

# Paul S. Scotti

scottibrain@gmail.com | [www.paulscotti.com](http://www.paulscotti.com)

## EXPERIENCE

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**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

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**The Ohio State University**

**Columbus, OH**

*M.A. in Cognitive Psychology (Ph.D. expected May 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

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### 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, 2020; *PsyArXiv*

### Visual long-term memory

- Statistical regularities during object encoding induce swap errors and repulsion/attraction biases  
Scotti, Hong, Golomb, & Leber, 2018; *PsyArXiv*
- Recognition-induced forgetting can operate over perceptually distinct real-world objects  
Scotti, Janakiefski, & Maxcey, 2020; *Psychonomic Bulletin & Review*
- Distinct mechanisms underlie directed forgetting & induced forgetting  
Scotti & Maxcey, 2020; *submitted*

### Visual attention

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

### Educational neuroscience tools

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

### Science communication

- OnNeuro lead, facilitating international webinars & lecture repository ([www.onneuro.com](http://www.onneuro.com))

## PUBLICATIONS

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1. **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
2. **Scotti, P. S.**, Kulkarni, A., Mazor, M., Klapwijk, E., Huth, A. G. (accepted). Interactive 3d brain helps you learn how the brain is organized. *Frontiers for Young Minds*.
3. **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
4. **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
5. 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.**, Hong, Y., Leber, A. B., & Golomb, J. D. (2020). Visual working memory items drift apart due to active, not passive, maintenance. *PsyArXiv*. doi.org/10.31234/osf.io/md5h4
2. **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/yxqju

### Under Review / Submitted

1. **Scotti, P.S.** & Maxcey, A. M. (submitted). Comparing the robustness of laboratory-induced forgetting across paradigms.

### In Prep

1. **Scotti, P. S.**, Chen, J., & Golomb, J. D. (in preparation). An improved method for evaluating inverted encoding models.
2. Babu, A., **Scotti, P. S.**, & Golomb, J. D. (in preparation). The dominance of spatial information in location judgments: A persistent congruency bias even amidst conflicting statistical regularities.
3. **Scotti, P. S.**, Malcolm, G.L., Peterson, M., & Shomstein, S. (in preparation). Task-irrelevant semantic grouping weakens object-based effects in the two-rectangle paradigm.

## SCHOLARSHIPS, FELLOWSHIPS, & AWARDS

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• 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 \*)

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1. **Scotti, P. S.**, Kulkarni, A., Mazor, M., Klapwijk, E., Yarkoni, T., Huth, A. G. (2019, Dec). 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.
2. \***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.
3. **Scotti, P. S.**, Janakiefski, L., & Maxcey, A. M. (2019, November). Recognition-Induced Forgetting Does Not Operate Over Superordinate Categories. *Psychonomic Society*, Montreal, Quebec.
4. **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.
5. **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.
6. 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.
7. Janakiefski, L., Smerdell, M., **Scotti, P. S.**, Maxcey, A. (2019, March). Does recognition-induced forgetting operate over temporally-grouped objects? *CogFest*, Columbus, OH.
8. **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.
9. **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.
10. **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.
11. 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.
12. \*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.
13. **Scotti, P. S.**, Collegio, A., & Shomstein, S. (2017, November). Task-irrelevant object category guides attentional allocation. *Object Perception, Attention, and Memory (OPAM)*, Vancouver, BC.
14. **Scotti, P. S.**, Adamo, S., Mitroff, S., Shomstein, S. (2017, May). Repetition priming preferentially benefits infrequent targets. *Vision Sciences Society*, St. Pete Beach, FL.
15. 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.
16. 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.
17. **Scotti, P. S.**, Adamo, S., Mitroff, S., Shomstein, S. (2017, April). Repetition priming preferentially benefits infrequent targets. **1<sup>st</sup> place Psychology poster**, *GW Research Days event*, Washington, D.C.
18. **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.
19. **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

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### 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)
- 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

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- 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

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- 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