

Brenden Eum

Management and Data Analytics Lab, 105 St. George Street, Room 9080, Toronto, Canada M5S 3E6

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Executive Summary

- Postdoctoral Fellow in Marketing at the Rotman School of Management, with a Ph.D. from Caltech (Social & Decision Neuroscience) and an M.A. from Columbia University (Economics).
- Research integrates economic and marketing theory with cognitive science. Utilizes eye-tracking, fMRI, choice process models, and AI to investigate demand, market efficiency, prices, and individual choices.
- Published in Psychological Science. Cumulative funding over \$138,000 (non-awards, PhD onwards).
- Won teaching award, earned university teaching certificate, and received high teaching scores.
- Sole organizer for an eye-tracking symposium and the SDN graduate bootcamp at Caltech.

Employment

Rotman School of Management, University of Toronto

Toronto, ON

2024 - 2027 (expected)

POSTDOCTORAL FELLOW, MARKETING

- Principal Investigator: Ryan Webb

Education

California Institute of Technology

Pasadena, CA

2019 - 2024

PHD SOCIAL & DECISION NEUROSCIENCE

- Advisor: Antonio Rangel
- Committee: Colin Camerer, Michael Woodford, Charlie Sprenger

Columbia University

New York, NY

2016 - 2017

MA ECONOMICS

- Advisor: Brendan O'Flaherty

New York University

New York, NY

2014 - 2016

BA ECONOMICS, MINOR IN MATHEMATICS

- Magna Cum Laude

Chapman University

Orange, CA

2012 - 2014

BA POLITICAL SCIENCE, ECONOMICS (TRANSFERRED OUT)

- Accelerated 4+1 MBA Program

Awards, Fellowships, & Grants

2026-2027	Grant (for MDAL under Ryan Webb) , Toyota Research Institute	
2023-2024	Graduate Fellowship , A. Michael and Ruth C. Lipper Graduate Fellowship Fund	\$ 22,500
2023	Kanel Scholarship , The John and Ursula Kanel Charitable Foundation	\$ 10,000
2022	Chen Graduate Innovator Grant , T&C Chen Center for Social & Decision Neuroscience	\$ 10,000
2021	Brass Division Teaching Award , Humanities and Social Sciences, Caltech	\$ 1,500
2019	Chen Graduate Fellowship , T&C Chen Center for Social & Decision Neuroscience	\$ 95,700
2017-2019	Predoctoral Fellowship , Joint Micro- & Macroeconomics, Columbia Business School	\$ 105,400
2016	NYU Founder's Day Scholar Award , New York University	
2014	Parliamentary Debate Gold Medalist , Pacific Southwest Collegiate Forensics Tournament	

Publications

Eum, B., Dolbier, S., & Rangel, A. (2023). Peripheral Visual Information Halves Attentional Choice Biases. *Psychological Science*, 34(9), 984-998. <https://doi.org/10.1177/09567976231184878>

WORK IN PROGRESS

Eum, B., Gonzalez, S., & Rangel, A. Attention in Aversive Choice: Sequential Sampling Over Range-Normalized Value Signals.

Eum, B., Daviet, R., Hakimi, S., Knutson, B., & Webb, R. AI-Driven Interpretable Visual Features for Demand Neuroforecasting.

Eum, B., Hutcherson, C., Oprea, R., & Webb, R. Cognition is the Invisible Hand: How Response Times Make Markets Allocational Efficient.

Eum, B. & Smith, S. Attention in Multi-Attribute Choices with Negative or Ambiguous Values.

Eum, B. & Sewell, P. Matching Markets with Decision Times: Improving Beyond Gale-Shipley.

Eum, B. Mis-measured Markets: Correcting Aggregate Demand with Attention Weights.

Eum, B., Hutcherson, C., Oprea, R., & Webb, R. A Neuroeconomic Test of the Walrasian Hypothesis: How Price-Taking Behavior is Driven by Attention and Theory of Mind.

Presentations

INVITED TALKS

Eum, B., Hutcherson, C., Oprea, R., & Webb, R. "Cognition is the Invisible Hand: How Response Times Make Markets Allocational Efficient" 2025 (upcoming). Department of Economics Seminar, University of Zurich.

Eum, B., Daviet, R., Hakimi, S., Knutson, B., & Webb, R. "AI-Driven Interpretable Visual Features for Demand Neuroforecasting" 2025. Conference on AI, ML, and Business Analytics, Columbia Business School.

Eum, B., Daviet, R., Hakimi, S., Knutson, B., & Webb, R. "AI-Driven Interpretable Visual Features for Demand Neuroforecasting" 2025. 12th Consumer Neuroscience Satellite Symposium, MIT Sloan School of Management.

Eum, B., Daviet, R., Hakimi, S., Knutson, B., & Webb, R. "AI-Driven Interpretable Visual Features for Demand Neuroforecasting" 2025. Toyota Research Institute Site Visit, Rotman School of Management, University of Toronto.

Eum, B., Gonzalez, S., & Rangel, A. "Attentional Over-Weighting in Gains, Attentional Under-Weighting in Losses" 2023. Society for Neuroeconomics, Vancouver, Canada.

Eum, B., Dolbier, S., & Rangel, A. "Looking at Attention in Value-Based Decision Making" 2023. Brownbag Seminars, Rotman School of Management, University of Toronto.

Eum, B., Dolbier, S., & Rangel, A. "Looking at Attention in Value-Based Decision Making" 2023. Shenhav Lab, Brown University.

Eum, B., Enkavi, Z., O'Doherty, J., & Rangel, A. "Value signals in the orbitofrontal cortex incorporate reference-dependent news utility" 2023. Caltech Brain Imaging Center, California Institute of Technology.

Eum, B., Enkavi, Z., O'Doherty, J., & Rangel, A. "Value signals in the orbitofrontal cortex incorporate reference-dependent news utility" 2023. Chen Institute Symposium, California Institute of Technology.

Eum, B., Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. Computational Cognitive Neuroscience Lab, University of California, Irvine.

POSTERS

Eum, B., Hutcherson, C., Oprea, R., & Webb, R. "Cognition is the Invisible Hand: How Response Times Make Markets Allocational Efficient." 2025. Society for Judgment and Decision Making, Denver, Colorado.

Eum, B., Hutcherson, C., Oprea, R., & Webb, R. "Cognition is the Invisible Hand: How Response Times Encourage Allocational Efficiency in Markets." 2025. Society for Neuroeconomics, Boston, Massachusetts.

- Eum, B.**, Daviet, R., Hakimi, S., Knutson, B., & Webb, R. "AI-Driven Interpretable Visual Features for Demand Neuroforecasting" 2025. Society for Neuroeconomics, Boston, Massachusetts.
- Eum, B.**, Gonzalez, S., & Rangel, A. "Attentional Over-Weighting in Gains, Attentional Under-Weighting in Losses" 2023. Society for Judgement and Decision Making, San Francisco, California.
- Eum, B.**, Gonzalez, S., & Rangel, A. "Attentional Over-Weighting in Gains, Attentional Under-Weighting in Losses" 2023. Association for Consumer Research, Seattle, Washington.
- Eum, B.**, Gonzalez, S., & Rangel, A. "Attentional Over-Weighting in Gains, Attentional Under-Weighting in Losses" 2023. Interdisciplinary Symposium on Decision Neuroscience, Fox School of Business, Temple University.
- Eum, B.**, Gonzalez, S., & Rangel, A. "Attentional Over-Weighting in Gains, Attentional Under-Weighting in Losses" 2023. Neuroeconomics Summer School, University of Pennsylvania.
- Eum, B.**, Enkavi, Z., O'Doherty, J., & Rangel, A. "Value signals in the orbitofrontal cortex incorporate reference-dependent news utility" 2023. Curiosity, Creativity, Complexity. Columbia University.
- Eum, B.**, Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. Society for Judgement and Decision Making, San Diego, California.
- Eum, B.**, Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. Society for Neuroeconomics, Arlington, Virginia.
- Eum, B.**, Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. Cognitive Computational Neuroscience, San Francisco, California.
- Eum, B.**, Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. Chen Institute Retreat, Pasadena, California.
- Eum, B.**, Dolbier, S., & Rangel, A. "Peripheral visual information halves attentional choice biases" 2022. The Neurobiology of Reward and Decision-Making, Lake Arrowhead, California.

Teaching Experience

- 2024-2025 **Rotman Commerce Coding Cafe**, Instructor, Machine Learning in Python and R
- 2020-2023 **Certificate of Practice in University Teaching**, from Caltech Teaching, Learning, & Outreach
- 2021-2023 **Bayesian Statistics**, Teaching Assistant for Antonio Rangel (Avg. Evaluation: 4.86/5)
- 2020-2023 **Social & Decision Neuroscience Bootcamp**, Instructor, Microeconomics & Statistics
- 2020 **Introduction to Economics**, Teaching Assistant for Charlie Plott (Avg. Evaluation: 4.58/5)

Mentoring

- 2025-2026 **Lu Huang**, TDMDAL Research Assistant, Co-Mentor with Ryan Webb
- 2023 **Ella Onderdonk**, Caltech SURF Program, Co-Mentor with Antonio Rangel
- 2021 **Trinity Pruitt**, WAVE Fellowship Program, Co-Mentor with Antonio Rangel

Professional Experience

- 2016 **Economic Research Assistant**, Haver Analytics
- 2014-2015 **White Collar Criminal Justice Legal Assistant**, Varghese & Associates, PC
- 2014 **Personal Injury Legal Clerk**, Law Offices of Day, Day, & Brown
- 2013 **Intern to Market Analyst**, Harvey & Company LLC
- 2012 **Business Law Intern**, Paragon Law Center, PC

Professional Development

REVIEWING

Nature Communications (2025), Society for Consumer Psychology (2025), Cognitive and Computational Neuroscience (2022)

ORGANIZER

Sole Organizer, Online Webcam Eye-Tracking in Behavioral Studies, with Guest Speaker Dr. Alexandra Papoutsaki (2023)
Lead Organizer, Social & Decision Neuroscience Bootcamp (2020-2023)
Co-Founder & Managing Editor, NYU Economics Review (2016)

SERVICE

Mentor, Economics and Finance Roundtable @ SNE (2025)
Volunteer, Music for Every Child Fundraiser (2025)
Mentor & Moderator, American Statistical Association DataFest @ UofT (2025)
Instructor, Python Workshop for Rotman Commerce Women in Business (2025)
Volunteer, Caltech Y Youth Outreach (2023)
Graduate Student Representative, Caltech Graduate Student Council (2021-2022)
Question Curator for Prof. Colin Camerer and Prof. Dean Mobbs, Chen Institute Seminar (2020)

TRAINING COURSES ATTENDED

Neuroeconomics Summer School at the University of Pennsylvania (2023)
Summer School on the Cognitive Foundations of Economic Behavior in Vitznau, Switzerland (2022)

MEDIA COVERAGE

NOMIS Foundation (2023), Peripheral visual information affects choice
Caltech HSS Year in Review (2023), Peripheral Visual Information Affects Choice
The Caltech News (2023), Peripheral Visual Information Affects Choice

MEMBERSHIPS

Society for Neuroeconomics
Society for Judgement and Decision Making
Association for Consumer Research
Phi Beta Kappa

CODING

R, Python (+PsychoPy), Julia, L^AT_EX

SELECTED PROJECTS I PROVIDED RESEARCH ASSISTANCE FOR

Backus, M., Blake, T., Larsen, B., & Tadelis, S. (2020). Sequential Bargaining in the Field: Evidence from Millions of Online Bargaining Interactions. *The Quarterly Journal of Economics*.

Backus, M., Blake, T., & Tadelis, S. (2019). On the Empirical Content of Cheap-Talk Signaling: An Application to Bargaining. *Journal of Political Economy*.

Backus, M. & Little A. T. (2020). I Don't Know. *American Political Science Review*.

Sicherman, N., Charite, J., Eyal, G., Janecka, M., Loewenstein, G., Law, K., Lipkin, PH., Marvin, AR., Buxbaum, JD. (2021). Clinical signs associated with earlier diagnosis of children with autism Spectrum disorder. *BMC Pediatrics*.

HOBBIES

rock climbing, snowboarding, hiking, music production