

NUTTIDA RUNGRATSAMEETAWEEMANA

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PROFESSIONAL APPOINTMENTS

Assistant Professor , Department of Biomedical Engineering, Columbia University	Jul 2024 -
Maa-Liao Assistant Professor of Biomedical Engineering	Jan 2026 -
• Affiliate faculty, Center for Theoretical Neuroscience, Columbia University	
• Faculty, Doctoral Program in Neurobiology and Behavior, Columbia University	
Provost Research Fellow - Inclusive Faculty Pathways Initiative	Jan 2023 - Jun 2024
Department of Biomedical Engineering, Columbia University	
Visiting Postdoctoral Scientist - Department of Neurosurgery	Jun 2022 - Dec 2022
Cedars-Sinai Medical Center, Advisor: Dr. Ueli Rutishauser	
Swartz Fellow - Computational Neurobiology Laboratory	Jul 2020 - Dec 2022
The Salk Institute for Biological Studies, Advisor: Dr. Terrence J. Sejnowski	
Postdoctoral Research Fellow - Humans in Complex Systems Division	Jul 2020 - Jun 2021
The US Army Research Laboratory, Advisor: Dr. Javier O. Garcia	

EDUCATION

Ph.D., M.S. in Neurosciences (Computational Specialization) , UC San Diego	Jun 2020
Thesis: <i>Neural Dynamics of Probabilistic Perceptual Decision Making in the Human Brain</i>	
Advisor: Dr. John T. Serences & Dr. Larry R. Squire	
B.A. in Mathematics and Neuroscience with Highest Distinction , Middlebury College	May 2014
Mathematics Thesis: <i>A Mathematical Approach to Selective Visual Attention</i>	
Neuroscience Thesis: <i>The Influence of Internal and External Arousal on Memory</i>	
Advisors: Dr. Jason Arndt & Dr. Michael Olinick	

AWARDS, HONORS, & DISTINCTIONS

Selected Awards and Honors

Inaugural Maa-Liao Assistant Professorship, Named Junior Chair, Columbia University	2026
Columbia University Institutional Nominee for the Searle Scholars Program	2025
Middlebury College Alumni Achievement Award	2024
U.S. ARL Humans in Complex Systems Research Excellence Award	2023
Rising Star in Engineering in Health Award	2022
Inaugural UCLA Young Neuroscience Citizen Scholar	2022
The Allen Institute NeuroDataReHack Workshop Travel Award	2022
Edwards-Yeckel Postdoctoral Professional Development Award	2022
UC San Diego Chancellor's Outstanding Postdoctoral Scholar Award	2021
Stanford.Berkeley.UCSF Next Generation Faculty Symposium Honorable Mention	2021
U.S. ARL Postdoc and Early Career Research Symposium Dr. Brad Forch Award for Best Poster	2021
Salk Institute Next Gen Postdoc	2021
Salk Institute Career Advancement Award	2021
Cell Press/ Society for Neuroscience Anuradha Rao Memorial Award	2021
Middlebury College Senior Research Award	2013 - 2014

Research Funding

NIH R01 (NEI) EY025872, Co-I (PI: Serences)	2025 - 2029
• Proposal: <i>Adaptive population codes for flexible visually-guided behaviors</i>	
U.S. AFRL Center of Excellence for the Neuroscience of Decision-Making, Co-I (PI: Sajda)	2024 - 2025
DoD Strengthening Teamwork for Robust Operations in Novel Groups, PI	2022 - 2023
• Proposal: <i>Improving human-AI integration through adaptive value-based learning</i>	
Kavli Institute for Brain and Mind Postdoctoral Award, PI	2022 - 2023
• Proposal: <i>Cross-species hierarchical dynamics of adaptive schema learning</i>	
U.S. ARL BAA for Basic & Applied Scientific Research Award, PI	2021 - 2023
• Proposal: <i>Hybrid decision making in humans and artificial neural networks</i>	
Swartz Foundation Postdoctoral Fellowship for Theory in Neuroscience	2021 - 2023
Salk Women & Science Special Award	2021 - 2022
U.S. ARL Human Research & Engineering Directorate Postdoctoral Fellowship	2020 - 2021

PUBLICATIONS

Peer-Reviewed Articles

- [1] Zhang J, **Rungratsameetaweemana N**, Wang S. Computational neural dynamics of goal-directed visual attention in macaques. *Science Advances*, 2026. Accepted.
- [2] Katlowitz KA, ..., **Rungratsameetaweemana N**, Hayden BY*, Sheth SA*. Learning and language in the unconscious human hippocampus. *Nature*, 2026. Accepted.
- [3] Nett L, Guth TA, Buechel PK, **Rungratsameetaweemana N**, Kunz L. Behavioral investigation of allocentric and egocentric cognitive maps in human spatial memory. *Neuropsychologia*, 2025.
- [4] Henderson MM, Serences, JT, **Rungratsameetaweemana N**. Dynamic categorization rules alter representations in human visual cortex. *Nature Communications*, 2025.
- [5] **Rungratsameetaweemana N***, Kim R*, Chotibut T, Sejnowski TJ. Random noise promotes slow heterogeneous synaptic dynamics important for robust working memory computation. *The Proceedings of the National Academy of Sciences*, 2025.
- [6] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Garcia JO, Sejnowski TJ*, Bansal K*. Brain network dynamics codify heterogeneity in seizure evolution. *Brain Communications*, 2022.
- [7] Pinto ILD, **Rungratsameetaweemana N**, Flaherty K, Periyannan A, Meghdadi A, Richard C, Berka C, Bansal K, Garcia JO. Intermittent brain network reconfigurations and the resistance to social media influence. *Network Neuroscience*, 2022.
- [8] **Rungratsameetaweemana N**. Understanding motor abnormalities in psychiatric disorders as altered sensorimotor processing. *Biological Psychiatry: Global Open Science*, 2021.
- [9] Lainscsek C*, **Rungratsameetaweemana N***, Cash SS, Sejnowski TJ. Cortical chimera states predict epileptic seizures. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 29: 121106, 2019.
- [10] **Rungratsameetaweemana N**, Squire LR, Serences JT. Preserved capacity for learning statistical regularities and directing selective attention after hippocampal lesions. *The Proceedings of the National Academy of Sciences*, 116 (39): 19705-19710, 2019.
- [11] **Rungratsameetaweemana N**, Serences JT. Dissociating the impact of attention and expectation on early sensory processing. *Current Opinion in Psychology*, 29: 181-186, 2019.
- [12] **Rungratsameetaweemana N***, Itthipuripat S*, Salazar A, Serences JT. Expectations do not alter early sensory processing during perceptual decision-making. *Journal of Neuroscience*, 2018.
- [13] **Rungratsameetaweemana N**, Squire, LR. Preserved capacity for scene construction and shifts in perspective after hippocampal lesions. *Learning & Memory*, 25: 347-351, 2018.
- [14] Itthipuripat S, Garcia, JO, **Rungratsameetaweemana N**, Sprague TC, Serences JT. Changing the spatial scope of attention alters patterns of neural gain in human cortex. *Journal of Neuroscience*, 2014.

Preprints

- [1] Kim R, Aquino TG, Mamelak AN, Reed CM, **Rungratsameetaweemana N***, Rutishauser U*. Task goals reorganize visual codes in human ventral temporal cortex via medial frontal modulation. *bioRxiv: 10.64898/2026.01.24.701461*, 2026. Under review.
- [2] Kussovskaya D, Kim R, **Rungratsameetaweemana N**. Neural heterogeneity shapes the temporal structure of human working memory. *bioRxiv: 10.1101/2025.10.31.684900*, 2025. In revision.
- [3] Kular H, Kim R, Serences JT*, **Rungratsameetaweemana N***. Feedback promotes efficient-coding while attenuating bias in recurrent neural networks. *arXiv: 2509.23104*, 2025.
- [4] Shen J, **Rungratsameetaweemana N**, Sharma P, Peterka DS, Wu HZ, Shadlen MN. ALM enables contextual decision-making via dynamic reconfiguration of local circuits. *bioRxiv: 10.1101/2025.09.11.675319*, 2025. In revision.
- [5] Aquino TG, Liu V, Azab H, Mathura R, Watrous AJ, Bartoli E, Hayden BY, Sajda P, Sheth SA*, **Rungratsameetaweemana N***. Brain2Model Transfer: Training sensory and decision models with human neural activity as a teacher. *arXiv:2506.20834*, 2025.

- [6] Cheng Y, Chen Y, Kwak M, Kempner RP, ..., **Rungratsameetaweemana N**, Yang N, Wu HZ. Asymmetric social representations in the prefrontal cortex for cooperative behavior. *bioRxiv*: 10.1101/2025.08.27.672249, 2025. In revision.
 - [7] Aquino TG*, Kim R*, **Rungratsameetaweemana N**. Disinhibitory signaling enables flexible coding of top-down information. *bioRxiv*: 10.1101/2023.10.17.562828, 2024. In revision.
 - [8] Pao G, Smoth C, Park J, Takahashi K, Watanakeesuntorn W, Natsukawa H, Chalasani SH, Lorimer T, Takano R, **Rungratsameetaweemana N**, Sugihara G. Experimentally testable whole brain manifolds that recapitulate behavior. *arXiv*:2106.10627, 2021.
 - [9] Nelli S, Itthipuripat S, **Rungratsameetaweemana N**, Serences JT. The speed-accuracy tradeoff reveals flexible access to accumulating sensory evidence during human decision-making. *bioRxiv*: 10.1101/420430v1, 2018.
- * These authors made equal contributions

PATENTS & APPLICATIONS

- [1] Aquino TG, Liu V, Sajda P, **Rungratsameetaweemana N**. Brain2Model: A system to train improved artificial agents with human brain data as the teacher. U.S. Provisional Patent filed June 2025.

SELECTED INVITED TALKS

- [1] *Data-Driven AI for Neuroscience Conference*. HHMI/Janelia Research Campus. Nov, 2026.
- [2] *Neuroscience Seminar Series*. Ernst Strüngmann Institute. Mar, 2026.
- [3] *Biological, Artificial, and Quantum Intelligence Workshop*. OIST. Mar, 2026.
- [4] *Homecoming and Family Day Faculty Lecture*. Columbia University. Oct, 2025.
- [5] *Undergraduate Encephalon Conference*. Columbia University. Apr, 2025.
- [6] *Dept. of Biomedical Engineering Seminar*. Rensselaer Polytechnic Institute. Apr, 2025.
- [7] *Air Force Center of Excellence in the Neuroscience of Decision-Making*. Columbia U. Sep, 2024.
- [8] *Dept. of Brain and Cognitive Sciences Seminar*. Seoul National University, Korea. Mar, 2024.
- [9] *Manifolds in Nature Workshop*. OIST. Feb, 2024.
- [10] *Computational Psychiatry Seminar Series*. Max Planck UCL Centre. Feb, 2024.
- [11] *Neurosurgery Seminar Series*. Baylor College of Medicine. Dec, 2023.
- [12] *The Brain Conference: Structuring Knowledge For Flexible Behaviour*. FENS. Oct, 2023.
- [13] *Department of Neuroscience Special Seminar*. Icahn School of Medicine at Mount Sinai. Sep, 2023.
- [14] *Keynote Presentation*. Thailand National Conference on Science, Innovation, & Technology. Aug, 2023.
- [15] *Computational Neuroscience Special Seminar*. Chulalongkorn U, Thailand. Aug, 2023.
- [16] *APNNS/IEEE Deep Learning and Artificial Intelligence Summer/Winter School*. Jul, 2023.
- [17] *Engineering and Material Science Seminar Series*. RMUTP, Thailand. Jul, 2023.
- [18] *The Computational Neuroscience Affinity Group*. UCLA. Jun, 2023.
- [19] *Center for Theoretical Neuroscience Seminar*. Columbia University. Jun, 2023.
- [20] *Center of Excellence in the Neuroscience of Decision-Making Meeting*. Columbia University. Apr, 2023.
- [21] *Innovators in Cognitive Neuroscience Seminar Series*. Dartmouth College. Mar, 2023.
- [22] *COSYNE workshop: How do interneurons control neural computations?* Mar, 2023.
- [23] *Inaugural UCLA Seminars by Young Neuroscience Citizen Scholars Series*, UCLA. Jan, 2023.
- [24] *Winter School on Brains and Computation*. UC San Diego. Dec, 2022.
- [25] *U.S. ARL Humans in Complex Systems Meeting*, U.S. Army Aberdeen Proving Ground. Nov, 2022.
- [26] *Biomedical and Translational Science Seminar Series*, Cedars-Sinai Medical Center. Sep, 2022.
- [27] *The Swartz Foundation Meeting*, Cold Spring Harbor Laboratory. Aug, 2022.
- [28] *Advanced Methods in Neuroscience*, King Mongkut's U of Technology Thonburi, Thailand. Jun, 2022.
- [29] *Quantitative Brown Bags Seminar Series*, Department of Psychology, UC Davis. Dec, 2021.
- [30] *Hacking for Defense*, Stanford University. Nov, 2021.

- [31] *World Wide NeuRise Seminar Series*. Oct, 2021.
- [32] *The Helyx Initiative Seminar Series*. Oct, 2021.
- [33] *The Swartz Foundation Meeting*, Computational Neuroscience Center, U of Washington. Oct, 2021.
- [34] *The ARL Postdoc and Early Career Research Symposium*. Sep, 2021.
- [35] *STEMinar Series*, UC San Diego. May, 2021.

CONFERENCE TALKS

- [1] Cortical computations for adaptive cognition in humans and artificial networks. *The International Conference on Brain Informatics*. Dec, 2024.
- [2] Probing interneuron-based computations underlying adaptive decision making. *Computational and Systems Neuroscience Meeting*. Mar, 2023.
- [3] Probabilistic visual processing in humans and recurrent neural networks. *Annual Optical Society Vision Meeting*. Oct, 2021.
- [4] Intrinsic network reconfigurations underlie heterogeneity of seizure dynamics, *Networks 2021: A Joint Sunbelt and Netsci Conference*. Jun, 2021.
- [5] Neural dynamics of probabilistic computations in humans and recurrent neural networks. Selected research spotlight, *Virtual Meeting of the Cognitive Neuroscience Society*. Mar, 2021.
- [6] Probabilistic information processing in humans and recurrent neural networks. *Neuromatch 3.0 Conference*. Oct, 2020.
- [7] Cortical chimera states as predictors for epileptic seizures. Selected research spotlight, *IEEE Engineering in Medicine and Biology Society symposium and workshop on Brain, Mind, and Body: Cognitive Neuroengineering for Health and Wellness*. Dec, 2019.
- [8] Expectation influences late stages of information processing. *Annual Meeting of the Vision Sciences Society*. May, 2018.
- [9] Mathematical implications of the normalization model of attention. *Annual Conference of Women in Mathematics of New England*. Sep, 2012.

SELECTED TEACHING & MENTORING EXPERIENCE

Instructor

<i>Computational Approaches to Cross-Species Neural Dynamics</i> , Columbia University	2026
<i>Biostatistics for Engineers</i> , Columbia University	2024, 2025
<i>Deep Learning for Biomedical Signal Processing</i> , Columbia University	2023

Research Mentor

• Sally Liu (Undergrad student in Computer Science, Columbia University)	2025 -
• Kahini Mehta (PhD student in Neuroscience, Columbia University)	2025 -
• Kaitlyn Swayze (PhD student in Biomedical Engineering, Columbia University)	2024 -
• Daria Kussovskaya (PhD student in Biomedical Engineering, Columbia University)	2024 -
• Renee Tung (MD PhD student in Neuroscience, Columbia University)	2024 -
• Siddhant Iyer (PhD student in Neuroscience, Columbia University)	2024 -
• Zelin Yu (PhD student in Electrical Engineering, Columbia University)	2024 -
• Salma Elhassa (MS student in Biomedical Engineering, Columbia University)	2024 - 2025
• Tomas Gallo Aquino (Postdoc researcher, Columbia University)	2023 -
• Rudra Gyawali Singha (MS student in Biomedical Engineering, Columbia University)	2023 - 2025
• Yash Bhambhani (MS student in Biomedical Engineering, Columbia University)	2023 - 2024
• Shruti Kumar (Postbac researcher, Columbia University)	2021 - 2023
• Julie Eitzen (Postbac researcher, UC San Diego)	2021 - 2022
• Carolyn Deustch (Undergrad student in Psychology, Cal Poly State U)	2021
• Julia Phillips (Undergrad student in Neuroscience, Fordham U)	2020
• Jimmy Yu (Undergrad student in Neuroscience, UC San Diego)	2017 - 2019

Research Mentor, Heithoff-Brody Scholars Program

2021

- Nicole Men (High school researcher, The Bishop's School/ Columbia University)

Guest Lecturer

<i>The Irving Institute for Cancer Dynamics Intensive Workshop</i> , Columbia University	2025
<i>The Neural Code</i> , Barnard University	2024
<i>Witcast Podcast on Brain Sciences</i> , Thailand	2023
<i>Thailand Brain Building Blocks Lecture Series</i> , Chulalongkorn University	2023
<i>Probabilistic Models of Human and Machine Learning</i> , CU Boulder	2023
<i>STARTneuro Summer Research Training Program</i> , UC San Diego	2022
<i>Neuroscience: From Brain to Behaviors</i> , UC San Diego	2019

SELECTED SERVICE & OUTREACH

Member, <i>Program Committee</i> , Annual Conference on Cognitive Computational Neuroscience (CCN)	2025 -
Area Chair, <i>Proceedings</i> , Annual Conference on Cognitive Computational Neuroscience (CCN)	2025 -
Member, <i>Scientific Poster Committee</i> , Cognitive Neuroscience Society (CNS) Conference	2025 -
Member, <i>Interdepartmental Training Committee of the Vagelos Institute</i> , Columbia University	2025 -
Member, <i>BME Department Undergraduate Committee</i> , Columbia University	2024 -
Member, <i>Engineering in Medicine Symposium</i> , Columbia University	2024 -
Member, <i>Neurobiology and Behavior Doctoral Admissions Committee</i> , Columbia University	2024 -
Ad hoc Reviewer, <i>NSF Graduate Research Fellowship Program (GRFP)</i> ,	2025 -
Ad hoc Reviewer, <i>NSF Collaborative Research in Computational Neuroscience (CRCNS)</i> ,	2024 - 2025
Ad hoc Reviewer, <i>NSF Cognitive Neuroscience</i>	2024 - 2025
Member, <i>BME Department Opportunity and Engagement Committee</i> , Columbia University	2023 - 2025
Mentor, <i>Letters to A Pre-scientist Program</i>	2023 - 2025
Competition Judge, <i>UC Leadership Excellence through Advanced Degrees Research Symposium</i>	2022
Committee, <i>UC San Diego STEM Career Symposium & Exposure to Industry Program</i>	2021 - 2023
Mentor, <i>Cientifico Latino: Graduate Student Mentorship Initiative</i>	2021 - 2023
Mentor, <i>Project Encephalon</i>	2021 - 2023
Mentor, <i>BraiNY Bunch</i>	2021 - 2024
Mentor, <i>Association for Women in Science</i>	2021 - 2023
Mentor, <i>Expanding Your Horizons of San Diego</i>	2021 - 2023
Mentor, <i>Society for Women in Graduate Studies</i>	2021 - 2023
Ambassador, <i>Salk Society of Research Fellows</i>	2021 - 2023
Panel Speaker, <i>UC San Diego Paths to PhDs Workshop</i>	2021
Competition Judge, <i>The Afro-Academic, Cultural, Technological and Scientific Olympics</i>	2021
Member, <i>Diversity Admission Committee</i> , Neurosciences Grad Program, UC San Diego	2015 - 2020

SELECTED REVIEWING SERVICE

Biological Psychiatry, Cortex, eLife, Expert Systems with Applications, European Journal of Neuroscience, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Neural Networks and Learning Systems, Journal of Experimental Psychology: Gen, Journal of Experimental Psychology: Human Perception & Performance, Journal of Cognitive Neuroscience, Journal of Mathematical Psychology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Learning & Memory, Nature Communications, NeurIPS workshop on Human & Machine Decisions, NeurIPS workshop of Shared Visual Representations in Human & Machine Intelligence, NeuroImage, PLOS Computational Biology, Scientific Reports

REFERENCES

Dr. Terrence J. Sejnowski (terry at snl.salk.edu)

Francis Crick Professor, The Salk Institute for Biological Studies

Dr. John T. Serences (jserences at ucsd.edu)

Professor of Psychology and Neurosciences, UC San Diego

Dr. Paul Sajda (ps629 at columbia.edu)

Chair and Vikram Pandit Professor, Department of Biomedical Engineering, Columbia University

Dr. Sameer A. Sheth (sasheth at bcm.edu)

Vice Chair of Research and Professor, Department of Neurosurgery, Baylor College of Medicine

Dr. Larry R. Squire (lrsquire at ucsd.edu)

Distinguished Professor of Psychiatry, Neurosciences, and Psychology, UC San Diego School of Medicine