

# NUTTIDA RUNGRATSAMEETAWEEMANA

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San Diego, CA

## ACADEMIC POSITION

**Postdoctoral Scholar**, The Salk Institute for Biological Studies  
Advisor: Dr. Terrence J. Sejnowski

July 2020 - Present

## 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

August 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*, October, 2021.
- [2] *The Swartz Foundation Meeting*, Computational Neuroscience center, U of Washington. October, 2021.
- [3] *STEMinar Series*, UC San Diego, May, 2021.
- [4] *Computational Cognitive Neuroscience Lab*, Georgia Institute of Technology. March, 2021.
- [5] *Diversity and Science Lecture Series*, UC San Diego. December, 2020.
- [6] *Intelligent and Complex Systems Seminar Series*, Chulalongkorn University, Thailand. June, 2020.
- [7] *Neuroscience and Psychology Research Talk Series*, Middlebury College. January, 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*. June, 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*. March, 2021.
- [3] **Rungratsameetaweemana N**, Kim R, Sejnowski TJ. Probabilistic information processing in humans and recurrent neural networks. *Neuromatch 3.0 Conference*. October, 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*. December, 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*. September, 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*. February, 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*. January, 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*. June, 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*. February, 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*. December, 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, Wasylshyn 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*. March, 2019.
- [8] Garcia JO, Bansal K, **Rungratsameetaweemana N**, Wasylshyn 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*. March, 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*. November, 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*. August, 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*. November, 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*. October, 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*. November, 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*. November, 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

• Nicole Men (High school researcher, The Bishop's School/ Columbia University)	2021
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### Project Mentor, Neuromatch Academy: Computational Neuroscience Course

2021

### Guest Lecturer

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

## Teaching Assistant

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

## SERVICE & OUTREACH

Mentor, <i>Association for Women in Science</i>	2021 - present
Mentor, <i>Expanding Your Horizons of San Diego</i>	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, <i>Read for The Blind, Thailand</i>	2018 - present
Contest Judge, <i>The Afro-Academic, Cultural, Technological and Scientific Olympics</i>	2021
Reviewing Mentor, <i>Computational &amp; Systems Neuroscience (Cosyne) Mentoring Forum</i>	2021
Member, <i>Diversity Admission Committee</i> , 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, <i>Xiao Pengyou</i> , 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 Cybernetics  
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 <i>Next Gen Postdoc</i> profile in <i>Inside Salk magazine</i>	2021
Featured news article in <i>Middlebury Magazine Class Notes</i>	2021
Featured news article in <i>Pomfret School Alumni Spotlight</i>	2021
Featured news article in <i>The U.S. Army CDC Research Spotlight</i>	2020