Kushin Mukherjee

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Education

2019 —	*PhD*, Psychology, University of Wisconsin-Madison Advisors: Tim Rogers, Karen Schloss

2015-2019	*AB*, Cognitive Science and Japanese, minor in Mathematics, Vassar College
	    general honors
	    departmental honors in Cognitive Science and Japanese

Grants, honors & awards

2021	Hertz Travel Award, Deptartment of Psychology, **UW-Madison**
2021	Center for Brain, Minds, and Machines Summer School Fellow, **MIT**
2021	Kenzi Valentyn Vision Research Award, McPherson Eye Research Institute, **UW-Madison**
2021	Elsevier/Vision Sciences Society Travel Award
2020 —	Marie Christine Kohler Fellow, Wisconsin Institute for Discovery, **UW-Madison**
2019	Yin-Lien C. Chin Prize for best senior project in Chinese or Japanese, **Vassar College**
2019	Phi Beta Kappa, **Vassar College**
2019	Sigma Xi, **Vassar College**
2018	CSLI Summer Intern, **Stanford University**
2018	Psi Chi, **Vassar College**
2016	Summer Program Scholarship, **Ochanomizu University**
2016	Japan Student Service Organization Scholarship
2015-2019	Sarah Tod Fitz Randolph Scholarship Fund, **Vassar College**

Research Experience

2019-	**PhD Candidate**, University of Wisconsin-Madison

- Conducting research in the Knowledge & Concepts Lab and Schloss Visual Reasoning Lab on visual communication, models of visual perception, and exploration of low-dimensional structure in semantic associations.
- Building neural network models that learn task-specific representations using PyTorch, and investigating semantic structure in those representations.
- Conducting experiments to understand visual communication by characterizing low-dimensional structure in color-concept associations and modeling information visualization interpretation as assignment problems.

2021   **Summer School Fellow**, MIT Center for Minds, Brains, and Machines

- Worked with Ko Kar in the DiCarlo Lab studying the effect of task demands on core visual object recognition in humans, primates, and deep convolutional neural networks.
- Built online behavioral experiments using JS, constructed biologically inspired convolutional neural networks using PyTorch, and analyzed data using MATLAB and Python.

2018   **CSLI Summer Intern**, Stanford University

- Worked with Judy Fan and Robert Hawkins in the Computation and Cognition Lab studying the semantic structure in sketch drawings.
- Created a JS sketch annotator tool for data collection on Amazon Mechanical Turk and built analysis pipelines using Python.

Working Papers

Schloss, K. B., Schoenlein, M. A., & **Mukherjee**, **K**. (*under review*). Color semantics for visual communication.

Mukherjee, K., Rogers, T. T., Lessard, L., Gleicher, M., & Schloss, K. B. (*in prep*). Mapping a low-dimensional space of color-concept associations.

Mukherjee, K., & Rogers, T. T. (*in prep*). Finding meaning in simple sketches: How do humans and deep networks compare?

Publications

in press   **Mukherjee, K**., Yin, B., Sherman B. E., Lessard, L. & Schloss, K. B. (*in press*). Context matters: Semantic discriminability theory for perceptual encoding systems. *IEEE Transactions on Visualization and Computer Graphics.*
*   ***Best paper honorable mention award***

Proceedings Papers

2020   **Mukherjee, K**., & Rogers, T. T. (2020). How does task structure shape representations in deep neural networks? *2nd NeurIPS Workshop on Shared Visual Representations in Human and Machine Intelligence.*

2019   **Mukherjee, K**., Hawkins, R. D., & Fan, J. (2019). Communicating semantic part information in drawings. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society.*

Conference Presentations

2021   **Mukherjee, K**., Rogers, T.T., Lessard, L., Gleicher, M., & Schloss, K. B. (2021). Mapping a low-dimensional space of color-concept associations. Poster presented at the 21st Annual Meeting of the Vision Sciences Society.
⋆Elsevier/Vision Sciences Society Travel Award

2020   **Mukherjee, K**., & Rogers, T. T. (2020). How does task structure shape representations in deep neural networks?. Poster presented at the 2nd NeurIPS Workshop on Shared Visual Representations in Human and Machine Intelligence.

2020   **Mukherjee, K**., & Rogers, T. T. (2020). Finding meaning in simple sketches: How do humans and deep networks compare?. Poster presented at the 20th Annual Meeting of the Vision Sciences Society.

2019   **Mukherjee, K**., Hawkins, R. D., & Fan, J. (2019). Communicating semantic part information in drawings. Poster presented at the 41st Annual Meeting of the Cognitive Science Society.

Teaching

Graduate Teaching Assistant, University of Wisconsin-Madison

2021   PSYCH 210, *Statistics for Psychology*
2020   PSYCH 414, *Cognitive Psychology*

Undergraduate Teaching Assistant, Vassar College

2017   COGS 211, *Perception and Action*

Professional Service

Ad Hoc Reviewing

Conference Proceedings and Workshops. NeurIPS Workshop on Shared Visual Representations in Humans and Machines (SVRHM)

Departmental Service

2020-   University of Wisconsin-Madison Psychology Colloquium Committee
2017-2019   Vassar College Cognitive Science Majors' Committee, *Chair*
2016-2017   Vassar College Student Association Finance Committee

Affiliations

2019-   Cognitive Science Society
2020-   Vision Sciences Society
2021-   Psychonomics Society