Observational Fear, ***Neuron***, Apr 20; 110(8):1416-1431 (2022)
5. Marks WD, Osanai H, **Yamamoto J**, Ogawa SK, Kitamura T, Novel nose poke-based temporal discrimination tasks with concurrent in vivo calcium imaging in freely moving mice., ***Molecular Brain***, Nov 12, 1 90 (2019)
6. Osanai H, Kitamura T, **Yamamoto J\***, Hybrid Microdrive System with Recoverable Opto-Silicon Probe and Tetrode for Dual-Site High Density Recording in Freely Moving Mice, ***Journal of Visualized Experiments (JoVE)***, Aug. 10, 150 (2019)
7. **Yamamoto J\***, and Tonegawa S, Direct Medial Entorhinal Cortex Input to Hippocampal CA1 Is Crucial for Extended Quiet Awake Replay, ***Neuron***, 96 (1): 217-227 (2017)
8. Sun C, Kitamura T, **Yamamoto J**, Martin J, Pignatelli M, Kitch LJ, Schnitzer MJ, Tonegawa S., Distinct speed dependence of entorhinal island and ocean cells, including respective grid cells., ***Proc Natl Acad Sci U S A.***, 112 (30):9466-71 (2015)
9. **Yamamoto J**, Suh J, Takeuchi D, Tonegawa S., Successful execution of working memory linked to synchronized high-frequency gamma oscillations., ***Cell.***, 157 (4): 845-57 (2014)  
\*Research Highlight in *Nature Reviews Neuroscience*, 15, 347 (2014)
10. Chen Z, Gomperts SN, **Yamamoto J**, Wilson MA., Neural representation of spatial topology in the rodent hippocampus., ***Neural Comput.***, (1):1-39 (2014)
11. Jinde S, Belforte JE, **Yamamoto J**, Wilson MA, Tonegawa S, Nakazawa K., Lack of kainic acid-induced gamma oscillations predicts subsequent CA1 excitotoxic cell death., ***Eur J Neurosci.***, (6):1036-55 (2009)
12. **Yamamoto J\***, Wilson MA., Large-scale chronically implantable precision motorized microdrive array for freely behaving animals, ***J Neurophysiol.***, 100 (4):2430-40 (2008)  
\*Ranked # 14<sup>th</sup> in ***J. Neurophysiology***, the 50 Most-Frequently Read Articles
13. Miyazaki T, Okanda M, **Yamamoto J**, Sasaki H, Tsukada M, Anzai Y, Optical recording of hippocampal stimulus intensity dependent responses to a sound in the auditory cortex., ***Japanese Neural Networks Society Journal.***, (12):11-15 (2005)
14. Fresquet N, **Yamamoto J**, Sandner G., Frontal lesions do not alter the differential extinction of taste aversion conditioning in rats, when using two methods of sucrose delivery., ***Behav Brain Res.***,

(1):25-34 (2003)

15. **Yamamoto J**, Fresquet N, Sandner G., Conditioned taste aversion using four different means to deliver sucrose to rats. ***Physiol Behav.***, 75 (3):387-96 (2002)
16. **Yamamoto J**, Monji H, Okanda M, Tsukada M, Sasaki H, Fukunishi K, Anzai Y., An evoked dynamic interaction in the guinea pig auditory cortex by compound acoustic hippocampal stimuli, ***Japanese Neural Networks Society Journal.***, (6):11-16 (1999)
17. **Yamamoto J\***, Takahashi M, Tsukada M, Anzai Y., A new multi-unit acquisition system for free-moving animal using field programmable analog array and on chip MCU -Neuroscope1-, ***Japanese Neural Networks Society Journal.***, (6):3-10 (1999)
18. Okanda M, **Yamamoto J**, Sasaki H, Mizuno M, Tsukada M., The dynamical modification of hippocampal stimuli on auditory evoked responses in guinea pig auditory cortex., ***IEICE Technical Report.***, (673):31-35 (1999)

### **Book Chapters (Proceedings)**

19. **Yamamoto J**, Next generation large-scale chronically implantable precision motorized microdrive arrays for freely behaving animals., ***Advances in Cognitive Neurodynamics (II)***, Rubin Wang, Fanji Gu (Eds.), 67-72, ***Springer-Verlag*** (2011)
20. **Yamamoto J** and Anzai Y, Autonomous Robot with Evolving Algorithm Based on Biological Systems, ***Lecture Notes in Computer Science***, Tetsuya Higuchi, Masaya Iwata, Weixin Liu (Eds.), Vol. 1259, pp.220-233, ***Springer-Verlag*** (1997)

### **INVITED LECTURES AND TALKS**

1. Dynamics of hippocampal hyperactivity arising from age-dependent modulation of the dentate gyrus in a reverse-translational mouse model of schizophrenia, ***Annual Japanese Neuroscience Society Meeting***, July (2024)
2. Big Data Analysis of Schizophrenia Model Mice Using Machine Learning and the Search for Translational Biomarkers, Special Seminar, ***University of Tsukuba***, Division of Advanced Robotics and Cybernetics, November (2023)
3. Neural Dynamics of Hippocampal Activities in Psychiatric Disease, Special Seminar, ***The University of Tokyo***, March (2023)
4. Learning and Memory: Hippocampal Sharp-Wave Ripples, Graduate School Special Lecture, ***Osaka University***, July (2022)
5. A Fine-time Scale Analysis of Cortico-Hippocampal Interactions and Dysfunctions in Psychosis Model Mice, Invited Seminar, ***Osaka University***, July (2022)
6. A Fine-time Scale Analysis of Cortico-Hippocampal Interactions and Dysfunctions in Psychosis Model Mice, Invited Seminar, ***Doshisha University***, July (2022)
7. Role of Reverberating Neural Oscillations in Entorhinal-Hippocampus Circuits during Episodic Memory Task, **Session Chair**, ***Annual Japanese Neuroscience Society Meeting*** (virtual), July (2020)
8. Memory Concatenation in Hippocampal – Entorhinal Network, Session Speaker, ***Annual Japanese Neuroscience Society Meeting***, July (2019)
9. Dynamics of Hippocampal – Entorhinal Memory System in Mice, Fall Science Series, Center for Vital

- Longevity, Behavioral and Brain Science, **The University of Texas at Dallas**, November (2018)
10. Dynamics of Hippocampal – Entorhinal Memory System in Mice, Neurobiology Seminar Series, Program in Neuroscience, **University of Massachusetts Medical School**, November (2017)
  11. Dynamics of Entorhinal-Hippocampal Networks during Sleep/Awake and Higher Cognitive Functions, Special Seminar, MassGeneral Institute for Neurodegenerative Disease (MIND) / Neurology Department, **Massachusetts General Hospital / Harvard Medical School**, April (2017)
  12. State-Dependent Interactions of Entorhinal-Hippocampal Networks during Sleep/Awake and Higher Cognitive Functions, Special Seminar, Department of Psychiatry, **The University of Texas Southwestern Medical Center**, October (2016)
  13. A Proposal of Spatio-Temporal Learning Research Project, Special Seminar, **Tokyo Metropolitan Institute of Medical Science**, July (2016)
  14. Degraded Episodic Memory Expression in Early Alzheimer's Disease Mouse Model, Special Seminar, Department of Neurochemistry, Graduate School of Medicine, **The University of Tokyo**, July (2016)
  15. Selective Awake Replay Impairments in Genetically Engineered Alzheimer's Disease Model Mice, Special Seminar, International Institute for Integrative Sleep Medicine, **University of Tsukuba**, November (2015)
  16. Oscillatory Phase Synchrony is Crucial for Successful Working Memory Execution, Seminar, Department of Developmental Physiology, **National Institute for Physiological Sciences**, November (2015)
  17. Interdisciplinary Research in Systems Neuroscience – Fusion of Electrophysiology, Optogenetics, Electrical Engineering and Computational Neuroscience. Special Seminar, **Keio University**, May (2015)
  18. Interdisciplinary Research in Systems Neuroscience – Fusion of Electrophysiology, Optogenetics, Electrical Engineering and Computational Neuroscience. Special Seminar, **The University of Tokyo**, May (2015)
  19. Next Generation Large-Scale Chronically Implantable Precision Motorized Microdrive Arrays for Freely Behaving Animals, Computation & Neural Systems Seminar, **California Institute of Technology (Caltech)**, December (2009)
  20. Large-scale chronically implantable precision motorized microdrive array, **International Conference on Cognitive Neurodynamics (ICCN'09)**, Hangzhou, China, November (2009)
  21. Large-scale chronically implantable precision motorized microdrive array, Center for Brain Science Seminar, **Harvard University**, 16th March (2009)
  22. Large-scale chronically implantable precision motorized microdrive array, Seminar, **RIKEN Brain Science Institute**, October (2008)
  23. Developing cutting-edge large-scale multiunit recording techniques, Keio Medical Science Prize Symposium, **Keio University**, 4th December (2003)

### **CONFERENCE PROCEEDINGS**

1. **Yamamoto J**, Scott, D and Tamminga CA, State-Dependent Hippocampal Hyper Synchronous Activity in A Reverse Translational Psychosis Model Mouse, 61st Annual Meeting of the American Collage of Neuropsychopharmacology (ACNP: 2022)

2. **Yamamoto J**, Suh J, Tonegawa S., Direct input from MECIII to hippocampal CA1 is crucial for long-range “active” replay during wake but not during sleep, Society for Neuroscience Annual Meeting SfN (2015)
3. **Yamamoto J**, Suh J, Takeuchi D, Tonegawa S., Successful execution of working memory linked to synchronized high-frequency gamma oscillations., Society for Neuroscience Annual Meeting SfN (2014)
4. **Yamamoto J**, Large-scale chronically implantable precision motorized microdrive array, International Conference on Cognitive Neurodynamics (ICCN'09), Hangzhou, China (2009)
5. **Yamamoto J**, Kinjoh H, Taukada M, Sandner G, The dynamical neural ensemble coding in classical conditioned taste aversion, Abstracts of Society for Neuroscience 31st Annual Meeting SfN (2001)
6. **Yamamoto J**, Anzai Y, Tsukada M, A New Multi-Unit Acquisition System for Free-moving Animal Using Field Programmable Analog Array and On Chip MCU -Neuroscope1-, Proceedings of The 6th International Conference on Neural Information Processing ICONIP'99 (1999)
7. **Yamamoto J**, Anzai Y and Tsukada M, Multi-Unit Recording System for Free-Moving Animal Using Field Programmable Analog Array:-Neuroscope1-, Abstracts of Society for Neuroscience 29th Annual Meeting SfN (1999)
8. **Yamamoto J**, Matsuda H, Monji H, Sasaki H, Mizuno M, Tsukada M and Anzai Y, The Dynamical Effect of Hippocampal Excitation to Auditory Evoked Responses in Guinea Pig Reveled by Optical Imaging Method, Abstracts of Society for Neuroscience 28th Annual Meeting SfN (1998)
9. **Yamamoto J**, Okanda M, Sasaki H, Tsukada M and Anzai Y, The Effect of Hippocampal Activity to Auditory Evoked Responses in Guinea Pig Revealed by Optical Imaging, Proceedings of The Fifth International Conference on Neural Information Processing ICONIP'98 (1998)
10. Takahashi S, **Yamamoto J** and Anzai Y, Visualization Tools for Firing Correlation Based on The Joint-PSTH, Proceedings of The Fifth International Conference on Neural Information Processing ICONIP'98 (1998)
11. **Yamamoto J**, Matsuda H, Monji H, Sasaki H, Mizuno M, Tsukada M, The Effect of Hippocampal Activity on Auditory Evoked Responses in Guinea Pig, Proceedings of The 2nd R.I.E.C. International Symposium on Design and Architecture of Information Processing Systems Based on The Brain Information Principles DAIPS'98 (1998)
12. **Yamamoto J**, Matsuda H, Monji H, Sasaki H, Mizuno M, Tsukada M, Fukunishi K, A Spatio Temporal Interaction Between the Information Processing in Auditory Cortex and The Hippocampal Stimulation., Proceedings of Second International Dynamic Brain Forum DBF'97 (1997)
13. Tani J, **Yamamoto J**, Nishi H, The Dynamical Interactions Among Learning, Visual Attention, and Behavior: An Experiment with a Vision-Based Mobile Robot, Proceedings of the Fourth European Conference of Artificial Life ECAL'97 (1997)
14. **Yamamoto J** and Anzai A, Biologically Inspired Learnable Autonomous Robot, Proceedings of The Second ECPD International Conference on Advanced Robotics: Intelligent Automation and Active Systems, pp149-154 (1996)
15. **Yamamoto J** and Anzai Y, An Autonomous Robot with Biological Brain Model Based on Basal Ganglia and Hippocampus, Proceedings of International Workshop on Brainware IWB'96 (1996)

### **Ph.D. DISSERTATION**

**Yamamoto J**, Study of Dynamical in vivo Neural Recording: in vivo Optical Imaging and Wireless Multi-unit Recording, ***Keio University***, Tokyo Japan (1999)

### **AWARDS**

**Yamamoto J**, Fujiwara Award for Excellent Ph.D. Dissertation, Keio University (1999)

**Yamamoto J**, Young Investigator Award, Japanese Neural Network Society (1998)

### **RESEARCH SUPPORTS**

[Current]

2020 - 2025 **National Institute of Mental Health (NIMH)**, 5R01MH120135

[Previous]

2019 - 2023 **Whitehall Foundation**, 3 Year Research Grant (1year NCE), Palm Beach, FL, USA

2019 - 2021 Brain & Behavior Research Foundation (NARSAD), New York, NY, USA

2017 - 2019 The Sumitomo Foundation, Tokyo Japan

2001 - 2004 RIKEN BSI Internal Research Fund, Saitama Japan

1999 - 2000 JSPS Fellowship for Overseas Training, Tokyo Japan

1996 - 1999 Grants-in-Aid for JSPS Fellows, Tokyo Japan

### **JOURNAL / GRANT Ad-hoc PEER REVIEWER**

*Science, Cell, Neuron, eLife, eNeuro, Journal of Neuroscience, Journal of Neurophysiology, Frontiers in Neuroscience, Journal of Neuroscience Methods, Journal of Visualized Experiments (JoVE), Molecular Brain, PLOS One, Neurobiology of Stress, Physiology and Behaviour, Molecular Psychiatry, Progress in Neurobiology and Current Opinion in Neurobiology.*

*NIH/NIMH Special Emphasis Panel / Scientific Group ZRG1 ICN-A, F01A Fellowship Review Panel, Wisconsin Nat. Primate Res. Ctr Pilot Research Program Grant, and Wellcome Trust Early-Career Award Research Grant (UK).*