

DAVID BRAUN

CONTACT

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APPOINTMENTS

Lehigh University Bethlehem, PA
Postdoctoral Fellow 2020 -
• Advisor: [Catherine M. Arrington](#)

EDUCATION

Lehigh University Bethlehem, PA
Ph.D. Cognitive Psychology 2014–2020
• Advisor: [Catherine M. Arrington](#)

Stockton University Pomona, NJ
B.A. Psychology 2009–2013

HIGHLIGHTED SKILLS

Methods Eye tracking (Tobii & Pupil Labs), Amazon Mechanical Turk / Prolific Crowd Sourcing

Analysis Generalized linear mixed models ([see a worked example in R](#)), Deep neural networks, Clustering, ANOVA / t tests.

Computer R, Python, LaTeX, PsychoPy, JavaScript, E-Prime, Shell scripting, HTML / CSS, Excel, SPSS, Adobe Photoshop / Illustrator

PUBLICATIONS

- Mittelstadt, V., Mackenzie, I. G., **Braun, D.**, & Arrington, K. (In press). Reactive and proactive control processes in voluntary task choice. *Memory and Cognition*.
- McAndrew, T., Codi, A., Cambeiro, J., Besiroglu, T., **Braun, D.**, Chen, E., Enrique Urtubey de C saris, L., Luk, D. (2022). Chimeric forecasting: Combining probabilistic predictions from computational models and human judgment. *BMC Infectious Diseases*, 22, 1-17. <https://doi.org/10.1186/s12879-022-07794-5>.
- Braun, D. A.**, Ingram, D., Ingram, D., Khan, B., Marsh, J., & McAndrew, T. (2022). Crowdsourced perceptions and COVID-19: Improving computational forecasts of US national incident cases of COVID-19 with crowdsourced perceptions of human behavior. *JMIR Public Health Surveill*, 8, 1-18. <http://dx.doi.org/10.2196/39336>
- Codi, A., Luk, D., **Braun, D. A.**, Cambeiro, J., Besiroglu, T. Chen, E., Enrique Urtubey de Cesaris, L., Bocchini, P., McAndrew, T. (In press). Aggregating human judgment probabilistic predictions of COVID-19 transmission, burden, and preventative measures. *American Journal of Public Health*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9016644/>
- McAndrew, T., Majumder, M. S., Lover, A. A., Venkatramanan, S., Boccini, P., Besiroglu, T., Codi, A., **Braun, D. A.**, Dempsey, G., Abbott, S., Chevalier, S., Bosse, N. I., Cambeiro, J. (In press). Human judgment forecasts of human monkeypox transmission and burden in non-endemic countries. *Lancet Digital Health*. [https://doi.org/10.1016/S2589-7500\(22\)00127-3](https://doi.org/10.1016/S2589-7500(22)00127-3)

Marvel, C. J., Bates, J. E., Hambric, C. E., **Braun, D. A.**, Arrington, C. M., & Harmer, M. P. (2021). The Lehigh Presidential Nano-Human Interface Initiative: Convergence of materials and cognitive sciences. *MRS Bulletin*. <https://doi.org/10.1557/s43577-021-00232-y>

Braun, D. A. & Arrington, C. M. (2018). Assessing the role of effort and reward in task selection using a reward-based voluntary task switching paradigm. *Psychological Research*, 82, 54-64. <https://doi.org/10.1007/s00426-017-0919-x>

Fleck, J. I. & **Braun, D. A.** (2015). The impact of eye movements on a verbal creativity task. *Journal of Cognitive Psychology*, 27, 866-881. <https://doi.org/10.1080/20445911.2015.1036057>

In Preparation

Braun, D. A., Marsh, J. K., Arrington, C. M. (*In prep*). Effort is relatively costly: Prospect theory and reference-dependent effort costs.

McAndrew, T., Majumder, M. S., Lover, A. A., **Braun, D. A.**, Venkatramanan, S., Bocchini, P., Besiroglu, T., Codi, A., Dempsey, G., Abbott, S., Chevalier, S., Bosse, N. I., Cambeiro, J. (*In prep*). Performance of human judgment forecasts of human monkeypox transmission and burden in non-endemic countries.

DOCTORAL DISSERTATION

Braun, D. (2020). The effort economy: Investigating the relationship between effort intensity and effort cost. Available from Dissertation & Theses Lehigh University; Proquest Dissertations & Theses Global. (2466233177). <https://www.proquest.com/dissertations-theses/effort-economy-investigating-relationship-between/docview/2466233177/se-2?accountid=12043>

FUNDING

Graduate Student Research Grant (CAS): \$700	Spring 2019
OPAM Travel Award: \$350	Fall 2017
Doctoral Travel Grants for Global Opportunities: \$750	Fall 2017
Dean's Summer Award: \$5,000	Summer 2016
Strohl Grant: \$4,000	Summer 2015

PRESENTATIONS AT SCHOLARLY MEETINGS

Braun, D., Arrington, C. M. (2022). Effort is relatively costly: Evidence for reference-dependent effort costs. Poster presented at the annual meeting of the Psychonomic Society, Boston, MA.

Major, N., **Braun, D.**, Spencer, E., Marvel, C., Arrington, C. M. (2022). Searching for boundaries: A novel visual search task. Poster presented at the annual meeting of the society for Object Perception, Visual Attention, and Visual Memory, Boston, MA.

Braun, D., Ingram, D., Khan, B., Marsh, J., McAndrew, T. (2022, September). Incorporating crowdsourced perceptions of human behavior into computational forecasts of U.S. national incident cases of COVID-19. Poster presented at the annual meeting of the Modeling of Infectious Disease Agent Study (MIDAS) network, Boston, MA.

Braun, D. & Arrington, C. M. (2021, November). Effort economy: Investigating the relationship between effort intensity and effort cost. Poster presented at the annual meeting of the Psychonomic Society, online.

Braun, D. & Arrington, C. M. (2018, November). Every person has a price: How do individual differences in switch costs influence the ability to pursue reward while multitasking? Poster presented at the annual meeting of the Psychonomic Society, New Orleans, LA.

Braun, D. & Arrington, C. M. (2017, November). Perceiving the rewarded reality: How incentives influence perception of objects in reward-based voluntary task switching. Poster presented at the annual meeting of the society for Object Perception, Visual Attention, and Visual Memory.

Arrington, C. M. & **Braun, D.** (2017, September). Voluntary task switching in context: The role of higher-level task instructions on task selection processes. Oral presentation at the European Society of Cognitive Psychology, Potsdam, Germany.

Braun, D. & Arrington, C. M. (2017, September). A cost-benefit mechanism underlying task selections in reward-based voluntary task switching (rVTS). Poster presented at the European Society of Cognitive Psychology, Potsdam, Germany.

Braun, D. & Arrington, C. M. (2017, March). The value of knowing when to switch: The influence of cognitive control on goal-driven behavior. Poster presented at the International Convention of Psychological Science, Vienna, Austria.

Braun, D. & Arrington, C. M. (2016, November). The value of knowing when to switch: Investigating the interaction of value and control. Poster presented at the annual meeting of the Psychonomic Society, Boston, MA.

Braun, D., Weaver, S., Arrington, C. M., Reiman, K., & Wylie, G. (2016, March). Sequence complexity and context: The role of expectation in planning and execution of task sequences. Poster presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.

Arrington, C. M., **Braun, D.**, & Reiman, K. M. (2015, November). Bottom-up and top-down effects of visual attention on task selection during voluntary task switching. Oral presentation at the annual meeting of the Psychonomic Society, Chicago, IL.

Braun, D., & Arrington, C. M. (2015, November). Raising the value of task switching: Task selection and performance under variable reward structures during voluntary task switching. Poster presented at the annual meeting of the Psychonomic Society, Chicago, IL.

Reiman, K. M., **Braun, D.**, & Arrington, C. M. (2015, March). Choosing to look or looking to choose: Eye tracking in voluntary task switching. Poster presented at the inaugural International Convention of Psychological Science, Amsterdam, The Netherlands.

Braun, D. & Arrington, C. M. (2015, March). Strategic switching: Reward structure influences selection in a dynamic decision making environment. Oral presentation at the annual meeting of the Eastern Psychological Association, Philadelphia, PA.

Braun, D., Fleck, J. I., Moench, E., & Ford, J. (2013) The effect of bilateral and unilateral eye-movements on creative thought. Poster presented at the annual convention of the Association for Psychological Science, Washington DC.

COLLOQUIA PRESENTATIONS

Braun, D. (2022, Fall). Effort is relatively costly: Prospect theory and evidence for reference-dependent effort costs. Invited talk given to the laboratory of Amitai Shenhav at Brown University.

Braun, D. (2022, Spring). Open science: Transparency, reproducibility, integrity. Presentation to Institute for Data, Intelligent Systems, and Computation, Lehigh University.

Braun, D. (2022, Spring). The effort economy: Follow up investigations on a strange phenomenon. Presentation to Psychology Cognition and Language Meeting Group. Lehigh University.

Braun, D. (2019, Spring). Keeping it simple: Investigating how reward is processed during motivated allocation of cognitive control. Presentation to Psychology Department Brown Bag Colloquium, Lehigh University.

- Braun, D.** (2018, Fall). Sensitive switchers: Are people sensitive to their switch costs when making choices in Rewarded Voluntary Task Switching? Presentation to Cognition and Language Meeting Group, Lehigh University.
- Braun, D.** & Ungson, N. D. (2017, Fall). Pre-Registration and Open Science Framework: What is it? Who is it? Why is it? Where is it? Presentation to Psychology Department Brown Bag Colloquium, Lehigh University.
- Braun, D.** (2016, Fall). The value of knowing when to switch: The influence of cognitive control on goal-driven behavior. Presentation to Psychology Department Brown Bag Colloquium, Lehigh University.
- Braun, D.** (2016, Spring). Should I stay or should I go: Investigating the task specific nature of reward sensitivity when making task selections. Presentation to Psychology Department Brown Bag Colloquium, Lehigh University.
- Braun, D.** (2015, Fall). The neural effort engaged during encoding of planned action sequences: An fMRI investigation. Presentation to Cognition and Language Meeting Group, Lehigh University.
- Braun, D.** (2015). Strategic switching: Reward structure influences selection in a dynamic decision making environment. Presentation to Psychology Department Brown Bag Colloquium, Lehigh University.
- Braun, D.** (2014, Spring). Eye Movements and Creativity. Presentation to Cognition and Language Meeting Group, Lehigh University.

TEACHING EXPERIENCE

Population Health Data Science Algorithms Lab <i>Head Instructor</i>	Spring 2022
Participant Pool Coordinator <i>Graduate Assistant</i>	Spring 2020
Statistical Analysis of Behavioral Data <i>Teaching Assistant</i>	Spring 2019
Statistical Analysis of Behavioral Data <i>Teaching Assistant</i>	Fall 2018
Research Methods <i>Teaching Assistant</i>	Spring 2018
Cognitive Psychology <i>Teaching Assistant</i>	Fall 2017
Cognitive Neuroscience <i>Head Instructor</i>	Summer 2017
Cognitive Neuroscience <i>Teaching Assistant</i>	Spring 2017
Human Neuroscience <i>Teaching Assistant</i>	Fall 2016
Experimental Methods and Lab <i>Teaching Assistant</i>	Spring 2016
Cognitive Psychology <i>Teaching Assistant</i>	Fall 2015
Statistical Analysis of Behavioral Data <i>Teaching Assistant</i>	Spring 2015
Introduction to Psychology <i>Teaching Assistant</i>	Fall 2014

PROFESSIONAL SERVICE

Journal of Cognition <i>Ad Hoc Reviewer</i>	Fall 2020
Cognition and Emotion <i>Ad Hoc Reviewer</i>	Fall 2017
Psychological Research <i>Ad Hoc Reviewer</i>	Fall 2016
EPA Annual Conference <i>Submission Reviewer</i>	Fall 2016
PLOS One <i>Reviewer</i>	Spring 2016
EPA Annual Conference <i>Submission Reviewer</i>	Fall 2015
Lehigh University Graduate Student Senate <i>Unit Representative</i>	Fall 2015–Spring 2016
LVAIC Undergraduate Psychology Conference <i>Poster Session Coordinator</i>	Spring 2015

FELLOWSHIPS

Data Science Fellow <i>The Data Incubator</i>	September 2019–November 2019 New York, NY
<ul style="list-style-type: none">Selected (< 2% admittance rate) among 3000+ scientists and engineers with advanced degrees for skills in statistics, data analysis, and programming to participate in a rigorous, eight-week data science fellowship.	
Research Assistant <i>The Kessler Foundation</i>	Summers 2015 & 2016 West Orange, NJ

MEDIA COVERAGE

The Brown and White , Lehigh University <i>A peek into Lehigh research: Developing metal superalloys</i>	Spring 2022 Bethlehem, PA
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COMMUNITY & LEADERSHIP

Volunteer <i>One Earth Sangha: A Buddhist response to climate crisis.</i>	November 2020 – Present
<ul style="list-style-type: none">Facilitating EcoDharma teachers by outlining areas of confusion around climate crisis.Conducted interview with mindfulness teacher on how to skillfully have conversations around climate crisis.	
Founder and Instructor <i>A workshop to teach graduate students how to use R to analyze data.</i>	Fall 2016–Fall 2017 Lehigh University
<ul style="list-style-type: none">Drafted materials and exercises for a semester-long introduction to the R programming language.	