NUTTIDA RUNGRATSAMEETAWEEMANA

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PROFESSIONAL APPOINTMENTS

Postdoctoral Research Fellow - Computational Neurobiology Laboratory — Jul 2020 - Present
The Salk Institute for Biological Studies
Supervisor: Dr. Terrence J. Sejnowski

Postdoctoral Research Fellow - Humans in Complex Systems Division — Jul 2020 - Jun 2021
The US Army Research Laboratory
Supervisor: Dr. Javier O. Garcia

EDUCATION

Ph.D. in Neurosciences (Computational Specialization), UC San Diego — May 2020
Thesis: *Neural Dynamics of Probabilistic Perceptual Decision Making in the Human Brain*
Advisor: Dr. John T. Serences

M.S. in Neurosciences (Computational Specialization), UC San Diego — Aug 2016
Advisor: Dr. John T. Serences

B.A. in Mathematics and Neuroscience with Highest Distinction — May 2014
Middlebury College, Middlebury, VT
Mathematics Thesis: *A Mathematical Approach to Selective Visual Attention*
Neuroscience Thesis: *The Influence of Internal and External Arousal on Memory*
Advisors: Dr. Jason Arndt & Dr. Michael Olinick

AWARDS, HONORS, & DISTINCTIONS

Research Funding

U.S. ARL BAA for Basic & Applied Scientific Research Award ($182,640) — 2021 - 2023
- Proposal: *Hybrid decision making in humans and artificial neural networks*
- Role: Principal investigator

U.S. ARL Human Research & Engineering Directorate Postdoc Fellowship ($58,102) — 2020 - 2021
U.S. ARL Graduate Fellowship ($120,118) — 2018 - 2020
Training Grant, UC San Diego Neurosciences Graduate Program — 2014 - 2015

Awards and Honors

Chancellor's Outstanding Postdoctoral Award Finalist, UC San Diego (1 of 5 recipients) — 2021
Next Gen Postdoc, Salk Institute (1 of 2 recipients) — 2021
Career Advancement Award, Salk Institute — 2021
Anuradha Rao Memorial Award, Cell Press/ Society for Neuroscience (1 of 2 recipients) — 2021
College Scholar Award, Middlebury College — 2010 - 2014
Senior Research Fellowship, Middlebury College — 2013 - 2014
Middlebury College Research Travel Award — 2013
- Awarded to present a poster at *44th Annual Meeting of the Society for Neuroscience*

Middlebury College Summer Research Fellowship — 2012
- Awarded to intern in the lab of Dr. John T. Serences, UC San Diego

Neuroscience Undergraduate Research Scholarship — 2009 - 2014
- Awarded by the Ministry of Science and Technology of Thailand

PUBLICATIONS

[1] **Rungratsameetaweemana N**. Understanding motor abnormalities in psychiatric disorders as altered sensorimotor processing. *Biological Psychiatry: Global Open Science*, 2021.

[2] 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, Under review

[3] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Garcia JO, Sejnowski TJ*, Bansal K*. Brain network dynamics codify heterogeneity in seizure evolution. *bioRxiv doi: 10.1101/2021.06.12.448205*, 2021, Under review

[4] Nelli S, Itthipuripat S, **Rungratsameetaweemana N**, Serences JT. The speed-accuracy tradeoff reveals flexible access to accumulating sensory evidence during human decision-making, 2020, Under revision.

[5] Lainscsek C*, **Rungratsameetaweemana N***, Cash SS, Sejnowski TJ. Cortical chimera states predict epileptic seizures. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 29: 121106, 2019.

[6] **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.

[7] **Rungratsameetaweemana N**, Serences JT. Dissociating the impact of attention and expectation on early sensory processing. *Current Opinion in Psychology*, 29: 181-186, 2019.

[8] **Rungratsameetaweemana N***, Itthipuripat S*, Salazar A, Serences JT. Expectations do not alter early sensory processing during perceptual decision-making. *Journal of Neuroscience*, 38 (24): 5632-5648, 2018.

[9] **Rungratsameetaweemana N**, Squire, LR. Preserved capacity for scene construction and shifts in perspective after hippocampal lesions. *Learning & Memory*, 25: 347-351, 2018.

[10] 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*, 34(1): 112-123, 2014.

* *these authors made equal contributions*

INVITED TALKS

[1] *World Wide NeuRise Seminar Series*, Oct, 2021.

[2] *The Swartz Foundation Meeting*, Computational Neuroscience center, U of Washington. Oct, 2021.

[3] *STEMinar Series*, UC San Diego, May, 2021.

[4] *Computational Cognitive Neuroscience Lab*, Georgia Institute of Technology. Mar, 2021.

[5] *Diversity and Science Lecture Series*, UC San Diego. Dec, 2020.

[6] *Intelligent and Complex Systems Seminar Series*, Chulalongkorn University, Thailand. Jun, 2020.

[7] *Neuroscience and Psychology Research Talk Series*, Middlebury College. Jan, 2020.

CONFERENCE TALKS

[1] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Garcia JO, Sejnowski TJ, Bansal K. Intrinsic network reconfigurations underlie heterogeneity of seizure dynamics, *Networks 2021: A Joint Sunbelt and Netsci Conference*. Jun, 2021.

[2] **Rungratsameetaweemana N**, Kim R, Sejnowski TJ. Neural dynamics of probabilistic computations in humans and recurrent neural networks. Selected research spotlight, *Virtual Meeting of the Cognitive Neuroscience Society*. Mar, 2021.

[3] **Rungratsameetaweemana N**, Kim R, Sejnowski TJ. Probabilistic information processing in humans and recurrent neural networks. *Neuromatch 3.0 Conference*. Oct, 2020.

[4] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Sejnowski TJ. 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.

[5] **Rungratsameetaweemana N**, Itthipuripat S, Salazar A, Serences JT. Expectation influences late stages of information processing. *18th Annual Meeting of the Vision Sciences Society*. May, 2018.

[6] **Rungratsameetaweemana N**, Olinick M. Mathematical implications of the normalization model of attention. *Annual Conference of Women in Mathematics of New England*. Sep, 2012.

CONFERENCE POSTER PRESENTATIONS

[1] **Rungratsameetaweemana N**, Kim R, Sejnowski TJ. Neural dynamics of probabilistic information processing in recurrent neural networks. *18th Annual Computational and Systems Neuroscience (Cosyne) Meeting*. Feb, 2021.

[2] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Sejnowski, Garcia JO, Bansal K. Intrinsic network topologies underlie distinct propagation dynamics of focal seizures. *Society for Neuroscience Global Connectome*. Jan 2021.

[3] **Rungratsameetaweemana N**, Lainscsek C, Garcia JO, Bansal K, Cash SS, Sejnowski TJ. Uncovering dynamical states through concurrent electroencephalography (EEG) and electrocorticography (ECoG). *Virtual Meeting of the Cognitive Neuroscience Society*. Jun, 2020.

[4] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Sejnowski TJ. Cortical chimera states as predictors for epileptic seizures. *17th Annual Computational and Systems Neuroscience (Cosyne) Meeting*. Feb, 2020.

[5] **Rungratsameetaweemana N**, Lainscsek C, Cash SS, Sejnowski TJ. Cortical chimera states as predictors for epileptic seizures. *IEEE Engineering in Medicine and Biology Society symposium and workshop on Brain, Mind, and Body: Cognitive Neuroengineering for Health and Wellness*. Dec, 2019.

[6] **Rungratsameetaweemana N**, Itthipuripat S, Serences JT. Dissociable modulation of top-down control on perceptual decision making. *19th Annual Meeting of the Vision Sciences Society*. May, 2019.

[7] **Rungratsameetaweemana N**, Schmaelzle R, Bansal K, Wasylyshyn N, Roy H, Lauharatanahirun N, Johnson T, Fernandez R, O'Donnell M, Falk E, Metcalfe J, Vettel JM, Garcia JO. Capturing communication success of driver-passenger dyads during real-world driving. *9th International Conference of the IEEE Engineering in Medicine and Biology Society on Neural Engineering*. Mar, 2019.

[8] Garcia JO, Bansal K, **Rungratsameetaweemana N**, Wasylyshyn N, Roy H, Lauharatanahirun N, Johnson T, Fernandez R, Falk E, Metcalfe J, Vettel JM. Brain network communities between driver-passenger dyads capture successful communication while driving. *9th International Conference of the IEEE Engineering in Medicine and Biology Society on Neural Engineering*. Mar, 2019.

[9] **Rungratsameetaweemana N**, Vettel JM, Oliva JB, Verstynen T, Serences JT, Garcia JO. Intrinsic neural oscillations modulate feature selectivity in human visual cortex. *48th Annual Meeting of the Society for Neuroscience*. Nov, 2018.

[10] **Rungratsameetaweemana N**, Itthipuripat S, Serences JT. Temporal dynamics of prior expectations on human perceptual decision-making. *41st Annual European Conference on Visual Perception*. Aug, 2018.

[11] **Rungratsameetaweemana N**, Squire LR, Serences JT. Effects of attention and expectation on perceptual decision making after medial temporal lobe lesions. *47th Annual Meeting of the Society for Neuroscience*. Nov, 2017.

[12] **Rungratsameetaweemana N**, Itthipuripat S, Barker E, Wagstaff L, Serences JT. Task-irrelevant contextual expectation impairs orientation discrimination performance. *16th Annual Meeting of the Vision Sciences Society*. May, 2016.

[13] **Rungratsameetaweemana N**, Itthipuripat S, Barker E, Salazar A, Serences JT. Dissociable effects of attention and expectation on perceptual decision making. *45th Annual Meeting of the Society for Neuroscience*. Oct, 2015.

[14] **Rungratsameetaweemana N**, Itthipuripat S, Serences JT. Dissociable effects of sensory evidence and expectation during visual discrimination tasks. *15th Annual Meeting of the Vision Sciences Society*. May, 2015.

[15] **Rungratsameetaweemana N**, Arndt J. The influence of internal and external arousal on memory. *55th Annual Meeting of the Psychonomic Society*. Nov, 2014.

[16] Itthipuripat S, Garcia JO, **Rungratsameetaweemana N**, Sprague TC, Serences JT. Changing the spatial scope of attention alters patterns of neural gain in human cortex. *43rd Annual Meeting of the Society for Neuroscience*. Nov, 2013.

TEACHING & MENTORING EXPERIENCE

Research Mentor

- Julie Eitzen (UC San Diego, Undergraduate researcher) 2021
- Carolyn Deustch (Cal Poly State U, Undergraduate researcher) 2021
- Mia Borzello (UC San Diego, Graduate researcher) 2020
- Julia Phillips (Fordham U, Undergraduate researcher) 2020
- Brianna Marsh (UC San Diego, Graduate researcher) 2020
- Jimmy Yu (UC San Diego, Undergraduate researcher) 2017 - 2019
- Chenlu Wang (UC Los Angeles, Undergraduate researcher) 2018
- Emely Anaya (UC San Diego, Undergraduate researcher) 2018
- Kevin Diep (UC San Diego, Undergraduate researcher) 2017
- Lilli Wagstaff (UC San Diego, Undergraduate researcher) 2016 - 2017
- Tzu-en Wang (UC San Diego, Undergraduate researcher) 2016 - 2017
- Emily Barker (UC San Diego, Undergraduate researcher) 2015 - 2017

Research Mentor, *Heithoff-Brody Scholars Program* 2021
- Nicole Men (High school researcher, The Bishop's School/ Columbia University)

Project Mentor, *Neuromatch Academy: Computational Neuroscience Course* 2021

Guest Lecturer
Neuroscience: From Brain to Behaviors, UC San Diego 2019
Geometry, Roong Arun High School, Thailand 2011
Calculus I, Roong Arun High School, Thailand 2011
General Biology, Princess Chulabhorn's College, Thailand 2010

Teaching Assistant
Special Topics in Psychology Course, UC San Diego 2015
Neurophysiology, Middlebury College 2013
Multivariable Calculus, Middlebury College 2013
Differential Equations, Middlebury College 2013
Psychological Statistics , Middlebury College 2013
Introduction to Psychology, Middlebury College 2013
Heart of Mathematics, Middlebury College 2012
Calculus II, Middlebury College 2011 - 2012

SERVICE & OUTREACH

Mentor, *Association for Women in Science* 2021 - present
Mentor, *Expanding Your Horizons of San Diego* 2021 - present
- Organized an outreach workshop with the Society for Women in Graduate Studies that aimed to increase advancement of girls and women in STEM

Member, *Read for The Blind, Thailand* 2018 - present
Contest Judge, *The Afro-Academic, Cultural, Technological and Scientific Olympics* 2021
Reviewing Mentor, *Computational & Systems Neuroscience (Cosyne) Mentoring Forum* 2021
Member, *Diversity Admission Committee*, Neurosciences Grad Program, UCSD 2015 - 2020
- Represented UC San Diego at Annual Meeting of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science 2019

Team Member, *Xiao Pengyou*, VT 2011 - 2014
- Organized outreach activities for local Asian adoptees in Vermont

Program Director, Pakchong Community STEM Outreach, Thailand 2011 - 2014
Executive Board Member, Southeast Asian Service Leadership Network (SEALNet) 2011
Team Member, Middlebury College Community Friends Outreach Program 2011
Program Leader, National Mathematics and Science Outreach, Thailand 2010

REVIEWING SERVICE

Biological Psychiatry: Global Open Science
eLife
Expert Systems with Applications
Frontiers in Human Neuroscience
IEEE International Conference of Systems, Man, and Cybernatics
IEEE Transactions on Biomedical Engineering
IEEE Transactions on Neural Networks and Learning Systems
Journal of Experimental Psychology: Human Perception and Performance
Indian Journal of Physics
Journal of Neurophysiology
Journal of Neuroscience
Learning & Memory
NeuroImage
NeurIPS workshop of Shared Visual Representations in Human & Machine Intelligence

MEDIA COVERAGE

Featured *Next Gen Postdoc* profile in *Inside Salk magazine* 2021
Featured news article in *Middlebury Magazine Class Notes* 2021
Featured news article in *Pomfret School Alumni Spotlight* 2021
Featured news article in *The U.S. Army CCDC Research Spotlight* 2020

REFERENCES

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