Denise J. Cai, Ph.D.

Department of Neuroscience · Friedman Brain Institute
Icahn School of Medicine at Mount Sinai
One Gustave L. Levy Place, Box 1639, NY, NY 10029
Email: denisecai@gmail.com · Cell: (626) 825-0235
Twitter: denisejcai · Github: DeniseCaiLab

PROFESSIONAL APPOINTMENTS

2022 – pres. **Associate Professor (Tenure Track), Icahn School of Medicine at Mount Sinai**
Department of Neuroscience
Friedman Brain Institute

2017 – 2022 **Assistant Professor (Tenure Track), Icahn School of Medicine at Mount Sinai**
Department of Neuroscience
Friedman Brain Institute

EDUCATION

2010 – 2017 **University of California, Los Angeles**
Postdoctoral Scholar; Advisor: Dr. Alcino Silva

2005 – 2010 **University of California, San Diego**
Ph.D., Psychology & Behavioral Neuroscience
Advisors: Drs. Sara Mednick, Stephan Anagnostaras, Michael Gorman

2000 – 2004 **University of California, San Diego**
B.S., Psychology (High Honors)
Advisor: Dr. Ebbe Ebbesen

GRANTS & FELLOWSHIPS

Current Funding

2023 – 2025 NIH R56 MH132959 - $1,323,902
Fear and anxiety circuit mechanisms in anterior hypothalamic nucleus
Role: PI

2023 – 2023 Friedman Brain Institute Research Scholars Award - $60,000
Functional interrogation of the autism-linked ADNP gene in social decision-making
Role: Co-PI

2021 – 2025 Irma T. Hirschl/Monique Weill-Caulier Research Award - $175,000
Does hippocampal ensemble reactivation of trauma memories cause disrupted sleep in PTSD?
Role: PI

2019 – 2024 NIH DP2 MH122399 - $2,542,497
How does the brain optimize storage capacity?
Diversity Supplement for Corin Humphrey - $100,937
Role: PI

2019 – 2024 NIH R01 MH120162 - $2,491,110
Circuit mechanisms of retrospective memory linking
Diversity Supplement for Taylor Francisco - $62,400
Role: PI

Pending Funding

2023 – 2027 NIH U01 NS133967 - $4,111,696
Integrated platform of molecular and optical tools for manipulating and monitoring neuropeptide signaling in vivo
Role: PI (Multi-PI)

2023 – 2028 NIH BRAIN Initiative R01 - $547,702
Systematic validation and development of calcium imaging analysis pipelines
Role: Co-I

Past Funding

2019 – 2022 McKnight Memory and Cognitive Disorder Award - $300,000
Circuit mechanisms of memory-linking
Role: PI

2019 – 2022 One Mind Rising Star Award - $250,000
Temporal memory-linking: a circuit mechanism in PTSD
Role: PI

2020 – 2020 Mount Sinai Distinguished Scholar Award - $50,000
How does the brain optimize storage capacity?
Role: PI

2019 – 2021 NARSAD Young Investigator Award - $70,000
Circuit mechanisms of memory-linking
Role: PI

2018 – 2021 Klingenstein-Simons Fellowship - $225,000
Circuit dynamics of linking and separating aversive memories
Role: PI

2018 – 2020 Brain Research Foundation Award - $80,000
Investigating the role of negative valence in the temporal dynamics of memory-linking
Role: PI

2018 – 2018 Friedman Brain Institute Scholar Award - $50,000
In vivo imaging of neuronal activity in the nonhuman primate brain
Role: Co-PI

Trainee Funding

2023 – 2028 NIH K99/R00 MH131792, Zachary Pennington (Instructor in Neuroscience) - $501,180

Disentangling the consequences of trauma
Role: Mentor

2022 – 2024 Brain Behavior Research Foundation Young Investigator Award, Zachary Pennington (Instructor in Neuroscience) - $70,000
Contributions of the anterior hypothalamic nucleus to stress responses
Role: Mentor

2021 – 2023 NIH F31 MH126543, Yosif Zaki (PhD Student) - $89,589
Linking memories through hippocampal ensemble reactivation
Role: Mentor

2020 – 2023 NIH K99/R00 DA048749, Sarah Stern (Research Group Leader, Max Planck Florida Institute for Neuroscience) - $762,433
Neural circuit mechanisms controlling non-homeostatic feeding
Role: Co-mentor

2020 – 2022 NIH F32 AG067640, William Mau (Senior Data Scientist, Cohere Health) - $138,047
Manipulating cellular excitability and CREB expression in CA1 to restore spatial processing in aged mice to young-like levels
Role: Mentor

2019 – 2025 NIH K99/R00 MH12228, Kirstie Cummings (Assistant Professor, University of Alabama, Birmingham) - $464,978
Neural circuit mechanisms controlling non-homeostatic feeding
Role: Co-mentor

AWARDS & HONORS

2023	Friedman Brain Institute Scholar Award
2022	American College of Neuropsychopharmacology Member
2021	Brain and Behavior Research Foundation Freedman Prize Honorable Mention
2021	Irma T. Hirschl/Monique Weill-Caulier Research Award
2020 – 2022	Optogenetics Gordon Research Conference Chair
2019	Mount Sinai Distinguished Scholar Award
2019	NIH Director’s New Innovator Award (DP2)
2019	One Mind-Otsuka Rising Star Award
2019	McKnight Memory and Cognitive Disorder Award
2019	Brain and Behavior Research Foundation (formerly NARSAD) Young Investigator Award
2018	Brain Research Foundation Award
2018	Klingenstein-Simons Fellowship Award
2018	Friedman Brain Institute Scholar Award
2018	Outstanding Teaching Award at Mount Sinai Graduate School
2018	Botanical Center Pilot Award
2017 – 2022	American College of Neuropsychopharmacology Associate Member
2017	Center for the Neurobiology of Learning and Memory Fellow
2017	Allen Institute Next Generation Leader
2015	Arnold Scheibel Distinguished Postdoctoral Fellow

2015	David Geffen School of Medicine Family Travel Award
2015	UCLA Integrative Center for Learning and Memory Young Investigator Award
2012	Ruth L. Kirschstein Post-Doctoral National Research Service Award
2012	Ruth L. Kirschstein NRSA Institutional Research Training Grant
2009	Chancellor's Interdisciplinary Collaboratory Award
2009	Dean of Social Sciences Travel Award
2007	Norman Anderson Research Travel Award

PUBLICATIONS & PREPRINTS

38) Delamare G, Zaki Y, **Cai DJ** & Clopath C (2023) Drift of neural ensembles driven by slow fluctuations of intrinsic excitability. *bioRxiv.* https://doi.org/10.1101/2023.03.16.532958

37) Zaki Y, Pennington ZT, Morales-Rodriguez D, Francisco TR, LaBanca AR, Dong Z, Carrillo Segura S, Silva AJ, Shuman T, Fenton A, Rajan K & **Cai DJ** (2023) Aversive experience drives offline ensemble reactivation to link memories across days. *bioRxiv.* https://doi.org/10.1101/2023.03.13.532469. PMID: 36993254 PMCID; PMC10054942

36) Pennington ZT, LaBanca AR, Sompolpong P, Christenson Wick Z, Feng Y, Dong Z, Francisco TR, Chen L, Fulton SL, Maze I, Shuman T & **Cai DJ** (2023) Dissociable contributions of the amygdala and ventral hippocampus to stress-induced changes in defensive behavior. *Neuron* (in review). *bioRxiv*. https://doi.org/10.1101/2023.02.27.530077. PMID: 36945605 PMCID: PMC10028838.

35) Mau W, Moralez-Rodriguez D, Dong Z, Sweis BM, Morales-Rodriguez D, Pennington ZT, Francisco T, Freedman DJ, Baxter MG, Shuman TS & **Cai DJ** (2023) Ensemble remodeling supports memory-updating. *Nature Communications (under revision). bioRxiv:* https://doi.org/10.1101/2022.06.02.494530.

34) Chen L, Francisco T, Baggetta A, Ramirez S, Clem R, Shuman T, & **Cai DJ** (2023) Ensemble-specific deficit in neuronal intrinsic excitability in aged mice. *Neurobiology of Aging*. https://doi.org/10.1016/j.neurobiolaging.2022.12.007. PMID: 36652783; PMCID: PMC9892234

33) Dong Z, Mau W, Feng Y(S), Pennington Z T, Chen L, Zaki Y, Rajan K, Shuman T, Aharoni D, & **Cai, DJ** (2022) Minian: An open-source miniscope analysis pipeline. *eLife.* https://doi.org/10.7554/eLife.70661. PMID: 35642786; PMCID: PMC9205633

32) **Cai DJ**, Shuman T. (2022) A distinct signaling pathway in parvalbumin-positive interneurons controls flexible memory updating. *Neuropsychopharmacology.* https://doi.org/10.1038/s41386-022-01298-1. PMID: 35236915; PMCID: PMC9117663

31) Shen Y, Zhou M, **Cai DJ**, Filho DA, Fernandes G, Cai Y, Kim N, Necula D, Zhou C, Liu A, Kang X, Kamata M, Lavi A, Huang S, Silva T, Heo WD, & Silva AJ. (2022) CCR5 closes the temporal window for memory linking. *Nature.* https://doi.org/10.1038/s41586-022-04783-1. PMID: 35614219; PMCID: PMC9197199

30) Pennington ZT, Diego KS, Francisco TR, LaBanca AR, Lamsifer SI, Liobimova O, Shuman T, & **Cai DJ**. (2021) ezTrack—A step-by-step guide to behavior tracking. *Current Protocols, 1(10), e255.* https://doi.org/10.1002/cpz1.255. PMID: 34610215; PMCID: PMC8500532.

29) Blaze J, Navickas A, Phillips HL, Heissel S, Plaza-Jennings A, Miglani S, Asgharian H, Foo M, Katanski CD, Watkins CP, Pennington ZT, Javidfar B, Espeso-Gil S, Rostandy B, Alwaseem H, Hahn CG, Molina H, **Cai DJ**, Pan T, Yao WD, Goodarzi H, Haghighi F, & Akbarian S (2021) Neuronal Nsun2 deficiency produces tRNA epitranscriptomic alterations and proteomic shifts impacting synaptic signaling and behavior. *Nature Communications, 12(1), 4913*. https://doi.org/10.1038/s41467-021-24969-x. PMID: 34389722; PMCID: PMC8363735.

28) Pennington ZT & **Cai DJ**. (2021) Propranolol Inhibits Reactivation of Fear Memory. *Biological Psychiatry, 89(12), 1111–1112*. https://doi.org/10.1016/j.biopsych.2021.04.007. PMID: 34082886.

27) Sweis BM, Mau W, Rabinowitz S, & **Cai DJ**. (2021) Dynamic and heterogeneous neural ensembles contribute to a memory engram. *Current Opinion in Neurobiology, 67, 199–206.* https://doi.org/10.1016/j.conb.2020.11.017. PMID: 33388602; PMCID: PMC8192335.

26) Mau W, Hasselmo ME, & **Cai DJ**. (2020) The brain in motion: How ensemble fluidity drives memory-updating and flexibility. *eLife, 2020 Dec 29;9:e63550*. https://doi.org/10.7554/eLife.63550. PMID: 33372892; PMCID: PMC7771967.

25) Zaki Y & **Cai DJ**. (2020) Creating space for synaptic formation-A new role for microglia in synaptic plasticity. *Cell, 2020 Jul 23;182(2):265-267.* https://doi.org/10.1016/j.cell.2020.06.042. PMID: 32707091.

24) Poe GR & **Cai DJ**. (2020) The lab on lockdown: thinking back and looking ahead. *Nature Reviews Neuroscience, 2020 Sep;21(9):447-448.* https://doi.org/10.1038/s41583-020-0353-8. PMID: 32699293; PMCID: PMC7374658.

23) Chen L, Cummings KA, Mau W, Zaki Y, Dong Z, Rabinowitz S, Clem RL, Shuman T, **& Cai DJ**. (2020) The role of intrinsic excitability in the evolution of memory: Significance in memory allocation, consolidation, and updating. *Neurobiology of Learning and Memory, 2020 Sep;173:107266.* https://doi.org/10.1016/j.nlm.2020.107266. Epub 2020 Jun 5. PMID: 32512183; PMCID: PMC7429265.

22) Shuman T*, Aharoni D*, **Cai DJ***, Lee CR, Chavlis S, Page-Harley L, Vetere LM, Feng Y, Chen YY, Molinedo-Gajate I, Chen L, Pennington Z, Taxidis J, Flores SE, Cheng K, Javaherian M, Kaba CC, Strahman M, Kakhurin KI, Masminidis S, Khakh B, Poirazi P, Silva AJ, & Golshani P. (2020) Breakdown of spatial coding and neural synchronization in epilepsy. *Nature Neuroscience*, *23,229-238.* https://doi.org/10.1038/s41593-019-0559-0. PMID: 31907437 (https://github.com/DeniseCaiLab/minian)
*co-first authors

21) Pennington ZT, Dong Z, Bowler R, Feng Y, Vetere L, Shuman T, & **Cai DJ**. (2019) ezTrack: An open-source video analysis pipeline for the investigation of animal behavior. *Scientific Reports, 9 (19979)*. https://doi.org/10.1038/s41598-019-56408-9. PMID: 31882950 (https://github.com/DeniseCaiLab/ezTrack)

20) Yetton BD, **Cai DJ**, Spoonmaker VI, Silva AJ, & Mednick SC. (2019) Human memories can be linked by temporal proximity. *Frontiers in Human Neuroscience*, *13 (315).* https://doi.org/10.3389/fnhum.2019.00315. PMID: 31572150

19) **Cai DJ***, Aharoni D*, Shuman T*, Shobe J*, Biane J, Song W, Wei B, Veshkini M, La-Vu M, Lou J, Flores S, Kim I, Sano Y, Zhou M, Baumgaertel K, Lavi A, Kamata M, Tuszynski M, Mayford M, Golshani P, & Silva AJ. (2016) A shared neural ensemble links distinct contextual memories encoded close in time. *Nature, 534(7605),115-118.* https://doi.org/10.1038/nature17955. PMID: 27251287 (https://github.com/DeniseCaiLab/Miniscope_DAQ_Software)
*co-first authors

18) Zhou M, Greenhill S, Huang S, Silva TK, Sano Y, Wu S, Cai Y, Nagaoka Y, Sehgal M, **Cai DJ**, Lee YS, Fox K, & Silva AJ. (2016). CCR5 is a suppressor for cortical plasticity and hippocampal learning and memory. *eLife, 2016 Dec 20;5, pii: e20985*. https://doi.org/10.7554/eLife.20985. PMID: 27996938

17) Rogerson T, Jayaprakash B, **Cai DJ,** Sano Y, Lee Y, Bekal P, Deisseroth K, & Silva AJ. (2016) Molecular and cellular mechanisms for trapping and activating emotional memories. *PLOS One, 1(8):e0161655.* https://doi.org/10.1371/journal.pone.0161655. PMID: 27579481

16) Kastellakis G, **Cai DJ**, Mednick SC, Silva AJ,& Poirazi P. (2015) Synaptic clustering within dendrites: an emerging theory of memory formation. *Progress in Neurobiology, 126,19-35.* https://doi.org/10.1016/j.pneurobio.2014.12.002. PMID: 25576663

15) Rogerson T, **Cai DJ**, Frank A, Sano Y, Shobe J, Lopez-Aranda MF, & Silva AJ. (2014) Synaptic tagging during memory allocation. *Nature Reviews Neuroscience, 15(3), 157-169*. https://doi.org/10.1038/nrn3667. PMID: 24496410

14) Sano Y, Shobe JL, Zhou M, Huang S, Shuman T, **Cai DJ**, Golshani P, Kamata M, & Silva AJ. (2014) CREB regulates memory allocation in the insular cortex. *Current Biology*, *24(33): 2833-2837.* https://doi.org/10.1016/j.cub.2014.10.018. PMID: 25454591

13) Shuman T, **Cai DJ**, Sage JR, & Anagnostaras SG. (2012) Interactions between modafinil and cocaine during the induction and expression of conditioned place preference and locomotor sensitization: implications for addiction. *Behavioural Brain Research, 235(2), 105-112.* https://doi.org/10.1016/j.bbr.2012.07.039 PMID: 22963989

12) Mednick SC, **Cai DJ**, Shuman T, Anagnostaras SG, & Wixted JT. (2011) An opportunistic theory of cellular and systems consolidation. *Trends in Neurosciences*. https://doi.org/10.1016/j.physletb.2003.10.071. PMID: 21742389

11) Anagnostaras SG, Wood SC, Shuman T, **Cai DJ**, LeDuc AD, Zurn KR, Sage JR, Herrera GM. (2010) Automated assessment of Pavlovian conditioned freezing and shock reactivity using the VideoFreeze system. *Frontiers in Behavioral Neuroscience, 4,158*. https://doi.org/10.3389/fnbeh.2010.00158. PMID: 20953248

10) Rieth CA, **Cai DJ**, McDevitt EA, & Mednick SC. (2010) The role of sleep and practice in implicit and explicit motor learning. *Behavioural Brain Research, 214(2), 470-474*. https://doi.org/10.1016/j.bbr.2010.05.052. PMID: 20553972

9) **Cai DJ**, Mednick SA, Harrison EM, Kanady J, & Mednick SC. (2009) REM, not incubation, improves creativity by priming associative networks. *Proceedings of the National Academy of Sciences, 106(25), 10130-10134*. https://doi.org/10.1073/pnas.0900271106. PMID: 19506253

8) **Cai DJ**, Shuman T, Harrison EM, Sage JR, & Anagnostaras SG. (2009) Sleep-deprivation and Pavlovian fear conditioning. *Learning & Memory, 16, 595-599*. https://doi.org/10.1101/lm.1515609. PMID: 19794184

7) **Cai DJ**, Shuman T, Gorman MR, Sage JR, & Anagnostaras SG. (2009) Sleep selectively enhances hippocampus-dependent memory in mice. *Behavioral Neuroscience, 123(4), 713-719.* https://doi.org/10.1037/a0016415. PMID: 19634928

6) **Cai DJ** & Rickard TC. (2009) Reconsidering the role of sleep for motor memory consolidation. *Behavioral Neuroscience, 123(6),1153-1157.* https://doi.org/10.1037/a0017672. PMID: 20001099

5) Mednick SC, Makovski T, **Cai DJ**, & Jiang YV. (2009) Sleep and rest facilitate implicit memory in a visual search task. *Vision Research, 49(21), 2557-2565.* https://doi.org/10.1016/j.visres.2009.04.011. PMID: 19379769

4) Mednick SC, **Cai DJ**, Kanady J, & Drummond SPA. (2008) Comparing the benefits of caffeine, naps and placebo on verbal, motor and perceptual memory. *Behavioural Brain Research, 193(1), 79-86.* https://doi.org/10.1016/j.bbr.2008.04.028. PMID: 18554731

3) Rickard TC, **Cai DJ**, Rieth CA, Jones J, & Ard MC. (2008) Sleep does not enhance motor sequence learning. *Journal of Experimental Psychology: Learning, Memory & Cognition, 34(4), 834-842*. https://doi.org/10.1037/0278-7393.34.4.834. PMID: 18605872

Book Chapters

2) Sehgal M, Zhou M, **Cai DJ**, Lavi A, Huang S, & Silva AJ. (2017) Mechanisms for allocating, tagging and linking memories. Vol. 4 of *Learning and Memory: A Comprehensive Reference, 2nd edition*, Byrne, J.H. (ed.). Oxford: Academic Press. https://doi.org/10.1016/b978-0-12-809324-5.21123-1

1) Wixted JT & **Cai DJ**. (2013) Memory consolidation. In *Oxford Handbook of Cognitive Neuroscience.* (Ed. S. Kosslyn and K. Ochsner), (Vol. 2, pp.436-455) Oxford University Press, New York. https://doi.org/10.1093/oxfordhb/9780199988693.013.0021

CONFERENCE ACTIVITY

Invited Talks

2023 Imaging Structure & Function in the Nervous System, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
Exploring the Amygdala in Pathology and Physiology, Gordon Research Conference, Barcelona, Spain
Spring Hippocampal Research Conference, Verona, Italy
Memory Dogmas Reexamined, New York University, New York, NY
Causes and Implications of Representational Drift Meeting, Janelia Research Campus, Ashburn, VA
Psychology Department Colloquium, UC Berkeley, Berkeley, CA
Computational and Systems Neuroscience (COSYNE) Workshop, Montreal, Canada
Sunposium, Max Planck Florida Institute for Neuroscience, West Palm Beach, FL

Psychology Department Colloquium, Columbia University, New York, NY
Bioengineering Seminar Series, University of Washington, Seattle, WA
Winter Conference on Neural Plasticity, Los Cabos, Mexico
Center for Computational Neuroscience Workshop on Calcium and Voltage Imaging Dynamics, Flatiron Institute, New York, NY
Winter Conference on the Neurobiology of Learning and Memory, Park City, UT

2022 ISN School on Miniaturized Fluorescence Microscopy, Buenos Aires, Argentina
Student-Nominated Speaker: Department of Neuroscience, University of Texas, Austin
Imaging Structure & Function in the Nervous System, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
Neurobiology of Cognition, Gordon Research Conference, Newry, ME
Sculpted Light in the Brain, Boston, MA
American Society for Cell Biology Committee for Postdocs and Students (ASCB-COMPASS) Webinar (Virtual)
McKnight Endowment Fund for Neuroscience, Aspen, CO
NeuroWire Virtual Club (Virtual)
Neurizons, Max Planck Research School for Neurosciences (Virtual)
Brain and Behavior Research Foundation (Virtual)
Trainee Health and Wellness Committee, Icahn School of Medicine at Mount Sinai (Virtual)
Department of Neuroscience, University of Texas, Austin (Virtual)
Computational and Systems Neuroscience (COSYNE) Workshop, Cascais, Portugal
Penn State Neuroscience Seminar Series (Virtual)

2021 Graduate School Neurosciences Amsterdam Rotterdam (Virtual)
Rockefeller University, New York, NY
Department of Neuroscience, University of Minnesota, Minneapolis, MN
The Broad Institute of MIT and Harvard, Cambridge, MA
Society for Neuroscience Global Connectome (Virtual)
NSF-sponsored Rocky Mountain Summit, University of Colorado, CO
Klingenstein-Simons Foundation Annual Meeting, New York, NY
Department of Engineering, Duke University, Raleigh-Durham, NC
Department of Neuroscience, Albert Einstein College of Medicine, New York, NY
University of California, San Diego, CA
Cyber Series Seminar, Friedman Brain Institute, Icahn School of Medicine at Mount Sinai, New York, NY
Max Planck Florida Institute for Neuroscience, Jupiter, FL
Neurophotonics Program, Boston University, Boston, MA

2020 Department of Psychology & Neuroscience, University of North Carolina, Chapel Hill, NC
Neurosciences Graduate Program Seminar Series, University of California-San Diego
Friedman Brain Institute, Icahn School of Medicine at Mount Sinai, New York, NY
Winter Brain Conference, Big Sky, MT
Boston University Lunch Seminar, Boston, MA
Department of Brain Sciences, Weizmann Institute of Science, Rehovot, Israel
Israel Society for Neuroscience, Eilat, Israel
ISFN Miniscope Building Workshop, Eilat, Israel
Swammerdam Lecture Series, University of Rotterdam, Amsterdam

2019 American College of Neuropsychopharmacology (Virtual)
Weill Cornell Medicine, New York, NY
Miniscope Workshop, Society for Neuroscience Annual Conference, Chicago, IL

CUNY, College of Staten Island, Staten Island, NY
CUNY, Manhattan, NY
University of Alabama, Birmingham, AL
Miniscope Workshop, Dept. of Neuroscience, Jiao Tong University, Shanghai, China
International Brain Research Organization, Daegu, Korea
Molecular and Cellular Cognition Society (MCCS) - Asia, Seoul, Korea
One Mind Music Festival, Napa Valley, CA
European Behavioural Pharmacology Society, Braga, Portugal
Uniformed Services University, Bethesda, MD
Brain and Behavior Research Foundation, New York, NY
Oxford University, Oxford, UK
Hippocampal Research Conference, Verona, Italy
University of Chicago, Chicago, IL
Northwestern University, Evanston, IL
University of Ottawa, ON, Canada
SPIE Photonics West, Neurotechnologies Plenary Session, San Francisco, CA

2018 Society for Neuroscience, San Diego, CA
Miniscope Workshop, Society for Neuroscience, San Diego, CA
Allen Institute Showcase, Seattle, WA
Carnegie Mellon University, Pittsburgh, PA
Pavlovian Society Meeting, Albion College, Iowa City, IA
Federation of European Neuroscience Societies, Berlin, Germany
Keynote Speaker, NeuroFutures Conference, Washington University, Seattle, WA
NSF Brain Initiative Neural Imaging Symposium, University of Utah, Salt Lake City, UT
Utah Miniscope Workshop, University of Utah, Salt Lake City, UT
UC Irvine International Conference on Learning and Memory, Irvine, CA
Seminar Series in Psychology Department, McGill University, Montréal, QC, Canada
Diverse Brains Seminar Series, Mount Sinai, New York, NY
Computational and Systems Neuroscience (COSYNE), Denver, CO
Winter Conference on Neurobiology of Learning and Memory, Park City, UT

2017 Allen Institute Showcase, Seattle, WA
Molecular Cellular Cognition Society - Miniscope Workshop, Washington, D.C.
Neurobiology Seminar Series, NIEHS, Durham, NC
Center for Memory & Brain Seminar Series, Boston University, Boston, MA
Center for Learning and Memory Seminar, UT Austin, Austin, TX
Dunedin Miniscope Workshop, Dunedin, New Zealand
Hippocampal Research Conference, Taormina, Italy
Johns Hopkins University, School of Medicine, MD
The Salk Institute, La Jolla, CA
University of Pennsylvania, PA
The Scripps Research Institute, CA
University of California, San Diego, CA
Johns Hopkins University, Mind Brain Institute, MD
Yale University School of Medicine, CT
Dartmouth College, NH

2016 Icahn School of Medicine at Mount Sinai, NY
University of California, San Francisco, CA
Mini-microscope Minisymposium, Society for Neuroscience, San Diego, CA
Miniscope Workshop, Molecular Cellular Cognition Society, San Diego, CA
Columbia University Medical Center, NY

The Salk Institute, La Jolla, CA
Winter Conference on Neurobiology of Learning and Memory, Park City, UT

2015 Arnold Scheibel Distinguished Postdoctoral Fellow Lecture, UCLA, Los Angeles, CA
Young Investigator Lecture, Integrative Center for Learning and Memory, UCLA, Los Angeles, CA
Joint Symposium on Neural Computation, University of Southern California, Los Angeles, CA

2014 Molecular Cellular Cognition Society, Washington, D.C.

2009 Harvard Medical School, Boston, MA
Harvard University, Cambridge, MA
Massachusetts Institute of Technology (MIT), Cambridge, MA

Workshops & Symposia Organized

2022 Miniscope Workshop, ISN School on Miniaturized Fluorescence Microscopy, Buenos Aires, Argentina

2022 Chair, Optogenetics Gordon Research Conference, Newry, ME
Memory Evolution Workshop, Computational and Systems Neuroscience (COSYNE), Cascais, Portugal

2021 MetaCell Miniscope Workshop (Virtual)
Chan Zuckerberg Initiative Workshop (Virtual)

2020 Miniscope Workshop, Israeli Society for Neuroscience, Tel Aviv, Israel

2019 Miniscope Workshop, Department of Neuroscience, Jiao Tong University, Shanghai, China
Miniscope Workshop, Society for Neuroscience Annual Conference, Chicago, IL

2018 Miniscope Workshop, Society for Neuroscience Annual Conference, San Diego, CA
Cold Spring Harbor Laboratory Imaging Course, Cold Spring Harbor, NY
Miniscope Workshop, Neuroscience Program, University of Utah, Salt Lake City

2017 Miniscope Workshop, Society for Neuroscience, Washington, DC
Miniscope Workshop, Mount Sinai, New York, NY
Miniscope Workshop, Ludwig-Maximilians-Universität München, Munich, Germany

2016 Miniscope Workshop, Molecular Cellular Cognition Society, San Diego, CA

REVIEWER

Journal Review

eLife, Reviewing Editor
Behavioral Neuroscience, Consulting Editor
Biological Psychiatry, Reviewer
Cell, Reviewer
Cognitive Computation, Reviewer
Current Opinion in Neurobiology, Reviewer
Journal of Neuroscience, Reviewer
Molecular Psychiatry, Reviewer
Nature, Reviewer
Nature Communications, Reviewer
Nature Methods, Reviewer
Nature Neuroscience, Reviewer
Neuron, Reviewer
Neuropsychopharmacology, Reviewer

PLOS Computational Biology, Reviewer
Science, Reviewer

Study Section

BRAIN Initiative: Targeted BRAIN Circuits (R01 and R34 applications), Reviewer, NIH, 2022
Learning, Memory, and Decision Neuroscience, Ad Hoc Reviewer, NIH, 2019-2020

PROFESSIONAL LEADERSHIP & SERVICE

Leadership Appointments & Professional Service

2022	Elected Member, American College of Neuropsychopharmacology
2021 – 2022	Chair, Optogenetics Gordon Research Conference
2021	Elected Member, Memory Disorders Research Society
2020 – pres.	Appointed Co-Chair, Diversity, Equity, and Inclusion Committee, Nash Family Department of Neuroscience, Icahn School of Medicine at Mount Sinai
2019 – 2022	Co-Chair, Hippocampus Meeting Symposium
2019 – 2021	Member, Women's Task Force, American College of Neuropsychopharmacology
2019 – 2020	Vice-Chair, Optogenetics Gordon Research Conference
2019	Co-Chair, American College of Neuropsychopharmacology Conference Panel
2018 – 2019	Co-Chair, Allen Institute Next Generation Leader Council
2017	Elected Associate Member, American College of Neuropsychopharmacology

Appointed Committees & Advising

2022 – pres.	Appointed Member, Faculty Advisory Committee, Mount Sinai Neuroscience Seminars (MSNseminars), Icahn School of Medicine at Mount Sinai
2021 – pres.	Appointed Mentoring Team Member, NIH Faculty Institutional Recruitment for Sustainable Transformation (FIRST) Cohort Initiative, Icahn School of Medicine at Mount Sinai
2021 – pres.	Appointed Member, Committee on Anti-Asian Bias, Icahn School of Medicine at Mount Sinai
2020 – pres.	Appointed Member, Diverse Brains Seminar Committee, Icahn School of Medicine at Mount Sinai
2020	Appointed Co-Chair, Annual Faculty Retreat, Friedman Brain Institute
2020	Co-Mentor for K99/R00 Pathway to Independence Award – Dr. Sarah Stern; postdoctoral fellow, Friedman Lab, Rockefeller University; PI Stern Lab, Max Planck Institute, FL
2019	Co-Mentor for K99/R00 Pathway to Independence Award – Dr. Kirstie Cummings; postdoctoral fellow, Clem Lab, Icahn School of Medicine at Mount Sinai; PI Cummings Lab, University of Alabama, Birmingham
2018	Appointed Chief, Center for Affective Neuroscience, Nash Family Department of Neuroscience
2018	Appointed Member, Department of Neuroscience Faculty Search Committee
2018	Appointed Co-host, Annual Friedman Brain Institute Retreat

Memberships in Professional Societies

2022 – pres.	American College of Neuropsychopharmacology (Member)
2017 – 2022	American College of Neuropsychopharmacology (Associate Member)
2007 – pres.	Society for Neuroscience
2007 – pres.	Molecular and Cellular Cognition Society

TEACHING

2022 – pres. **Co-Director**, Neuro Core Unit 3: Behavioral and Cognitive Neuroscience Graduate Course, Icahn School of Medicine at Mount Sinai, New York, NY
2022 **Invited Speaker,** ISN School on Miniaturized Fluorescence Microscopy, Buenos Aires, Argentina
2018 & 2022 **Invited Lecturer**, Imaging Structure & Function in the Nervous System Course Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
2010 **Adjunct Instructor**, UCSD Department of Psychology, San Diego, CA

RESEARCH ADVISING

2022 – pres. Anthony Imbert, High School Intern, Posse STEM Scholar
2022 – pres. Romain Durand-de Cuttoli, PhD., Postdoctoral Fellow, K99/R00 co-mentee
2022 – pres. Austin Baggetta, Graduate Student
2021 – 2022 Taylor Francisco, Associate Researcher
2021 – 2022 Denisse Morales-Rodriguez, Associate Researcher*, MD-PhD Student, UCSF*
2020 – 2022 Alexa LaBanca, Lab Manager & Associate Researcher, *PhD Student, ISMMS*
2020 – pres. Brian Sweis, M.D., Ph.D., Research Track Psychiatry Resident & Instructor in Neuroscience
2020 – 2022 Natasha Berryman
2020 – 2021 Alora Zrenda, *Southview Community Church*
2019 – 2022 William Mau, Ph.D., *Senior Data Scientist, Cohere Health*
2019 – 2020 Corin Humphrey, *deceased*
2018 – pres. Zachary Pennington, Ph.D., Instructor in Neuroscience
2018 – pres. Lingxuan Chen, Ph.D., Postdoctoral Fellow
2018 – pres. Yosif (Joe) Zaki, Graduate Student
2018 – 2020 Lucia Page-Harley, *Senior Data Scientist, Turo*
2017 – pres. Phil Dong, Graduate Student
2017– 2018 Zhuoli Huang, *Researcher, TAL's Brain-lab*
2017 My (Mimi) La-Vu, *Ph.D. Student, UCLA*
2017 – 2018 Christopher Lee, *Ph.D. Student, UCSD*
2017 – 2018 Brandon Wei, *Medical Student, Texas Tech University*
2017 – 2018 Maojuan Zhuang, *Associate Researcher, Icahn School of Medicine at Mount Sinai*

Ph.D. Thesis Committees

2023 – pres. Lauren Dierdorff, De Rubeis Lab
2023 – pres. Hung-tu Chen, van der Meer Lab at Dartmouth College (external examiner)
2022 – pres. Amy Monasterio, Ramirez Lab at Boston University (external examiner)
2022 – pres. Sofia Leal Coelho de Oliveira Santos at Universidade do Minho (external examiner)
2021 – pres. Adrienne Kinman, Cembrowski Lab at University of British Columbia (external examiner)
2021 – pres. Amanda Leithead, Harony Lab
2021 Lara Boyle, Siegelbaum Lab at Columbia University (external examiner)
2020 – pres. Iya Prytkova, Goate & Slesinger Labs

2019 – pres. Hayley Strasburger, Schaefer Lab
2019 – pres. Yu (Susie) Feng, Shuman Lab
2019 – 2022 Denisse Paredes, Morilak Lab at University of Texas, San Antonio (external examiner)
2019 – 2022 Katherine Meckel, Kiraly Lab
2019 – 2021 Denise Croote, Schiller Lab
2019 – 2021 Tem Orederu, Schiller Lab
2018 – 2022 Nick Upright, Baxter Lab
2018 – 2021 Katherine LeClair, Russo Lab
2018 – 2019 William Mau, Eichenbaum Lab at Boston University (external examiner)

PRESS & MEDIA

2023 "Podcast Ep. 77 - Sunposium 2023 with Denise Cai, Ugur Dag, and Sergiu Pasca." *Max Planck Florida Institute Neurotransmissions Podcast*, March 16

2022 "This thumb-sized microscope captures 'neural landscapes' from deep inside animal brains," *Interesting Engineering*, October 26

2022 "Thumb-sized microscope captures images deep inside the brains of active animals," *Nature*, October 25

2022 "Miniature microscope records thousands of neurons in moving mice," *Spectrum*, April 12

2022 "Journey through the mind: Episode 4 - Featuring Denise Cai," *MiNDS Podcast, Icahn School of Medicine at Mount Sinai*, March 17

2021 "Six Outstanding Mental Health Researchers Honored by the Brain & Behavior Research Foundation," *Brain & Behavior Research Foundation via Globe Newswire,* August 4

2021 "For High Productivity, Take a Nap!" *BBN Times*, July 18

2021 "Dr. Denise Cai – Linking Memories in Time: A Brain-Circuit Mechanism of Post-Traumatic Stress," *Research Update Article, One Mind,* June 23

2021 "The brain in motion - how ensemble fluidity supports memory updating," *FBI Cyber Series, Friedman Brain Institute*, June 14

2021 "The brain in motion- How ensemble fluidity supports memory updating," *Memory: It's About Time Conference, UCI Center for Neurobiology of Learning & Memory*, May 27

2021 "2020 Distinguished Scholar Award – Denise Cai," *Friedman Brain Institute*, March 16

2020 "Open Science Week | Denise Cai, Ph.D.," *The Allen Institute*, September 17

2020 "Dream On! Stimulate Creativity by Taking a Long Nap," *The Great Courses,* August 21

2020 "It Takes a Village - Supporting Mental and Physical Health," *Mental Health Series, Movember,* September 10

2020 "Dr. Denise Cai on studying memory, developing open tools for science, and facing gender bias," *Stories of Women in Neuroscience Podcast,* March 10

2020 "Coping with Trauma in Times of Crisis: The Science and Practice," *Brain Waves Podcast*, *One Mind*, March 15

2020 "Icahn School of Medicine at Mount Sinai Announces Recipients of Nation's First Gender Equity Grants," *Mount Sinai Press Release*, January 23

2019 "NIH New Innovator Award Will Advance Brain Science," *Mount Sinai Press Release*, October 1

2019 "Memory-Linking: A Circuit Mechanism for PTSD," *Scientific Symposium, One Mind's 25th Music Festival for Brain Health,* September 14

2019 "Five Brain Science Leaders Announced as 2019 One Mind Rising Star Award Winners," *Business Wire*, September 3

2019 "Addressing the Leaky Pipeline in Science: Issues Facing New Moms," *Society for Neuroscience Panel,* April 10

2019 "Is it really harder to be a woman in science?" *Diversity in Neuroscience Seminar, Icahn School of Medicine at Mount Sinai,* April 11

2018 "Innovations in Memory at Mount Sinai Hospital," *Mount Sinai Health System*, Sept 26

2018 "Watching Memories Being Made," *Scientific American*, September 12

2018 "Richard and Susan Friedman Scholar: Denise Cai and Mark Baxter," *Friedman Brain Institute Scholars Award Program, Icahn School of Medicine at Mount Sinai*, March 19

2017 "Linking memories across time," *Allen Institute Showcase Symposium, Allen Institute for Brain Science*, December 18

2017 "Mount Sinai Researcher Appointed As Next Generation Leader for the Allen Institute for Brain Science," *Mount Sinai Press Release,* November 15

2009 "Let Me Sleep On It: Creative Problem Solving Enhanced By REM Sleep," *Science News, Science Daily*, June 9

OUTREACH & ENGAGEMENT

- **Is it really harder to be a woman in science? (2023)**
  - Presented a seminar about issues and successes for women in STEM during the UW Center of Neurobiology of Addiction, Pain, and Emotion Seminar Series
- **Center for Excellence in Youth Education (2022)**
  - The Cai Lab hosted a high school intern, Anthony Imbert (Posse STEM Scholar), as part of the Sherman Scholars Program at the Icahn School of Medicine at Mount Sinai. Anthony has continued to work in the lab since the summer program.
- **Breaking Barriers for Young Women in Science (2022)**
  - Served as a mentor during a Society for Neuroscience-sponsored social for underrepresented people in STEM
- **Women's History Month *Fail Forward* Panel (2022)**
  - Hosted by the Trainee Health and Wellness Committee at the Icahn School of Medicine at Mount Sinai
- **Cai Lab High School Internship Summer Program (2020)**
  - The Cai lab hosted students from the Harlem Educational Activities Program for a 6-week program of remote learning about foundational concepts in neuroscience and themes

related to careers in neuroscience. Undergraduate interns, Ph.D. students, and postdoctoral fellows served as near-peer and senior mentors.