Isaac Ray Christian

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EDUCATION

2020- Joint Ph.D. in Psychology and Neuroscience
2020-2022: Princeton University, NJ: Master's in Psychology
2014-2018: San Diego State University, CA: B.S. Information Systems; Cognitive Neuroscience minor; Interdisciplinary Studies minor

FUNDING AND ACCOLADES

2025-2026: Harold W. Dodds Honorific Fellowship
2024-2025: Graduate Student Fellow in Cognitive Science
2014-2018: Honors College Graduate, San Diego State University

ARTICLES IN PREP

Christian, I. R., Haputhanthrige, U., Cambell, D., Hornfield, H., Webb T. & Graziano, M. S. A. Alignment Between Human and Vision Language Model Attention in Social Reasoning and Descriptive Captioning Tasks.

PREPRINTS AND SUBMITTED ARTICLES

Christian, I. R., Lonski, A. J., Masís, J., Loveys, A., & Graziano, M. S. A. (under review, 2025). Linear and Nonlinear Effects of Spatial and Temporal Attention: Human Data and Drift Diffusion Model. *Under review at Scientific Reports.*

K. Ziman, S. C. Kimmel, **I. Christian,** K. T. Farrell & M. S. A. Graziano, (2025) Cortical networks active when modeling the attention of others. *Under review at Cerebral Cortex.*

Christian, I. R., Nastase, A. S. (under review, 2025). Hierarchical systems in the default mode network when reasoning about self and other mental states. *Under review at the journal of Social Cognitive and Affective Neuroscience.*

Christian, I. R., Nastase, A. S., Kim, K. L., Graziano, M., (under review, 2024). Meta-awareness, mind-wandering, and the control of 'default' external and internal orientations of attention. *Under review at Imaging Neuroscience.*

Christian, I. R. & Graziano (2022). Consciousness: In your own words. (*Psyarchive*)

PUBLICATIONS

Christian, I. R., Nastase, A. S., Yu, M., Graziano, M. (2025). Monitoring Attention in Self and Others. *Journal of Cognitive Neuroscience.*

Liuzzi, M. T., Kryza-Lacombe, M., **Christian, I. R.,** Owen, C., Redcay, E., Riggins, T., & Wiggins, J. L. (2023). Irritability in early to middle childhood: Cross-sectional and longitudinal associations with resting state amygdala and ventral striatum connectivity. *Developmental Cognitive Neuroscience*, *60*, 101206.

Christian, I. R., Liuzzi, M. T., Yu, Q., Kryza-Lacombe, M., Monk, C. S., Jarcho, J., & Wiggins, J. L. (2022). Context-dependent amygdala-prefrontal connectivity in youths with autism spectrum disorder. *Research in Autism Spectrum Disorders*, *91*, 101913.

Bhutani, S., **Christian, I. R.,** Palumbo, D., & Wiggins, J. L. (2021). Reward-related neural correlates in adolescents with excess body weight. *NeuroImage: Clinical*, *30*, 102618.

Liuzzi, M. T., Kryza-Lacombe, **M., Christian, I. R.,** Palumbo, D. E., Amir, N., & Wiggins, J. L. (2020). Neural and behavioral correlates of inhibitory control in youths with varying levels of irritability. *Journal of affective disorders*, *273*, 567-575.

PEER REVIEWED CONFERENCE PUBLICATIONS

Christian, I.R., Graziano, M., Metzgar, R., Nastase, S., (2024). Cortical Semantic Encoding Varies with Attention and Habituation. *Cognitive Computational Neuroscience.*

Velazquez-Vargas, C. A., **Christian, I. R**., Taylor, J., Kumar, S. (2024). Learning to Abstract Visuomotor Mappings using Meta-Reinforcement Learning. *International Conference On Learning Representations*.

Christian, I.R., & Agrawal, M. (2022). A Computational Model of Unintentional Mind Wandering in Focused Attention Meditation. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44).

INVITED TALKS

Christian, I.R., Stimulus Encoding Modulated by Attention and Adaptation across Macro-scale Networks. Invited talk presented at the Department of Neuroscience, Albert Einstein College of Medicine. 08-07-24, Bronx, NY.

Christian, I.R., Stimulus Encoding Modulated by Attention and Adaptation across Macro-scale Networks. Invited talk presented at the annual retreat for the Department of Neuroscience at Princeton University. 05-02-24, Philadelphia, PA.

CONFERENCE TALKS

Christian, I.R., Nastase, S. (2025). Hierarchical Systems in the Default Mode Network when Reasoning about Self and Other mental states. Presented at the Conference for Cognitive and Computational Neuroscience.

Christian, I.R., Graziano, M., Metzgar, R., Nastase, S. (2024). Examining Hierarchical Neural Representations when Forming Mental Models of Self and Other Agents. Talk Presented at the Association for the Scientific Study of Consciousness.

Christian, I. R., & Agrawal, M. (2022). *A Computational Model of Unintentional Mind Wandering in Focused Attention Meditation*. Talk Presented at the Cognitive Science Society, Toronto, Canada.

Christian, I.R., Wilterson, A.I., Graziano, M.S.A., (2021). *An Artificial Neural Network Agent Trained to Control Endogenous Visuo-spatial Attention.* Talk presented at the Association for the Scientific study of Consciousness, virtually.

Christian, I.R., Wilterson, A.I., Graziano, M.S.A., (2020). *Simulating the Mechanisms of Meta-awareness Using an Artificial Reinforcement Learning Agent in an Endogenous Visuo-spatial Attention Task: Support for the Attention Schema Theory*. Talk presented at Society for Consciousness, Amsterdam, Netherlands.

Christian, **I.R**., Yu, Q., Liuzzi, M.T., Wiggins, J.L. (2019). *Alterations in Connectivity Patterns by Cognitive State and Mental Disorder Status may suggest different neural patterns of Consciousness.* Talk presented at the Society for Consciousness, Tucson, AZ.

POSTER PRESENTATIONS

Christian, I.R., Webb, T., Graziano, M., (2025). Alignment Between Human Attention and a Gated Attention Mechanism in Social and Descriptive Captioning Tasks. Poster presented at the Frontiers in NeuroAI Kempner Institute, Boston, MA.

Christian, I.R., Nastase, S., (2025). Hierarchical Systems in the Default Mode Network when Reasoning about Self and Other mental states. Poster presented at Cognitive Computational Neuroscience, Amsterdam, Netherlands.

Christian, I.R., Graziano, M., Nastase, S., (2024). Two default modes, internal and external, revealed through whole-brain synchrony. Poster presented at the Organization for Human Brain Mapping, Seoul, South Korea.

Christian, I.R., Graziano, M., Metzgar, R., Nastase, S., (2024). Cortical Semantic Encoding Varies with Attention and Habituation. Poster presented at Cognitive Computational Neuroscience, Boston, MA.

Lonkski, A.J., **Christian, I. R.,** Graziano, M., Exploring Attentional Decay Over Time Through a Task-Related Attention and Vigilant Attention Paradigm. (2023) Poster presented at the 3rd workshop on Mental Effort. Presented at Providence, RI.

Christian, I.R., Liuzzi, M.T., Yu, Q., Kryza-Lacombe, M., Wiggins, J.L. (2019, September). *Understanding the mechanisms of irritability by comparing neural and behavioral measures of inhibitory control.* Poster presented at the 3rd annual Congress on Pediatric Irritability and Dysregulation, Burlington, VT.

Liuzzi, M.T., **Christian, I.R.,** Palumbo, D., Osuna, L., Dougherty, L.R., Wiggins, J.L. (2019, September). *Irritability-related intrinsic amygdala connectivity in preschool- and school-aged youths.* Poster presented at the 3rd annual Congress on Pediatric Irritability and Dysregulation, Burlington, VT.

Bland, N., **Christian**, **I.R**., Yu, Q., Huang, K., (2018 March) Wiggins, J.L. *Combination of functional connectivity during task and resting-state as classifier for autism spectrum disorder patients*

Kryza-Lacombe, M., **Christian, I.R.**, & Wiggins, J. (2019). C-47 Associations of Executive Functioning with Neural Mechanisms of Reward Processing in Youth. *Archives of Clinical Neuropsychology*, *34*(6), 1076-1076.

TEACHING

Assistant Instructor (AI), Princeton University Psychology Department
Fall, 2022, 2024: PSY-304: The Psychology of Decision Making
Instructor: Eldar Shafir

Assistant Instructor (AI), Princeton University Psychology Department
Fall, 2023: PSY-300: Research Methods in Psychology
Instructor: Justin Junge

Assistant Instructor (AI), Princeton University Psychology Department
Fall, 2021: PSY-255: Cognitive Psychology
Instructor: Tania Lombrozo

AD-HOC REVIEWER

NeurIPS
Developmental Cognitive Neuroscience
Journal of Child Psychology and Psychiatry

EMPLOYMENT HISTORY

2018-2020: Research Specialist: San Diego State University Psychology Department, PI: Jillian Wiggins
2018-2020: Data Analyst and IT: Terry Town, San Diego CA
2019-2020: Research Specialist: San Diego State University Department of Health Sciences, PI: Surahbi Bhutani
2017-2018: Junior Researcher: San Diego State University Psychology Department, PI: Jonathan Helm
2016-2018: CMO and Cofounder, Oakland CA, Hype 360 Technologies
2016-2018: UX designer: Molecule Digital, Concord CA
2014-2015: Data analyst: Independent Contractor, San Francisco CA, Supervisor: Mark Tuttle

LEADERSHIP AND STUDENT ORGANIZATIONS

2021-2023: Grad Student Government: Executive Officer for Social Events
2021-2023: Buddy Program, Princeton Psychology Dept. & Graduate Student Government
2022: WPRB radio station host
2021: Princeton Psychology Department Leadership: Events Chair
2018: Sigma Phi Epsilon Executive Board, Brother Mentor
2016: International Business Society Cofounder and President