

MARK SHEFFIELD, Ph.D.

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EDUCATION

09/2006 - 08/2011	Northwestern University, Neurobiology, USA	Ph.D.
09/2002 - 06/2006	University of Nottingham, Neuroscience, UK	MSci (First Class)

RESEARCH AND ACADEMIC POSITIONS

04/2017 - present	Assistant Professor (tenure track) University of Chicago, Chicago, IL, USA Department of Neuroscience
09/2023 - present	Member of the College Council, University of Chicago, Chicago, IL, USA
06/2023 - present	Member of National Institute for Theory and Mathematics (NITMB), University of Chicago and Northwestern University, Chicago, IL, USA
04/2017 - present	Member of Institute for Neuroscience, University of Chicago, Chicago, IL, USA
10/2018 - present	NIDA T-32 Training Mentor, University of Chicago, Chicago, IL, USA
05/2009 - present	Member of the Society for Neuroscience
08/2011 – 03/2017	Postdoctoral Fellow Northwestern University, Evanston, IL, USA Laboratory of Dr. Daniel Dombeck Project: 2-photon imaging of place cells at sub-cellular resolution
05/2007 - 08/2011	Ph.D research Northwestern University, Department of Neurobiology, Evanston, IL, USA Laboratory of Dr. Nelson Spruston Project: Persistent firing in distal axons of hippocampal interneurons
09/2005 - 08/2006	Undergraduate research The University of Nottingham, Nottinghamshire, UK Laboratory of Dr. Angus Brown Project: Electrophysiological study of aglycaemic injury to mouse optic nerve
09/2004 - 08/2005	Pharmaceutical research Psychiatry CEDD, GlaxoSmithKline, Harlow, Essex, UK Laboratory of Dr. James Kew Project: The Contribution of mGluR2 and mGluR3 to Synaptic Transmission

FELLOWSHIPS/AWARDS/HONORS

2019	Kavli Frontiers of Science Fellow, Kavli Foundation & National Academies of Science
2018 - 2023	NIH – DP2 – Director’s New Innovator Award
2018 - 2020	Sloan Research Fellowship, Alfred P. Sloan Foundation
2018 - 2021	Searle Scholar Award, Kinship Foundation
2017 - 2020	Whitehall Foundation Grant
2012 - 2015	Life Sciences Research Fellowship (LSRF)
2009 - 2011	Northwestern Graduate School Presidential Fellowship
2009 - 2011	Member of Northwestern’s Society of Fellows

PEER-REVIEWED PUBLICATIONS IN PRIMARY LITERATURE

Chiu, Y., Dong, C., Krishnan, S., and **Sheffield, M.E.** The Precision of Place Fields Governs Their Fate Across Epochs of Experience. *eNeuro* (2023).

Ratigan, H.C., Krishnan, S., Smith, S., and **Sheffield, M.E.** A thalamic-hippocampal CA1 signal for contextual fear memory suppression, extinction, and discrimination. *Nat Commun* 14, 6758 (2023).

Krishnan, L.S., Heer, C., Cherian, C., **Sheffield, M.E.** Reward expectation extinction restructures and degrades CA1 spatial maps through loss of a dopaminergic reward proximity signal. *Nat Commun* 13, 6662 (2022).

Dong, C., Madar, A. D. & **Sheffield, M.E.** Distinct place cell dynamics in CA1 and CA3 encode experience in new environments. *Nat Commun* 12, 2977 (2021).

Wildenberg, G., Sorokina, A., Koranda, J., Monical, A., Heer, C., **Sheffield, M.E.**, Zhuang, X., McGehee, D., and Kasthuri, B. Partial connectomes of labeled dopaminergic circuits reveal non-synaptic communication and axonal remodeling after exposure to cocaine. *Elife* 10 (2021).

Sheffield, M.E. & Dombeck D.A. Dendritic mechanisms of hippocampal place field formation. *Curr Opin Neurobiol.* 54, 1-11 (2018).

Sheffield, M.E., Adoff M. D., Dombeck D.A. Increased prevalence of calcium transients across the dendritic arbor during place field formation. *Neuron* 96, 490-504 (2017).

Sheffield, M.E. & Dombeck, D.A. The binding solution? *Nat Neurosci* 18, 1060-1062 (2015). News and Views.

Sheffield, M.E. & Dombeck, D.A. Calcium transient prevalence across the dendritic arbour predicts place field properties. *Nature* 517, 200-204 (2015). (*recommended by Faculty of 1000*).

Sheffield, M.E., Edgerton, G.B., Heuermann, R.J., Deemyad, T., Mensh, B.D., Spruston, N. Mechanisms of retroaxonal barrage firing in hippocampal interneurons. *J Physiol* 591, 4793-4805 (2013).

Sheffield, M.E., Best, T.K., Mensh, B.D., Kath, W.L. & Spruston, N. Slow integration leads to persistent action potential firing in distal axons of coupled interneurons. *Nat Neurosci* 14, 200-207 (2011). (*recommended by Faculty of 1000*).

News and Views on: Slow integration leads to persistent action potential firing in distal axons of coupled interneurons Connors, B.W. & Ahmed, O.J. Integration and autonomy in axons. *Nat Neurosci* 14, 128-130 (2011).

OTHER WORKS THAT ARE PUBLICALLY AVAILABLE

Madar, A.D., Dong, C., and **Sheffield, M.E.** BTSP, not STDP, Drives Shifts in Hippocampal Representations During Familiarization. bioRxiv, 2023.2010.2017.562791 (2023). ***Under review at Nat Neurosci.***

Heer, C.M., **Sheffield, M.E.** Distinct catecholaminergic pathways projecting to hippocampal CA1 transmit contrasting signals during behavior and learning. bioRxiv, 2023.11.29.569214 (2023). ***Submitted to Cell Reports.***

Spotlight Review on: Increased prevalence of calcium transients across the dendritic arbor during place field formation. Schiller, J., Berlin S., Derdikman, D. The Many Worlds of Plasticity Rules. **TINS** 41, 124-127 (2018).

Research Highlight on: Calcium transient prevalence across the dendritic arbour predicts place field properties: Yates, D. Dendrites: regenerating space. **Nat Rev Neurosci** 15, 766 (2014).

SHEFFIELD LAB POSTERS

A. MADAR, C. DONG, **M. SHEFFIELD.** Place field dynamics as a window on synaptic plasticity in the hippocampus. PSTR371.13. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

D. GOODSMITH, **M. SHEFFIELD.** Inhibition of dentate gyrus mossy cells disrupts CA1 place cell stability. PSTR371.14. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

C. HEER, S. KRISHNAN, **M. SHEFFIELD.** Distinct sets of dopaminergic inputs in hippocampal CA1 transmit contrasting signals during behavior in a changing world. PSTR371.15. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

H. RATIGAN, Y. WANG, V. BARRETO, **M. SHEFFIELD.** Thalamic Nucleus Reuniens Inputs to Hippocampal CA1 Suppress Contextual Fear Memory Retrieval. PSTR371.16. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

C. DONG, S. KRISHNAN, **M. SHEFFIELD.** Synchronous ensembles of hippocampal CA1-CA3 neurons support memory encoding and retrieval. PSTR371.17. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

A. JIANG, **M. SHEFFIELD.** Contributions from the left and right CA3 on the formation and refinement of CA1 place fields during learning. PSTR371.18. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

S. KRISHNAN, C. M. HEER, A. CAO, A. JAMES, Jr, **M. SHEFFIELD.** Internal states shape hippocampal spatial representations through neuromodulation. PSTR371.19. 2023 Neuroscience Meeting Planner. Washington D.C.: Society for Neuroscience, 2023. Online.

A. MADAR, **M SHEFFIELD.** Place Field Dynamics as a Window on Synaptic Plasticity in the Hippocampus. Montreal, Canada: Cosyne, 2023.

H. RATIGAN, **M SHEFFIELD.** Mechanisms of contextual fear memory suppression and extinction by the Nucleus Reuniens-CA1 pathway. Montreal, Canada: Cosyne, 2023.

C. HEER, S. KRISHNAN, **M. SHEFFIELD**. Dopaminergic inputs signal reward expectation and novelty to dorsal CA1 of the hippocampus. P321.07. 2022 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2022. Online.

A. MADAR, C. DONG, **M SHEFFIELD**. Place-field dynamics as a window on synaptic plasticity in the hippocampus. Poster 2256. Paris, France; Federation of European Neuroscience Societies (FENS), 2022.

C. DONG, S. KRISHNAN, **M. SHEFFIELD**. Network dynamics of dorsal hippocampal CA1 and CA3 during fear memory encoding and recall. P833.12. 2021 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2021. Online.

C. DONG, A. MADAR, **M SHEFFIELD**. Distinct place cell dynamics in CA1 and CA3 encode experience in new environments. Online meeting: Cosyne, 2021.

S. KRISHNAN, C. CHERIAN, **M. SHEFFIELD** Reward expectancy restructures and enhances spatial encoding in the hippocampus. Denver, CO: Cosyne, 2020.

S. KRISHNAN, C. CHERIAN, **M. SHEFFIELD**. Role of hippocampal CA1 place cells in fear memory encoding and recall. 333.15. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.

C. DONG, **M. SHEFFIELD**. The dynamics and mechanisms of place field formation in the hippocampal CA3. 333.11. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.

TEACHING

2021 - ongoing	Survey of Systems Neuroscience (NURB 31600, guest lecturer, 2 contact hours) Required course for graduate Neuroscience students in CNS and CON.
2020 - 2022	Foundations of Neuroscience (NSCI 20101, co-instructor, 8 contact hours) Required course for Undergraduate Neuroscience major
2018 – 2023	Cellular Neurophysiology (NSCI 20111, co-instructor, 20 contact hours) Required course for Undergraduate Neuroscience major
2024 – Onward	Cellular Neurophysiology (NSCI 20111, director, >30 contact hours) Required course for Undergraduate Neuroscience major

RESEARCH PRESENTATIONS

04/2024	Northwestern University Neuroscience seminar series (Evanston, Illinois) - invited speaker
02/2024	Winter Conference on Neural Plasticity 2024 (Puerto Vallarta, Mexico) – Symposium chair and Invited speaker
11/2023	National Institute for Theory and Mathematics in Biology (NITMB) workshop 2023 (Chicago, Illinois) – Invited speaker
02/2023	Winter Conference on Neural Plasticity 2023 (Los Cabo, Mexico) – Invited speaker
10/2022	Utah’s Neuroscience Program Snowbird Symposium on Neural Plasticity: Synapses to Circuits to Behavior, 2022 (Utah, USA) – Invited speaker

07/2022 Neurobiology of Cognition Gordon Research Conference 2022 (Maine, USA) – Invited speaker
06/2022 AREADNE 2022 conference on Encoding and Decoding of Neural Ensembles (Santorini, Greece) – Invited speaker
03/2022 University of Maryland Neuroscience and Cognitive Science seminar series - invited speaker
06/2021 University of Chicago reappointment seminar (virtual)
04/2021 Searle Scholars Program Symposium (virtual meeting) – invited speaker
02/2021 Bristol University Neuroscience seminar series (Bristol, England) - invited speaker
01/2021 University of Chicago Neurobiology department chalk talk (Chicago, Illinois) - invited speaker
12/2020 University of Chicago NIDA T-32 Seminar series (Chicago, Illinois) - invited speaker
11/2020 University of Chicago NEURO Club (Chicago, Illinois) - invited speaker
06/2020 Searle Scholars Program Symposium (Chicago, Illinois) - poster (cancelled)
06/2020 AREADNE 2020 conference on Encoding and Decoding of Neural Ensembles (Santorini, Greece) – Invited speaker (cancelled)
04/2020 University of Maryland – Invited seminar speaker (cancelled)
04/2019 Searle Scholars Program Symposium (Chicago, Illinois) - poster
02/2019 Kavli Frontiers of Science Symposium (UC Irvine, California) – invited speaker and poster
11/2018 UChicago Neuroscience Honors students - meet a Neuroscientist (Chicago, IL) – invited speaker
08/2018 Brains! Teacher training - meet a Neuroscientist at UChicago (Chicago, IL) – invited speaker
02/2018 Simons institute workshop: The Brain and Computation (Berkeley, California) – Invited Speaker
11/2017 Society for Neuroscience Minisymposium: Dendritic Computation: Linking Dendritic Mechanisms to Circuits and Behavior (Washington, DC) – Invited Speaker
04/2017 British Neuroscience Association Symposium: Synaptic Plasticity (Birmingham, England) – Invited Speaker
02/2017 University of Chicago Neuroscience Graduate Recruitment Event (Chicago, Illinois) – Invited Speaker
09/2016 Bernstein Conference workshop: Active dendrites (Berlin, Germany) – Invited Speaker
09/2016 University of Chicago Neuroscience Retreat (New Buffalo, Michigan) – Invited Speaker
05/2016 Measuring Behavior Conference (Dublin, Ireland) - Invited Speaker
01/2016 University of Chicago Neuroscience Institute (Chicago, Illinois) - Invited Speaker
12/2015 University of California, Berkeley Department of Psychology (Berkeley, California) - Invited Speaker
12/2015 University of Pennsylvania Department of Neuroscience (Philadelphia, Pennsylvania) - Invited Speaker
03/2015 Gordon Research Conference (Ventura, California) - Invited Speaker
03/2015 Gordon Research Conference (Ventura, California) - Poster
02/2015 Northwestern University Neuroscience Graduate Recruitment Event - Invited Speaker
11/2014 Society for Neuroscience (Washington D.C.) - Poster
10/2014 Life Sciences Research Fellowship Conference (Denver, Colorado) - Speaker
10/2013 Life Sciences Research Fellowship Conference (Baltimore, Maryland) - Poster
06/2013 Northwestern Neurobiology & Physiology Department - Speaker
10/2012 Life Sciences Research Fellowship Conference (Boston, Massachusetts) - Poster
06/2012 Northwestern Neurobiology & Physiology Department - Speaker
09/2011 Northwestern University Neuroscience Retreat - Invited Speaker
03/2011 Yale University Neurobiology Department (New Haven) - Invited Speaker
11/2010 Society for Neuroscience (San Diego) - Poster
09/2010 Northwestern Neurobiology & Physiology Department - Speaker
04/2010 Francis Crick Neuroscience Symposium (Shanghai, China) - Speaker
10/2009 Northwestern's Society of Fellows - speaker

09/2009	Northwestern University Interdepartmental Neuroscience Retreat - Poster
03/2009	Northwestern's Cross Honors Colloquium - Speaker
01/2009	Northwestern University Neuroscience Recruitment Event – Speaker

LAB TRAINEES

Postdoctoral fellows	Ph.D	Dates in my Lab
Joseph Dipietro, Ph.D.	Neuro, Cornell University, Joseph Fetcho	09/2017 - 06/2018
Seetha Krishnan, Ph.D.	Neuro, NU Singapore, Yen Shih-Cheng	05/2018 - present
Antoine Madar, Ph.D.	Neuro, UW Madison, Mathew Jones	09/2018 - present
Douglas Goodsmith, Ph.D.	Neuro, Johns Hopkins, James Knierim	10/2020 - present

Graduate students	Program	Dates in my Lab
Can Dong (2 nd year BSD Fellow)	Committee on Neurobiology	07/2017 - 09/2022
Chad Heer (NIDA T-32 Trainee)	Committee on Neurobiology	07/2018 - 09/2023
Heather Ratigan	Committee on Neurobiology	04/2019 - 12/2023
Yuhung Chui	Physics	04/2019 - 12/2023
Anqi Jiang	Computational Neuroscience	07/2019 - present
Reilly McClanahan	UChicago PREP program	06/2023 - present
Cherry Wang	Committee on Neurobiology	07/2023 - present
Bryan Garcia	Computational Neuroscience	09/2023 - present
Julliana Ramirez-Matias	Medical Scientist Training Program	Start date: 04/2024

Undergraduate students	Major	Dates in my Lab
Sophia Vann-Adibe	Neuroscience	03/2018 - 06/2020
Denisse Morales-Rodriguez	Neuroscience	10/2018 - 06/2021
Sylvia Durian	Math	10/2019 - 02/2021
Shai Smith	Neuroscience	10/2019 - 06/2022
Roma Shah	Neuroscience	10/2019 - 06/2022
Mohamed Fawaz	Neuroscience	02/2020 - 06/2021
Zinnia Saha	Neuroscience	04/2021 - 06/2023
Phoebe Cao	Neuroscience	04/2021 - 06/2023
Anthony James	Neuroscience	06/2022 - 06/2023
Valerie Barreto	Neuroscience	03/2022 - present
Will Carson	Neuroscience	12/2022 - present
Stacia Konow	Neuroscience	03/2023 - present
Yoonah Chang	Neuroscience	08/2023 - present

LAB TRAINEE AWARDS

Award	Trainee	Dates
UChicago Biological Science Division Fellow	Cherry Wang	10/2023
Kirschstein-NRSA postdoctoral fellowship	Douglas Goodsmith, Ph.D.	9/2022-12/2024
Kirschstein-NRSA postdoctoral fellowship	Antoine Madar, Ph.D.	9/2021-8/2024
NIDA T-32 Training grant	Seetha Krishnan, Ph.D.	8/2021-7/2023
2020 SACNAS Student Presentation Award	Denisse Morales-Rodriguez	11/2020
NSF GRFP Honorable mention	Heather Macomber	4/2020

NIDA T-32 Training grant
UChicago Biological Science Division Fellow

Chad Heer
Can Dong

8/2019-7/2021
10/2017

THESIS COMMITTEES

Graduate student	Program	Lab
Jen Ding (graduated)	Committee on Neurobiology	Wei Lab
Hector Ledesma (graduated)	Biophysical sciences	Wei Lab
Tuam Pham (left program)	Computational Neuroscience	Hansel Lab
Silas Busch	Committee on Neurobiology	Hansel Lab
Pooja Ravishankar	Computational Neuroscience	Kaufman Lab
Caroline Szujewski	Committee on Neurobiology	Garcia Lab
Rossteen Mansouri-Rad	Committee on Neurobiology	Mcgehee Lab
Kailong Wen	Committee on Neurobiology	Zhuang Lab
Anastasia Sorokina	Committee on Neurobiology	Kasthuri Lab
Ariana Tortolani	Computational Neuroscience	Hatsopoulos Lab
Abby Silbaugh	Committee on Neurobiology	Hansel Lab
Swen Oosterboer	Committee on Neurobiology	Wei Lab
Christopher Luong	Computational Neuroscience	Eatock Lab
Michelle Miller	Computational Neuroscience	Freedman/Doiron Lab
Ziqi Wang	Committee on Neurobiology	Oswald Lab

UNIVERSITY SERVICE

Committees	Role	Dates
UChicago College Council	Member	2023 - 2026
UChicago Neuroscience retreat	Co-Chair	2018
Carlson Symposium	Co-Chair	2018/2019
Guillery Lecture	Organizer/Host	2019/2020
Paris internship	Reviewer	2018, 2019
Neuro Honors Program	Reviewer	2018 - ongoing
Graduate Admissions	Member/reviewer	2019/2020 2023/2024
Neurobiology faculty search	Member/reviewer (Recruited Marlene Cohen)	2019/2020
Jeff Metcalf Internship Program	Reviewer	2021
Undergrad Major Executive	Member	2019 - ongoing
Neurobiology faculty search	Member/reviewer (Recruited Ramon Nogueira)	2022/2023
Neuroscience Instructional faculty search	Member/reviewer (Recruited Carolyn Martineau)	2023

Hosted Seminar invitees

Dates

Denise Cai	Spring 2024
Bence Olveczky	Spring 2024
Genia Kozorovitskiy	Winter 2021
Martha Bickford	Fall 2020
Ben Scholl	Winter 2020
Yang Dan	Fall 2019

Loren Frank Fall 2019
Josh Trachtenberg Fall 2018
Marla Feller Fall 2018
Nelson Spruston Spring 2018

EXTERNAL SERVICE

Service	Dates
Organizer & Chair of a symposium at the Winter Conference on Neural Plasticity <i>(Symposium: How are Episodic Memories Encoded by the Hippocampus – Place Cells or Engrams? (Puerto Vallarta, Mexico))</i>	2024
Wellcome Trust Career Development Award - Grant reviewer	2023
Podcast Interview for UChicago Yuen Campus in Hong Kong – The Course (on Spotify)	2022

PEER REVIEW

Scientific Journals:

Science
Nature
Nature Neuroscience
Neuron
eLife
Nature Communications
Journal of Neuroscience
Science Advances
PLOS Biology
Cell Reports
Current Biology

FUNDING

Current

NIH BRAIN INITIATIVE- RF1 NS127123-01 Sheffield (PI)
09/01/22 - 08/31/27

From synapses to neural representations: The role of neuromodulatory circuits in shaping contextual memories in the hippocampus. Reward expectation has a huge impact on memory encoding and retrieval, yet the neural circuit mechanisms underlying reward expectation and how they modulate memory encoding and retrieval are unknown. This proposal aims to investigate dopamine circuits and their influence on population dynamics that underly memory processes in the hippocampus by recording and manipulating inputs from the locus coeruleus and ventral tegmental area directly in the hippocampus and determining their effect on hippocampal population dynamics during changes in reward expectation within specific contexts.

Role: PI

NIH - R21 NS128822-01 Sheffield (PI)
06/2022 – 05/2024

Encoding properties of bilateral CA3 inputs and their contribution to the formation and dynamics of CA1 spatial representations in novel environments. These experiments will provide the first insights into the information being carried by bilateral CA3 inputs to bilateral CA1 during spatial exploration in a novel environment. They will reveal how these ipsilateral versus contralateral

CA3 inputs independently contribute to the formation, refinement, and retrieval of memory representations in CA1. These insights into the mechanisms of memory processing in the hippocampus are critical for the development of appropriate strategies to treat patients with memory disorders.

Past

NIH - 1DP2NS111657-01 Sheffield (PI)
09/30/18 - 09/29/23

Dendritic and synaptic mechanisms of fear memory engram formation in hippocampal CA1.

Contextual fear memories are hippocampal dependent, and it has been shown that a sparse population of neurons exists in the hippocampus that are both sufficient and necessary in retrieving a specific contextual fear memory. The aim of this work is to label this memory engram and measure the activity of the spines and dendrites of these memory engram cells during the formation of the memory. We want to determine the dynamics of synaptic input and the role of dendritic spikes in memory engram formation.

Role: PI

Searle Scholars Program Sheffield (PI)
07/01/18 - 06/30/21

The mechanisms of memory formation in behaving mice. One of the goals of this research is to manipulate the activity of dendritic spiking in CA1 hippocampal pyramidal neurons using 2-photon targeted optogenetics to mimic natural patterns of dendritic spiking across the arbor and determine the sufficiency of these signals in causing a neuron to become part of a memory engram.

Role: PI

Whitehall Foundation Sheffield (PI)
08/01/17 - 07/31/20

The Cellular, Dendritic and Synaptic Basis of Memory. The goal of this project is to determine how memory engrams change over time and with repeated recall/reconsolidation. This project aims to determine the role of dendritic spikes and synaptic plasticity in memory recall and reconsolidation.

Role: PI

Sloan Foundation Sheffield (PI)
09/15/18 - 09/14/20

Neuronal Mechanisms of Complex Memory. One of the Aims of this project is to determine the patterns of regenerative events across the dendritic arbor during memory formation in CA1 neurons and their sufficiency in forming new associations in behaving mice.

Role: PI

Future submissions

NIH – R01 (re-submission – received 30th percentile first round) Sheffield (PI)
03/2024

Contextual fear memory retrieval and extinction: A Thalamic modulation of hippocampal dynamics. Contextual fear memories can become maladaptive and lead to anxiety disorders such as PTSD. To prevent such disorders from developing, the brain has the capacity to suppress fear memory retrieval and cause fear extinction. Recently a thalamic nucleus called the nucleus reuniens (NR) has been implicated in contextual fear memory suppression and extinction. These memories are thought to rely on the hippocampus, but how the NR interacts with the hippocampus to suppress fear memory retrieval and cause extinction are unknown. This proposal seeks to uncover how the NR modulates fear memory processing in the hippocampus by directly recording and manipulating NR inputs to hippocampus and measuring their postsynaptic effects on place cell dynamics and replay events – processes known to be involved in contextual memories.

Role: PI

STUDENT DIVERSITY IN THE SHEFFIELD LAB

Year	Name	Student	Info	International
2017-present	Can Dong	Graduate	Female	Yes
07/2018 - present	Chad Heer	Graduate	Male	No
04/2018 - 07/2018	Claire McKinnon	Graduate (rotation)	Female	No
04/2019 - present	Heather Macomber	Graduate	Female	No
07/2018 - 09/2018	Carolina Castro-Rivera	Graduate (rotation)	Female (URM)	Yes
04/2018 - 07/2018	Matt Rosen	Graduate (rotation)	Male	No
07/2019 - present	Anqi Jiang	Graduate	Female	Yes
04/2019 - present	Yuhung Chiu	Graduate	Male	Yes
10/2018 - 06/2021	Denisse-Moralez Rodriguez	Undergraduate	Female (URM)	Yes
02/2020 - present	Mohammed Fawaz	Undergraduate	Male (URM)	Yes
03/2018 - 06/2020	Sophia Vann-Adibe	Undergraduate	Female	No
10/2019 - 02/2021	Sylvia Durian	Undergraduate	Female	No
10/2019 - present	Roma Shah	Undergraduate	Female	Yes
04/2021 - present	Zinnia Saha	Undergraduate	Female	
04/2021 - present	Phoebe Cao	Undergraduate	Female	
10/2019 - present	Shai Smith	Undergraduate	Female (URM)	Yes
06/2022 - present	Anthony James	Undergraduate	Male (URM)	No
09/2022 - 12/2023	Bryan Garcia	Graduate	Male (URM)	Yes
12/2022 - present	Will Carson	Undergraduate	Male	No
03/2023 - present	Cherry Wang	Graduate	Female	Yes
06/2023 - present	Reilly McClanahan	PREP program	Female (URM)	No