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Paul S. Scotti

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EXPERIENCE

Vision and Cognitive Neuroscience Lab (PI: Dr. Julie Golomb)

Oct. 2017 – Present

Cognitive Control Lab (PI: Dr. Andy Leber)

Ph.D. candidate (co-advised) at The Ohio State University

Columbus, OH

Attention and Cognition Lab (PI: Dr. Sarah Shomstein)

Sep. 2014 – May 2017

Visual Cognition Lab (PI: Dr. Steve Mitroff)

Sep. 2016 – May 2017

Undergraduate researcher at George Washington University

Washington, DC

EDUCATION

The Ohio State University

Columbus, OH

M.A. in Cognitive Psychology (Ph.D. expected early 2022)

May 2020

George Washington University

Washington, DC

B.A. in Psychology

May 2017

Distinguished/Honors scholar, magna cum laude, 2017 commencement speaker

SUMMARIZED WORK

Neuroimaging methods

- Developed an improved method for inverted encoding models (to present at CNS/VSS 2021)

Visual working memory

- Visual working memory items drift apart due to active, not passive, maintenance
Scotti, Hong, Leber, & Golomb, *in press at JEP:G (PsyArXiv preprint available)*

Visual long-term memory

- Statistical regularities during object encoding induce swap errors and repulsion/attraction biases
Scotti, Hong, Golomb, & Leber, 2021; *Attention, Perception, & Psychophysics*
- Recognition-induced forgetting can operate over perceptually distinct real-world objects
Scotti, Janakiefski, & Maxcey, 2020; *Psychonomic Bulletin & Review*
- Recognition-induced forgetting is stronger than directed forgetting
Scotti & Maxcey, 2020; *submitted*

Visual attention

- Attention scales according to inferred real-world object size
Collegio, Nah, Scotti, & Shomstein, 2019; *Nature Human Behavior*
- Object-based attention is resilient to low-level or high-level object disturbances, but not both
Scotti, Collegio, & Shomstein, 2019; *PsyArXiv*

Educational/open-source neuroscience tools

- EduCortex (www.paulscotti.com/educortex) Scotti, Kulkarni, Mazor, Klapwijk, Yarkoni, & Huth, 2020; *JOSE*
- Inverted Encoding Models python package (<https://pypi.org/project/inverted-encoding/>)

Science communication

- OnNeuro lead, facilitating international webinars & lecture repository (www.onneuro.com)

PUBLICATIONS

1. **Scotti, P. S.**, Hong, Y., Leber, A. B., & Golomb, J. D. (in press). Visual working memory items drift apart due to active, not passive, maintenance. *Journal of Experimental Psychology: General*.
2. **Scotti, P. S.**, Kulkarni, A., Mazor, M., Klapwijk, E., Huth, A. G. (in press). Interactive 3d brain helps you learn how the brain is organized. *Frontiers for Young Minds*.
3. **Scotti, P. S.**, Hong, Y., Golomb, J. D., & Leber, A. B. (2021). Statistical regularities as a reference point for memory distortions: Swap and shift errors. *Attention, Perception, & Psychophysics*, 1-21. doi.org/10.3758/s13414-020-02236-3
4. **Scotti, P. S.**, Kulkarni, A., Mazor, M., Klapwijk, E., Yarkoni, T., Huth, A. G. (2020). EduCortex: browser-based 3D brain visualization of fMRI meta-analysis maps. *Journal of Open Source Education*, 3(26), 75. doi.org/10.21105/jose.00075
5. **Scotti, P. S.**, Janakiefski, L., & Maxcey, A. M. (2020). Recognition-induced forgetting of schematically related pictures. *Psychonomic Bulletin & Review*, 27, 357–365. doi.org/10.3758/s13423-019-01693-8
6. Collegio, A., Nah, J., **Scotti, P. S.**, & Shomstein, S. (2019). Attention scales according to inferred real-world object size. *Nature Human Behavior*, 3(1), 40-47. doi.org/10.1038/s41562-018-0485-2

Preprints

1. **Scotti, P. S.**, Collegio, A., & Shomstein, S. (2019). Object-based attention is resilient to low-level (boundary) or high-level (semantic) disturbances, but not both. *PsyArXiv*. doi.org/10.31234/osf.io/ynxqju

Under Review / Submitted

1. **Scotti, P.S.** & Maxcey, A. M. (under review). What do laboratory-forgetting paradigms tell us about use-inspired forgetting?

In Prep

1. **Scotti, P. S.**, Chen, J., & Golomb, J. D. (in prep.). An improved method for evaluating inverted encoding models.
2. Maxcey, A. M., Mancuso E., **Scotti, P. S.**, Spinelli, E., & Woodman, G. F. (in prep.). *Visual memory* (Eds. Bainbridge, W. & Brady, T.). Routledge.
3. Babu, A., **Scotti, P. S.**, & Golomb, J. D. (in prep.). The dominance of spatial information in location judgments: A persistent congruency bias even amidst conflicting statistical regularities.
4. **Scotti, P. S.**, Malcolm, G.L., Peterson, M., & Shomstein, S. (in prep.). Task-irrelevant semantic grouping weakens object-based effects in the two-rectangle paradigm.

SCHOLARSHIPS, FELLOWSHIPS, & AWARDS

• NSF Graduate Research Fellowship (\$102,000)	2019-2022
• CCBBI Student Neuroimaging Research Award (\$3000)	2018
• OSU University Fellowship (\$26,316)	2017
• GW CCAS Distinguished Scholar	2017
• Luther Rice Undergraduate Research Fellowship (\$5000)	2016
• Sigelman Undergraduate Research Enhancement Award (\$500)	2016
• GW Presidential Academic Scholarship Recipient	2013

TALK / POSTER PRESENTATIONS (talks marked with *)

1. **Scotti, P. S.**, Chen, J., & Golomb, J. D. (2021, May). An improved method for evaluating inverted encoding models. *To be presented as a poster at the 2022 Virtual Vision Sciences Society annual meeting.*
2. **Scotti, P. S.**, Chen, J., & Golomb, J. D. (2021, March). An improved method for evaluating inverted encoding models. *Cognitive Neuroscience Society*. Virtual conference.
3. Jones, C. M., **Scotti, P. S.**, & Golomb, J. D. (2020, May). Feature-binding errors during saccadic remapping may affect perception of real-world objects. *Vision Sciences Society*. Virtual conference.
4. **Scotti, P. S.**, Kulkarni, A., Mazor, M., Klapwijk, E., Yarkoni, T., Huth, A. G. (2019, December). EduCortex: browser-based 3D brain visualization of fMRI meta-analysis maps. **Awarded best poster**, *Center for Cognitive and Behavioral Brain Imaging Annual Research Days*, Columbus, OH.
5. ***Scotti, P. S.**, Hong, Y., Leber, A., B., & Golomb, J. D. (2019, November). Competition between similar visual working memory items underlies repulsion effects. *Object Perception, Attention, and Memory (OPAM)*, Montreal, Quebec.
6. **Scotti, P. S.**, Janakiefski, L., & Maxcey, A. M. (2019, November). Recognition-Induced Forgetting Does Not Operate Over Superordinate Categories. *Psychonomic Society*, Montreal, Quebec.
7. **Scotti, P. S.**, Hong, Y., Leber, A., B., & Golomb, J. D. (2019, October). Competition Between Similar Visual Working Memory Items Produces Repulsion Effects. *Society for Neuroscience*, Chicago, IL.
8. **Scotti, P. S.**, Hong, Y., Golomb, J. D., Leber, A., B. (2019, May). Relational interactions between visual memory representations increase with maintenance duration. *Vision Sciences Society*, St. Pete Beach, FL.
9. Babu, A., **Scotti, P. S.**, Golomb, J. D. (2019, May). The dominance of spatial information in location judgments: A persistent congruency bias even amidst conflicting statistical regularities. *Vision Sciences Society*, St. Pete Beach, FL.
10. Janakiefski, L., Smerdell, M., **Scotti, P. S.**, Maxcey, A. (2019, March). Does recognition-induced forgetting operate over temporally-grouped objects? *CogFest*, Columbus, OH.
11. **Scotti, P. S.**, Hong, Y., Golomb, J. D., Leber, A., B. (2018, November). Statistical regularities during object encoding distort long-term memory. **Awarded best poster (\$200)**, *Object Perception, Attention, and Memory (OPAM)*, New Orleans, LA.
12. **Scotti, P. S.**, Hong, Y., Golomb, J. D., Leber, A., B. (2018, September). Statistical regularities during object encoding distort long-term memory. *Center for Cognitive and Brain Sciences Fall Retreat*, Mt. Sterling, OH.
13. **Scotti, P. S.**, Hong, Y., Golomb, J. D., Leber, A., B. (2018, May). Statistical regularities during object encoding distort long-term memory. *Vision Sciences Society*, St. Pete Beach, FL.
14. Adamo, S., Nah, J., Collegio, A., **Scotti, P. S.**, Shomstein, S. (2018, May). The flux capacitor account: A new theoretical account of multiple target visual search errors. *Vision Sciences Society*, St. Pete Beach, FL.
15. *Collegio, A., Nah, J., **Scotti, P. S.**, Shomstein, S. (2017, November). Real-world object size affects attentional allocation. *Object Perception, Attention, and Memory (OPAM)*, Vancouver, BC.
16. **Scotti, P. S.**, Collegio, A., & Shomstein, S. (2017, November). Task-irrelevant object category guides attentional allocation. *Object Perception, Attention, and Memory (OPAM)*, Vancouver, BC.
17. **Scotti, P. S.**, Adamo, S., Mitroff, S., Shomstein, S. (2017, May). Repetition priming preferentially benefits infrequent targets. *Vision Sciences Society*, St. Pete Beach, FL.
18. Adamo, S., Nah, J., Collegio, A., **Scotti, P. S.**, Shomstein, S. (2017, May). Does orientation matter? Same or differently oriented targets in a multiple target search. *Vision Sciences Society*, St. Pete Beach, FL.
19. Collegio, A., Nah, J., **Scotti, P. S.**, Shomstein, S. (2017, May). Real-world object size affects attentional allocation. *Vision Sciences Society*, St. Pete Beach, FL.
20. **Scotti, P. S.**, Adamo, S., Mitroff, S., Shomstein, S. (2017, April). Repetition priming preferentially benefits infrequent targets. **1st place Psychology poster**, *GW Research Days event*, Washington, D.C.
21. **Scotti, P. S.**, Malcolm, G.L., Peterson, M., & Shomstein, S. (2016, November). Reality vs. Simplicity: The effects of real-world objects on attentional selection. *Object Perception, Attention, and Memory (OPAM)*, Boston, MA.
22. **Scotti, P. S.**, Malcolm, G.L., Peterson, M., & Shomstein, S. (2016, May). Reality vs. Simplicity: The effects of real-world objects on attentional selection. *Vision Sciences Society*, St. Pete Beach, FL.

SKILLS & INTERESTS

Relevant skills

- Python, MATLAB, R
- fMRI (designing experiments, collecting data, pre-/post-processing; SPM, Nipype, Freesurfer, Fmriprep)
- HTML / CSS / JavaScript / Node.js (experience building Amazon Mechanical Turk experiments)
- Hierarchical Bayesian modeling (PyMC3, JAGS)
- Neural networks (PyTorch)
- Supercomputing / cloud computing (Ohio Supercomputer Center and Amazon Web Services)
- Eye-tracking (experience using/designing experiments for EyeLink 1000 Plus)

Interests

- Board games (founded GWU Tabletop Gaming Society; can lead gaming to promote workplace bonding)
- Murder mysteries (developed the mobile app “Popcorn, Soda ... Murder?” for Android/iOS)

MENTORSHIP

- Anisha Babu (now Ph.D. student working with Dr. Brice Kuhl at Univ. of Oregon) Sep. 2018 – May 2020
- Molly McKinney (now lab manager of Dr. Andy Leber’s lab at OSU) Sep. 2018 – May 2019

PROFESSIONAL DEVELOPMENT / TEACHING

- OnNeuro (www.OnNeuro.com), Founder 2017 – Present
Head of a live communication platform across researchers and the public, allowing those who may not have easy access to scientific discussions to participate in the fields of psychology and neuroscience
- Center for Cognitive and Behavioral Brain Imaging Student Org, Technical Director 2017 – Present
Leadership role where I organize interdisciplinary workshops and guest speaker presentations related to neuroimaging. Role also includes A/V support in cooperation with OnNeuro
- CCBBI Annual Research Day, Student Organizer Fall 2020
Set up talk presentations, invited photographers, worked with A/V team
- NeuroHackademy Summer 2019
Led a team of researchers to create EduCortex, an educational brain viewer
- Guest Lecturer Fall 2019
Introduction to Psychology (PSYCH 1001)
- Course Assistant
Sensation and Perception (PSYCH 3310) Spring 2019
Cognitive Psychology Laboratory (PSYCH 4510) 2018 – 2019
Introduction to Social Psychology (PSYCH 3325) Autumn 2018
- Center for Cognitive and Brain Sciences Undergraduate Summer Institute (CUSI) Summer 2018/2019
Gave lectures on lab organization and pre-registration
- Career Development Grant Judge (Council of Graduate Students) Spring 2018
- York University Centre for Vision Research Summer School (Toronto, ON) Summer 2016
- Cold Spring Harbor Laboratory Summer Course, “DNA Science” (Long Island, NY) Summer 2012