Lucas Y. Tian, Ph.D.

NINDS K99 Postdoctoral Associate
Laboratory of Neural Systems
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EDUCATION

2012 - 2019	**Ph.D.** in Neuroscience, UC San Francisco, CA (Advisor: Michael Brainard)
2007 - 2011	**B.A.** with Honors in Biology, specializing in Neuroscience, University of Chicago, IL

RESEARCH

2019 - Present	**Postdoctoral Scholar,** The Rockefeller University, New York, NY Advisor: Winrich Freiwald; Co-advisors: Josh Tenenbaum, Xiao-Jing Wang Topic: Neural basis of compositional generalization, in a macaque drawing task.
2019 (May-Dec)	**Visiting Postdoctoral Scholar,** MIT, Cambridge, MA Advisor: Josh Tenenbaum; Co-advisors: Winrich Freiwald, Xiao-Jing Wang Topic: Cognitive computational modeling of human drawing.
2012 - 2019	**Graduate Student,** UCSF, San Francisco, CA Advisor: Michael Brainard Thesis: Neural mechanisms of motor skill flexibility in songbirds (link)

AWARDS AND HONORS

General

2026	Tri-Institutional Breakout Prize for Junior Investigators
2025	MSN Extramural Postdoctoral Invited Speaker, Mt. Sinai
2025	SPiNES Extramural Postdoctoral Invited Speaker, NYU
2025	NEUROYES Extramural Postdoctoral Invited Speaker, University of Rochester
2023	NINDS K99/R00 Transition to Independence Award
2020	NIH BRAIN F32 NRSA Postdoctoral Fellowship
2014	Herbert W. Boyer PIBS Fellowship, UCSF

Travel grants

2026	Neural Control of Movement Scholarship
2025	Postdoctoral Association Career Development Award, Rockefeller
2025	COSYNE Presenters Travel Grant
2016	Graduate Division Travel Award, UCSF

PEER-REVIEWED PUBLICATIONS

2026 **Tian LY**, Garzón Gupta K, Hanuska DJ, Rouse AG, Eldridge MA, Schieber MH, Wang XJ, Tenenbaum JB, Freiwald WA. Neural representation of action symbols in primate frontal cortex. ***Nature*** (in press). Preprint: *bioRxiv* 2025.03.03.641276. Link

2023 **Tian LY**, Warren TL, Mehaffey WH, Brainard MS. Dynamic top-down biasing implements rapid adaptive changes to individual movements. ***eLife*** 12:e83223. Link

2021 Veit L, **Tian LY**, Monroy Hernandez CJ, Brainard MS. Songbirds can learn flexible contextual control over syllable sequencing. ***eLife*** 10: e61610. Link

2020 **Tian LY**, Ellis K, Kryven M, Tenenbaum JB. Learning abstract structure for drawing by efficient motor program induction. ***Advances in Neural Information Processing Systems***, 33 [*oral presentation; top 1% of submissions*]. Link

2017 **Tian LY**, Brainard MS. Discrete circuits support generalized versus context-specific vocal learning in the songbird. ***Neuron*** 96, 1-10. Link, Commentary, News

PREPRINTS

2026 **Tian LY**, Hanuska DJ, Garzón Gupta K, Liu Y, Wang XJ, Tenenbaum JB, Freiwald WA. Neural representation of action grammar structure in primate frontal cortex. **bioRxiv** 2026.01.18.700235. Link

MANUSCRIPTS IN PREPARATION

Prep. Liu Y, **Tian LY**, Tenenbaum JB, Freiwald WA, Wang XJ. Mechanism for generalizing an action grammar in recurrent neural networks.

FUNDING

2023 - Present **NINDS K99/R00 Transition to Independence Award**
Title: Investigating Symbolic Computation in the Brain: Neural Mechanisms of Compositionality (5K99NS131585) (PI: **Tian, LY**)
Total Award Amount (including Indirect Costs): **$268,542** (2-year K99 phase), **$747,000** (3-year R00 phase, estimated)

2021 - Present **Simons Foundation SCGB Pilot Award** (key personnel – contributing co-author)
Title: Investigating Symbol-like Reasoning in the Brain: Neural Mechanisms of Compositional Action Planning (876120SPI) (PI: Freiwald, WA)
Total Award Amount (including Indirect Costs): **$770,000**

2020 - 2023 **NIH BRAIN F32 NRSA Postdoctoral Fellowship**
Title: The planning of new compositional action sequences guided by interpretation of ambiguous sensory data in a novel drawing task (F32MH125573) (PI: **Tian, LY**)
Total Award Amount: **$209,778**

INVITED TALKS

Competitively selected conference talks

2026 Neural Control of Movement Team Oral (Panel), Kobe, Japan
2025 Society for Neuroscience Nanosymposium, San Diego, USA
2025 COSYNE Main Meeting (3% of submissions), Montreal, Canada (recording)
2024 Ascona Circuits Meeting, Ascona, Switzerland
2020 NeurIPS (1% of submissions) (recording)

Symposia

2025 Kavli Internal Symposium, Rockefeller, New York, USA

2025	Lipschultz Symposium, Icahn School of Medicine (Mt. Sinai), New York, USA
2025	The Social Brain Symposium, Rockefeller and Columbia, New York, USA
2021	Object Cognition Workshop, Yale, New Haven, USA (virtual)
2018	Birds Bats Brains Meeting, UC Berkeley, USA
Departmental talks	
2026	Centre for Integrative Neuroscience, University of Tübingen, Germany
2026	Department of Experimental Psychology, University of Oxford, UK
2026	Departments of Neuroscience and Computer Science, UT Austin, USA
2026	NEUROYES Postdoctoral Invited Speaker, University of Rochester, USA
2026	Department of Brain and Cognitive Sciences, University of Rochester, USA
2025	Enigma Project, Stanford University, USA (virtual)
2025	MSN Extramural Postdoctoral Invited Speaker, Mt. Sinai, USA
2025	Department of Neurobiology, University of Pittsburgh, USA
2025	German Primate Center, Leibniz Institute for Primate Research, Göttingen, Germany
2023	Kavli Internal Seminar series, Rockefeller, New York, USA
2021	Center for Brains, Minds & Machines, MIT, Cambridge, USA (recording)
2021	PDA Summer Seminar Series, Rockefeller, New York, USA
2016	Asilomar Neuroscience Retreat, UC San Francisco, USA
Lab talks	
2025	UCSD, Bria Long
2025	Western University, Diedrichsen, Gribble, and Pruszynski (virtual; recording)
2025	Netherlands Institute for Neuroscience, Pieter Roelfsema
2025	Princeton, Tim Buschman
2025	NYU, Marcelo Mattar
2025	MIT, Ev Fedorenko
2025	Newcastle University, Stuart Baker (virtual)
2025	NYU, Michael Long
2022	UCSF, Michael Brainard
2021	Yale, Ilker Yildirim (virtual)
2020	NYU, Brenden Lake and Todd Gureckis (virtual)
2020	MIT, Laura Schulz (virtual)
2016	UCSF, John Houde

PROFESSIONAL SERVICE

2023 - Present	Peer review for: Science, eLife, Cognitive Science Society, Cognitive Computational Neuroscience
2026	Workshop co-organizer (w/ Mathias Sablé-Meyer), COSYNE, “Symbols as foundational to the biological basis of intelligent behavior”
2014 - 2019	Co-organizer, Systems Neuroscience Research in Progress Seminar Series, UCSF
2013 - 2019	Co-organizer, Special Topics Seminar Series, UCSF

SELECT CONFERENCE POSTERS

2026	AREADNE, Milos, Greece
2026	Society for the Neural Control of Movement, Kobe, Japan

2025	Cognitive Computational Neuroscience, Amsterdam, The Netherlands
2025	Society for the Neural Control of Movement, Panama City, Panama
2024	Society for Neuroscience, Chicago, IL (Link to poster)
2024	Ascona Circuits Meeting, Ascona, Switzerland

MENTORSHIP

Research assistants

2024 - Present	Daniel Hanuska, research assistant, Rockefeller
2022 - 2024	Kedar Garzón Gupta, research assistant, Rockefeller *(Current position: Ph.D. Student at Columbia)*

Ph.D. rotation students

2024	Siddhartha Sharma, Freiwald lab, Rockefeller
2021	Yanis Tazi, Freiwald lab, Rockefeller
2018	Eszter Kish, Brainard lab, UCSF
2014	Rachel Care, Brainard lab, UCSF

Interns and other mentorship

2026 - Present	Kateryna Panikhina, Bard-Rockefeller intern, Rockefeller
2024 - 2025	Valerie Calligy, Shenoy Undergraduate Research Fellow (SURFiN), Simons Foundation, Rockefeller
2024 - 2025	Xuan Ma, Bard-Rockefeller intern, Rockefeller
2024	Daniel Dolnik, intern, Cornell Tech Master's Program
2024	Thea Wu, summer intern (Summer Undergraduate Research Fellowship, SURF), Rockefeller
2022	Alejandra Urquieta, summer intern, SURF, Rockefeller
2021	Sam Coolsaet, medical intern, Rockefeller
2021	Alex Gu, summer intern, SURF, MIT
2017	Christian Jose Monroy Hernandez, HHMI Exceptional Research Opportunities Program (EXROP), UCSF (co-mentor: Lena Veit)

OUTREACH

2024 - 2025	Mentor, Simons Foundation SURFiN, Rockefeller *Mentee: Valerie Calligy*
2021	Mentor, Neuromatch Academy (virtual) *Mentees: Pulido Arias, Lourdes Baztan Bitopoulos, Joseph Gonzalez, May Xia, Mark Zarutin*
2017	Mentor, HHMI EXROP, UCSF *Mentee: Christian Jose Monroy Hernandez (co-mentor: Lena Veit)*
2014	Judge, Synopsys Science and Technology Championship, San Jose, CA
2013	Invited speaker, PITCH, Center for Education Partnerships (CEP), UCSF
2013 - 2014	Mentor, Fairposium at Burton High School, CEP, UCSF

TEACHING

2014	TA, BMS117: Infection & Host Response (Neurophysiology unit), UCSF
2012 - 2013	Scientist-Teacher, Raul Wallenberg High School, Science and Health Education

	Partnership, UCSF
2012	English Teacher, San Gabriel Kindergarten, Los Nogales, Peru
2010	Teacher, Neuroscience of Illusions, Cascade!, University of Chicago

ADVANCED COURSES

2019	Methods in Computational Neuroscience, Marine Biological Laboratory, MA
2018	Jr. Workshop on Mechanistic Cognitive Neuroscience, Janelia Research Campus, VA
2018	Brains, Minds and Machines, Marine Biological Laboratory, MA
2017	Mining and Modeling of Neuroscience Data, Redwood Center, UC Berkeley, CA

REFERENCES

Winrich Freiwald, Ph.D.
Denise A. and Eugene W. Chinery Professor
Laboratory of Neural Systems, Rockefeller University
1230 York Avenue, New York, NY 10065
wfreiwald@rockefeller.edu
(212) 327-8000
Relationship: Postdoctoral advisor

Michael Brainard, Ph.D.
Professor of Physiology and Psychiatry
Departments of Physiology and Psychiatry, UCSF/HHMI
675 Nelson Rising Lane, Room 514E, San Francisco, CA 94158
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(415) 502-7344
Relationship: Ph.D. advisor

Joshua Tenenbaum, Ph.D.
Professor of Computational Cognitive Science
Department of Brain and Cognitive Sciences, MIT
Building 46-4015, 77 Massachusetts Avenue, Cambridge, MA 02139
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(617) 452-2010
Relationship: Postdoctoral co-advisor

Xiao-Jing Wang, Ph.D.
Professor of Neural Science
Center for Neural Science, NYU
4 Washington Place, Room 752, New York, NY 10003
xjwang@nyu.edu
(212) 998-3677
Relationship: Postdoctoral co-advisor