

SAMUEL CHEYETTE

Postdoctoral Researcher
MIT, Brain & Cognitive Sciences
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EDUCATION

Massachusetts Institute of Technology, <i>Cambridge MA</i> Postdoctoral Fellow in Brain & Cognitive Sciences Advisor: Joshua Tenenbaum	2022-Present
University of California, Berkeley, <i>Berkeley CA</i> PhD in Psychology Advisor: Steven Piantadosi Thesis: <i>Making Sense of Number, Bit-by-Bit</i>	2016-2022
Carnegie Mellon University, <i>Pittsburgh PA</i> BS in Cognitive Science Thesis: <i>A Neural Network Model of the N400 and P600</i>	2012-2016

ACADEMIC AWARDS & FELLOWSHIPS

2023	Glushko Dissertation Prize
2023	CogSci Society Award for Best Computational Modeling Paper in Higher-Level Cognition
2021	CogSci Society Award for Best Computational Modeling Paper in Perception/Action
2019-2020	ICBS Seed Grant Award
2016-2018	NSF Graduate Fellowship, National Research Training Grant
2016	University Honors from Carnegie Mellon University
2014	NIH Undergraduate Fellowship in Computational Neuroscience

PAPERS

Cheyette, S. J., Chen, T., Hofer, M., Callaway F., Bramley N., Tenenbaum, J. (under review), “Decompose, Deduce, and Dispose: A Memory-Limited, Metacognitive Model of Human Problem-Solving.”

- Mills, T. E., Coates, N., Silva A., Ferrigno, S., Schulz L., Tenenbaum, J. B., & Cheyette, S. J. (in prep), “The comparative and developmental origins of spatiotemporal sequence processing.”
- Cheyette, S. J., Callaway, F., Bramley, N. R., Nelson, J. D., Tenenbaum, J. B. (under review), “Representational capacity limits shape human active learning.”
- Ferrigno, S., Cheyette, S. J., Carey, S. (under review), “Creating recursive, center-embedded sequences with an iterative queue.”
- Cheyette, S. J., Wu, S., & Piantadosi, S. T. (2024), “Limited information-processing capacity in vision explains number psychophysics.” *Psychological Review*.
- Cheyette, S. J. & Piantadosi, S. T. (2024), “Response to difficulty drives variation in IQ test performance.” *Open Mind*.
- Mills, T. E., Coates, N., Silva A., Ferrigno, S., Schulz L., Tenenbaum, J. B., & Cheyette, S. J. (2024), “Connecting the dots: a comparative and developmental analysis of spatiotemporal pattern learning.” *Proceedings of the 46th Annual Cognitive Science Conference*.
- Mills, T. E., Tenenbaum, J. B., & Cheyette, S. J. (2024), “Spatiotemporal pattern learning as probabilistic program synthesis.” *Advances in Neural Information Processing Systems*.
- Cheyette, S. J., Callaway, F., Bramley, N. R., Nelson, J. D., Tenenbaum, J. B., (2023), “People seek easily interpretable information.” *Proceedings of the 45th Annual Cognitive Science Conference*.
- Chen, T., Allen, K. R., Cheyette, S. J., Tenenbaum, J. B., Smith, K. A. (2023), “‘Just In Time’ Representations for Mental Simulation in Intuitive Physics.” *Proceedings of the 45th Annual Cognitive Science Conference*.
- Ngo, T., Cheyette, S. J., Tenenbaum, J. B., Smith, K. A. “Strategy choice for physical reasoning is (partially) sensitive to cognitive costs.” *Proceedings of the 45th Annual Cognitive Science Conference*.
- McCormick, E. N., Cheyette, S. J., & Gonzalez, C. (2022), “Choice adaptation to changing environments: trends, feedback, and observability of change.” *Memory & Cognition*.
- Cheyette, S. J., Wu, S., & Piantadosi, S. T. (2021), “The psychophysics of number arise from resource-limited spatial memory,” *Proceedings of the 43rd Annual Cognitive Science Conference*.
- Cheyette, S. J. & Piantadosi, S. T. (2020), “A unified account of numerosity perception.” *Nature Human Behaviour*.
- Ferrigno, S., Cheyette, S. J., Piantadosi, S. T., & Cantlon, J. (2020), “Recursive sequence generation in monkeys, children, and native Amazonians,” *Science Advances*.
- Cheyette, S. J. & Piantadosi, S. T. (2019), “A primarily serial, foveal accumulator underlies approximate numerical estimation,” *Proceedings of the National Academy of Sciences*.
- Cheyette, S. J. & Piantadosi, S. T. (2017), “Modeling knowledge transfer in a Language of Thought,” *Proceedings of the 39th Annual Cognitive Science Conference*.
- Cheyette, S. J. & Plaut, D. C., (2017), “Modeling the N400 ERP component as transient semantic over-activation within a neural network model of word comprehension,” *Cognition*.

Cheyette, S. J., Konstantinidis, E., Harman, J. L., & Gonzalez, C., (2016) “Choice adaptation to increasing and decreasing event probabilities” in *Proceedings of the 38th Annual Cognitive Science Conference*.

PRESENTATIONS

Cheyette, S. J., Callaway, F., Bramley, N. R., Nelson, J. D., Tenenbaum, J. B., (2023), “People seek easily interpretable information.” Paper presented at *Proceedings of the 45th Annual Cognitive Science Conference*.

Cheyette, S. J., Wu, S., & Piantadosi, S. T. (2021), “Resource limits in spatial memory determine number psychophysics.” Paper presented at *McDonnell Workshop on Number*.

Cheyette, S. J., Ferrigno S., & Piantadosi, S. T., Cantlon, J. (2021) , “Bayesian modeling of recursive strategy use across populations.” Paper presented at the *McDonnell Workshop on Recursion*.

Izard, V., Overmann, K., O’Shaughnessy, D., Cheyette, S. J. (2020, Cancelled), “Beyond WEIRD: Numerical cognition across cultures.” *Mathematical Cognition & Learning Society*.

Cheyette, S. J., Pitt, B., Piantadosi, S., Gibson, E. (2019). “Math Ability Varies Independently of Number Estimation in the Tsimané.” Poster presented at the *41st Annual Conference of the Cognitive Science Society*.

Cheyette, S. J. & Piantadosi, S. T., (2018) , “Foveal accumulation underlies numerical estimation.” Paper presented at *Sloan Workshop on Value & Decision-Making*.

Cheyette, S. J. & Piantadosi S.T. (2018), “Quantity in Language and Thought.” Paper presented at *30th Annual European Summer School on Language and Information*.

Cheyette, S. J. & Piantadosi, S. T. (2017), “Modeling knowledge transfer in a Language Of Thought.” *39th Annual Cognitive Science Conference*.

McCormick, E., Cheyette, S. J., & Gonzalez, C. (2016), “Human adaptation to gradual probability and outcome change.” Poster presented at *Society for Judgment and Decision Making*.

Cheyette, S. J., Konstantidinis, E., Harman, J. L., & Gonzalez, C., (2016) “Choice adaptation to increasing and decreasing event probabilities.” Poster presented at *Proceedings of the 38th Annual Cognitive Science Conference*.

INVITED TALKS

2022 Harvard *Elizabeth Bonawitz Lab*
 Harvard *Tomer Ullman Lab*

2021 Harvard *McDonnell Foundation Workshop on Number*
 Harvard *McDonnell Foundation Workshop on Recursion*

2020 MIT *Ted Gibson Lab*
 Harvard University *Susan Carey Lab*

	UCSD	<i>Dave Barner Lab</i>
	Universitat Pompeu Fabra	<i>Ruben Moreno-Bote Lab</i>
	Rutgers University	<i>Elizabeth Bonawitz Lab</i>
2019	UC Berkeley	<i>Redwood Center for Theoretical Neuroscience</i>
	UC Berkeley	<i>Pupillometry and Eye-Tracking Workshop</i>
	UC Berkeley	<i>Cognition Colloquium</i>
2018	NYU	<i>Workshop on Attention & Choice</i>
2017	University of Rochester	<i>NSF Computational Training Grant Workshop</i>

TEACHING & MENTORSHIP

2020 Spring	UC Berkeley	Computational Models of Cognition (GSI)
2019 Summer	UC Berkeley	Computational Models of Cognition (GSI)
2018 Fall	UC Berkeley	Computational Models of Cognition (GSI)
2017	University of Rochester	Developmental Psychology (TA)
2016	Carnegie Mellon	Cognitive Psychology (TA)
2015	Carnegie Mellon	Cognitive Psychology (TA)
2014	Carnegie Mellon	Cognitive Psychology (TA)

Mentees: Gwyneth Heuser, Ashley Bardhan, Yuchen Zhou, Manasi Aranake, Kaavya Singhal, Shengyi Wu, Tracey Mills, Josephine Wang, Tony Chen, Kaylee Ji

Teaching Interests: Cognitive Psychology, Computational Models of Cognition, Psychophysics, Research Methods, Statistics

SERVICE

Ad hoc reviewer for Nature Human Behaviour, Psychonomic Bulletin & Review, Psychological Review, Open Mind, Cognitive Science, PNAS, Frontiers in Psychology, Infancy, Developmental Science, Cognition, Cognitive Psychology, Journal of Experimental Psychology, and the NSF.

PRIOR RESEARCH

EXPERIENCE

2015-2016	RA, Center for Neural Basis of Cognition, CMU (with David Plaut).
2015-2016	RA, Dynamic Decision-Making Lab (with Cleotilde Gonzalez).
2014-2015	Computational Neuroscience Fellowship (with David Plaut).
2013-2015	RA, Kemp Lab (with Charles Kemp).
2013	Summer Intern, Helen Wills Neuroscience Institute (with Elizabeth Carroll)
2011	Summer Intern, CMB at UC Davis (with Clifford Saron)