Zachary J. Davis
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EDUCATION

New York University, New York, NY, 2015 – 2020
Doctorate of Philosophy (Psychology), 09/2020
Master of Philosophy (Cognition and Perception), 05/2020
Master of Arts (Psychology), 05/2018
University of Richmond, Richmond, VA, 2011-2015
Bachelors of Arts (Philosophy, Cognitive Science)
Minor (Mathematics)

RESEARCH INTERESTS

- Computational Psychology
- Causal Inference
- Artificial Intelligence

PUBLICATIONS

Nussenbaum, K., Cohen, A.O., **Davis, Z.J.**, Halpern, D.J., Gureckis, T.M., & Hartley, C.A. (2020). Causal Information-Seeking Strategies Change Across Childhood and Adolescence. *Cognitive Science*, *44*(9), e12888.

Davis, Z.J., Bramley, N.R., Rehder, B. (2020). The paradox of time in dynamic causal systems. In *Proceedings of the 40th Annual Conference Of The Cognitive Science Society*, 808-814. https://cognitivesciencesociety.org/cogsci20/papers/0143/0143.pdf

Davis, Z.J., Rehder, B., Gureckis, T., & Bramley, N.R. (2020). Human dynamic control under changing goals. *ICLR workshop on Causal Learning for Decision Making.* https://causalrlworkshop.github.io/pdf/CLDM_22.pdf

Davis, Z.J., & Rehder, B. (2020). A process model of causal reasoning, *Cognitive Science*. https://doi.org/10.1111/cogs.12839

Davis, Z.J., Bramley, N.R., Rehder, B. (2020). Causal structure learning in continuous systems. *Frontiers in Psychology*, 11. https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00244/full

Nussenbaum, K., Cohen, A.O., **Davis, Z.J.**, Halpern, D., Gureckis, T., & Hartley, C. (2019). Causal information-seeking strategies change across childhood and adolescence. In *Proceedings of the 39th Annual Conference Of The Cognitive Science Society*. 2481-2487. https://cogsci.mindmodeling.org/2019/papers/0428/0428.pdf

Davis, Z.J., Bramley, N.R., & Rehder, B. (2018). Causal structure learning with continuous variables in continuous time. In *Proceedings of the 38th Annual Conference Of The Cognitive Science Society*. 287-292. https://cogsci.mindmodeling.org/2018/papers/0073/0073.pdf

Davis, Z.J., Bramley, N.R., Rehder, B., & Gureckis, T. (2018). A causal model approach to dynamic control. In *Proceedings of the 38th Annual Conference Of The Cognitive Science Society*. https://cogsci.mindmodeling.org/2018/papers/0072/index.html

Davis, Z.J., & Rehder, B., (2017). A sampling approach to causal representation. In Spotlight Presentations for Cognitively-Informed Artificial Intelligence, *NeurIPS 2017.*

Davis, Z.J., & Rehder, B., (2017). The causal sampler: a sampling approach to causal cognition. In *Proceedings of the 37th Annual Conference Of The Cognitive Science Society*. https://cogsci.mindmodeling.org/2017/papers/0365/paper0365.pdf

Rehder, B., & **Davis, Z.J.,** (2016). Evaluating causal hypotheses: the curious case of correlated cues. In *Proceedings of the 36th Annual Conference Of The Cognitive Science Society*. https://cogsci.mindmodeling.org/2016/papers/0182/index.html

PUBLICATIONS UNDER PREPARATION

Davis, Z.J., Bramley, N.R., & Rehder, B. (in preparation). The role of time in dynamic causal learning.

Davis, Z.J., Bramley, N.R., Rehder, B. & Gureckis, T. (in preparation). A causal model approach to dynamic control.

Davis Z.J., Schulz, E., & Gerstenberg, T. (in preparation). Counterfactual Gaussian Processes as a model of parameter-free causal structure learning.

INVITED TALKS

September 2020 – Computational Principles of Intelligence Lab, Tuebingen, Germany
April 2020 – ICLR workshop on Causal Learning for Decision Making
October 2019 – Gerstenberg Lab, Stanford, Stanford, CA
October 2018 – ConCats, NYU, New York, NY
August 2018 – Shenhav Lab, Brown, Providence, RI
December 2017 – NeurIPS workshop, Long Beach, CA
October 2015 – ConCats, NYU, New York, NY
November 2014 – PPEL Speakers Series, University of Richmond, Richmond, VA

AWARDS

$500 – Student Travel Award, Cognitive Science Society (Summer 2018)
$500 – Dean's Travel Award, NYU (Summer 2017)
$4,000 – Summer Research Fellowship, College of Arts & Sciences, UR (Summer 2015)
$4,000 – PPEL Fellowship, University of Richmond (Summer 2014)
$4,000 – Summer Research Fellowship, College of Arts & Sciences, UR (Summer 2013)
$4,000 – Summer Research Fellowship, College of Arts & Sciences, UR (Summer 2012)
$4,000 – Summer Research Fellowship, Dept. of Mathematics, UR (Summer 2011)

RESEARCH EXPERIENCE

Causality in Cognition Lab – Dr. Tobias Gerstenberg (Stanford University)
Fall 2020 – Present

Rehder Lab – Dr. Bob Rehder (New York University)
Fall 2015 – Summer 2020

Berry Lab – Dr. Jane Berry (University of Richmond)
Summer 2015

Landy Lab – Dr. David Landy (University of Richmond, now at Netflix)
2011 – 2015

Department of Mathematics Summer Research Grant

Department of Mathematics, University of Richmond
Summer 2011

RELEVANT COURSES

Artificial Neural Networks, Bayesian Modeling, Simulation & Data Analysis, Mathematical Probability, Mathematical Statistics, Math Tools, Computational Cognitive Modeling, Learning & Memory, Categories & Concepts, Cognition, Cognitive Neuroscience, Choice and Decision Making, Behavioral Neuroscience, Metamemory

TEACHING

Teaching Assistant – Lecture
Master's Statistics (PSYCH-GA.2016)

Teaching Assistant – Lecture
Cognition (PSYCH-UA.29)

SERVICE

Cog Collective
Officer

- Organize events to facilitate communication between students in fields broadly interested in the cognitive sciences

PUBLISHED SOFTWARE

Experiment code
Causal structure learning in continuous systems
https://zach-davis.github.io/publication/cvct/
Human dynamic control under changing goals
https://zach-davis.github.io/publication/dynamic_control/