Angela Radulescu

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Academic Positions

2022 – present **Assistant Professor**
Departments of Psychiatry and Neuroscience, Icahn School of Medicine at Mt. Sinai (ISMMS)
Center for Computational Psychiatry

2020 – 2022 **Faculty Fellow/Assistant Professor**
Center for Data Science, New York University

Education

2014 – 2020 Ph.D. in Cognitive Psychology and Neuroscience
Princeton University
Advisers: Yael Niv, Nathaniel Daw

2007 – 2011 B.A. in Neuroscience and Behavior, Economics
Columbia University

Awards & Honors

2020 Schmidt Science Fellowship Finalist
2017 Travel Award, Reinforcement Learning and Decision Making (RLDM)
2017 Cognitive Science Graduate Fellowship, Princeton University
2017 Re-entry Fellowship, Prison Teaching Initiative at Princeton University
2015 Charlotte and Morris Tanenbaum *52 Fellowship, Princeton University
2014 Travel Award, Computational and Systems Neuroscience (Cosyne)
2013 Travel Award, Mechanisms of Motivation, Cognition and Aging Interactions
2011 Dean's List, Columbia University
2010 Summer Undergraduate Research Fellowship, Columbia University
2007 John Jay Scholar, Columbia University

Funding

2020 – 2023 Facebook Reality Labs, Cognitive Science Consortium Grant - Toward Rich User-World Predictive Interaction Models to Enable Human-Machine Collaboration (MPI)

Preprints

2023 Zhu J, **Radulescu A**, Bennett D. Emotional overshadowing: pleasant and unpleasant cues overshadow neutral cues in human associative learning. https://osf.io/preprints/psyarxiv/jekug.

2022 **Radulescu A***, van Opheusden B*, Callaway F, Griffiths TL, Hillis JM. Modeling human eye movements during immersive visual search. https://www.biorxiv.org/content/10.1101/2022.12.01.518717v1. [* equal contribution]

Trach JE, deBettencourt MT, **Radulescu A**, McDougle SD. Reward prediction errors modulate attentional vigilance. [trainee first author] https://psyarxiv.com/c8zq7

2020 **Radulescu A**, Holmes K, Niv Y. On the convergent validity of risk sensitivity measures. https://doi.org/10.31234/osf.io/qdhx4

Journal Articles

2023 Bennett D*, **Radulescu A***, Zorowitz S, Felso V, & Niv Y. (2023). Affect-congruent attention modulates generalized reward expectations. *PLOS Computational Biology*, *19*(12), e1011707. [* equal contribution]

2023 Wise T, Emery K, & **Radulescu A**. (2023). Naturalistic reinforcement learning. *Trends in Cognitive Sciences*.

2021 **Radulescu A**, Shin Y, Niv Y. Human Representation Learning. *Annual Review of Neuroscience*, *44*.

2020 Daniel R, **Radulescu A**, Niv Y. Multidimensional probabilistic learning reveals impaired attentional control during reinforcement learning in older adults. *Journal of Neuroscience*, 40(5), 1084-1096.

2019 **Radulescu A**, Niv Y. State representation in mental illness. *Current opinion in neurobiology*, 55: 160-166.

2019 **Radulescu A**, Niv Y, Ballard IC. Holistic reinforcement learning: the role of structure and attention. *Trends in Cognitive Sciences*.

2017 Leong YC*, **Radulescu A***, Daniel R, DeWoskin V, Niv Y. Dynamic interaction between reinforcement learning and attention in multidimensional environments. *Neuron*. 93(2), 451-463. [* equal contribution].

2016 **Radulescu A**, Daniel R, Niv Y. The effects of aging on the interaction between reinforcement learning and attention. *Psychology and Aging*, *31*(7), 747.

2016 Arkadir D, **Radulescu A**, Lubarr N, Raymond D, Bressman SB, Mazzoni P, Niv Y. *DYT1* dystonia increases risk taking in human. *eLife*, *5*, e14155.

2015 Niv Y, Daniel R, Geana A, Gershman SJ, Leong Y, **Radulescu A**, Wilson RC. Reinforcement learning in multidimensional environments relies on attention mechanisms. *Journal of Neuroscience*, 35, 8145-8157.

2014 Gershman SJ, **Radulescu A**, Norman KA, Niv Y. Statistical computations underlying the dynamics of memory updating. *PLoS Computational Biology*, 10, e1003939.

Conference Proceedings (peer-reviewed)

2024 Maher C, Qasim S, Nunez Martinez L, Saez I, **Radulescu A**. Intracranial recordings reveal neural encoding of attention-modulated reinforcement learning in humans. *Computational Cognitive Neuroscience* (*CCN*), Bostom, MA. [paper selected for a talk]

2024 Li J, **Radulescu A**. A link between self-efficacy and optimistic overgeneralization. *Computational Cognitive Neuroscience* (*CCN*), Bostom, MA.

2024 Eckstein M, Miller KJ, **Radulescu A**. A Generative Grammar for Automatically Designing Experiments on Human Learning and Decision Making. *Computational Cognitive Neuroscience* (*CCN*), Bostom, MA.

2024 Li J, **Radulescu A**. Dynamic self-efficacy as a computational mechanism of mania emergence. *Proceedings of the 46th Annual Conference of the Cognitive Science Society*.

2022 **Radulescu A**, Vong WK, Gureckis TM. Name that state: How language affects human reinforcement learning. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*.

2020 **Radulescu A***, van Opheusden B*, Callaway F, Griffiths TL, Hillis JM. From heuristic to optimal models in naturalistic visual search. *Bridging AI and Cognitive Science workshop (BAICS), International Conference for Learning Representations (ICLR)*, Addis Ababa, Ethiopia (online).
[paper selected for a talk, 4/63 acceptance rate]

2019 **Radulescu A**, Niv Y, Daw ND. A particle filtering account of selective attention during learning. *Computational Cognitive Neuroscience (CCN),* Berlin, Germany.

2019 Davidson G*, **Radulescu A***, Niv Y. Contrasting the effects of prospective attention and retrospective decay in representation learning. *Reinforcement Learning and Decision Making (RLDM)*, Montreal, Canada. [trainee first author]

2018 Davidson G*, **Radulescu A***, Niv Y. Passive forgetting or selective attention? Comparing two models of learning in multidimensional environments. *Computational Cognitive Neuroscience* (*CCN*), Philadelphia, PA. [trainee first author]

2017 **Radulescu A**, Leong YC, Niv Y. Reward sensitive attention dynamics during human reinforcement learning. *Computational Cognitive Neuroscience (CCN),* New York, NY.

2017 **Radulescu A**, Leong YC, Niv Y. Reward sensitive attention dynamics during human reinforcement learning. *Reinforcement Learning and Decision Making (RLDM),* Ann Arbor, MI.
[paper selected for a talk]

2017 **Radulescu A**, Leong YC, Niv Y. Reward sensitive attention dynamics during human reinforcement learning. *Vision Sciences Society (VSS),* St. Pete Beach, FL.
[paper selected for a talk]

2017 Hitchcock P, **Radulescu A**, Niv Y, Sims C. Building on solid ground: establishing the stability of computational modeling parameters. In Hitchcock, P. (Chair), Introducing Computational Clinical Science: New Techniques to Improve Methods, Theory, Diagnosis, and Prediction. Symposium to be presented at *51st Annual Convention for the Association for Behavioral and Cognitive Therapies*, San Diego, California.

Commentaries

2021 **Radulescu A**. Can data include personal narrative? *NYU Center for Data Science blog*. [link]

2014 Niv Y, Langdon AJ, **Radulescu A**. A free-choice premium in the basal ganglia. (2014). *Trends in Cognitive Sciences*, 19(1), 4-5.

Conference Poster Presentations *(selected)*

2024 Xie M, Gu X, **Radulescu A**. Effects of attention and learning on mood dynamics. (2024). *Computational Psychiatry Conference*, Minneapolis, MN.

2023 Beltrán JM, Mehta MM, Butler G, **Radulescu A**, Morris LS. Exploring the neural correlates of reward and punishment learning in depression using 7-Tesla MRI. (2023). *Computational Psychiatry Conference*, Dublin, Ireland.

2023 Li J, **Radulescu A**. Dynamic self-efficacy updating as a computational mechanism of mania emergence. (2023). *Computational Psychiatry Conference*, Dublin, Ireland.

2022 Maher C, Gu X, **Radulescu A**, Saez I. The neural basis of representation learning in the human prefrontal cortex. (2022). *Society for Neuroscience Annual Meeting*, San Diego, CA.

2018 **Radulescu A**, Niv Y. Separable attention processes constrain multidimensional reinforcement learning. (2018). *Society for Neuroscience Annual Meeting*, San Diego, CA.

2017 Bu J**, Radulescu A**, Turk-Browne NB, Niv Y. Feature-based reward learning biases dimensional attention. (2017). *Vision Sciences Society (VSS),* St. Pete Beach, FL.

2017 **Radulescu A**, Leong YC, Niv Y. Reward-sensitive attention dynamics during human reinforcement learning. (2017). *Computational Cognitive Neuroscience*, New York, NY.

2016 **Radulescu A**, Allefeld C, Schuck N, Haynes JD, Niv Y. Studying value-guided decision making through model-based multivariate fMRI analysis. (2016). *Society for Neuroeconomics*, Berlin, Germany.

2015 **Radulescu A**, Niv Y. Learning state representations from experience. (2015). *Machine Learning Summer School*, Tübingen, Germany.

2014 Arkadir D, **Radulescu A**, Lubarr N, Raymond D, Bressman SB, Mazzoni P, Niv Y. A link between corticostriatal plasticity and risk taking in humans. (2014). *Computational and Systems Neuroscience (Cosyne)*, Salt Lake City, UT. [presenting author]

2012 **Radulescu A**, Niv Y. Age-related differences in learning to selectively attend. (2012). *Society for Neuroscience Annual Meeting*, New Orleans, LA.

Invited Talks

2024 **Columbia University Seminar on Cognitive and Behavioral Neuroscience**
SUNY Downstate Behavioral and Neural Science Seminar
2023 **Max Planck UCL Center for Computational Psychiatry**
SfN Minisymposium: Generalization for Learning and Decision-Making
NIA Workshop on Computational Approaches to Advance Aging and AD/ADRD Research
Algorithms for Building and Structuring Internal Models, Park City Winter Conference
2022 **NSF/Simons NeuroDataScience Workshop, University of California, Irvine**
Maps in Reinforcement Learning RLDM Conference Workshop
NYU Center for Data Science, Women in Data Science Panel
Dartmouth College Cognitive Brown Bag
University of Chicago Department of Psychology Cognition Workshop
2021 **RLDM Meeting, Max Planck Institute, Tübingen, Germany**
University of California, Berkeley Department of Psychology
Department of Psychiatry, Icahn School of Medicine at Mt. Sinai
Shenhav Lab, Cognitive, Linguistic & Psychological Sciences, Brown University
2020 **Max Planck UCL Center for Computational Psychiatry**
Microsoft Research Seminar
MILA, Neural-AI Reading Group
2019 **New York University, Department of Psychology, ConCats Seminar**
Princeton Neuroscience Institute Retreat
Rutgers University, Cognitive Science Graduate Seminar
Tel Aviv University, Department of Psychology
2018 **Manhattan Area Memory Meeting**

Invited Workshops and Tutorials

2024 **SRDNA Computational Modeling Workshop**. Reinforcement learning tutorial
2024 **Computational Psychiatry Conference.** Reinforcement learning tutorial
2021 **FLUX Computational Modelling Workshop**. Computational models of human gaze data tutorial
2021 **Mental Effort Workshop**. Computational models of human gaze data tutorial

Teaching

2024 – **New York Computational Psychiatry Workshop** – founding co-director
2023 – **Modern Statistics for Modern Biology**, ISMMS – co-director
2022 – **Fundamentals of Computational Psychiatry**, ISMMS – founding co-director

2022 – **Selected Topics in Neuroscience***,* ISMMS – co-director
2021 **Advanced Topics in Data Science**, New York University – co-lead instructor
2018 **Introduction to Cognitive Neuroscience**, Princeton University – assistant instructor
2015 – 2019 **Introduction to Psychology**, Princeton Prison Teaching Initiative – instructor, team lead
2017 **Introduction to Neuroscience**, Columbia University High School Programs – instructor
2015 **Developmental Psychology**, Princeton University – instructor
2010 **Thinking and Decision Making**, Columbia University – teaching assistant

Mentoring

2023 – Marjorie Xie (postdoctoral fellow, ISMMS)
2023 – Jing Li (graduate student, neuroscience, ISMMS)
2022 – Catherine Kim (research coordinator, ISMMS)
2022 – Jackie Beltran (graduate student, neuroscience, ISMMS)
2022 – 2023 Itzel Martinez (MA student, neuroscience, ISMMS)
2021 – Christina Maher (graduate student, neuroscience, ISMMS)
2021 – 2023 Kara Emery (postdoctoral fellow, NYU Center for Data Science)
2021 Sally Leung (NYU undergraduate independent research; MA student at Columbia)
2021 Praxal Patel (NYU Center for Data Science MA independent research)
2018 Guy Davidson (Princeton summer internship; graduate student at NYU Center for Data Science)
2017 – 2018 Julie Newman (Princeton undergraduate senior thesis; analyst at ClearView Healthcare)
2015 – 2017 Jennifer Bu (Princeton undergraduate senior thesis; medical student at UCSD)
2015 David Wang (Princeton summer internship; medical student at Stanford)

Thesis committees

2023 – Jackie Beltran (ISMMS)
2023 – Alessandra Yu (ISMMS)
2023 – Matthew Schafer (ISMMS)
2023 – Qixiu Fu (ISMMS)
2023 – Nathan Tyler-Hall (UNC Chapel Hill)
2023 – Alexandra Fink (ISMMS)
2023 – Pushkala Jayaraman (ISMMS)

Ad-hoc Reviewer

ACM Symposium on Eye-tracking Research and Applications (ETRA) | *Aging, Neuropsychology and Cognition* | *Biological Psychiatry* | *Cerebral Cortex* | *Cognition* | *Cognitive, Affective and Behavioral Neuroscience (CABN)* | *Collabra* | *Computational Cognitive Neuroscience (CCN)* | *Computational Systems Neuroscience (Cosyne)* | *Computational Psychiatry Conference (CPC)* | *Cognitive Science Society (CogSci)*| *Current Biology* | *Current Opinion in Behavioral Sciences* | *eLife* | *eNeuro* | *Journal of Mathematical Psychology* | *Journal of Neuroscience* | *Nature Communications* | *Nature Human Behavior* | *Neural Networks* | *Neurons, Behavior, Data Analysis, and Theory* | *PLoS Computational Biology* | *Psychonomic Bulletin & Review* | *Science* | *Scientific Reports*

Service

2024 – **Icahn School of Medicine at Mt. Sinai***,* curriculum committee
2023 – **Computational Cognitive Neuroscience***,* program committee, DEI chair

Summer Courses

2018 **Methods in Neuroscience at Dartmouth (MIND)**, Dartmouth University, Hanover, NH
2015 **Machine Learning Summer School**, MPI Tübingen, Germany

Research Positions

2019 – 2020 Ph.D. intern, Facebook Reality Labs; manager: James Hillis
2011 – 2014 Lab manager, Princeton Neuroscience Institute; adviser: Yael Niv
2010 – 2011 Undergraduate research assistant, Columbia University; adviser: Jacqueline Gottlieb
2009 Undergraduate research assistant, Columbia University; adviser: Elke Weber