Dale Zhou

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CONTACT INFORMATION

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EDUCATION

University of Pennsylvania
Ph.D. candidate in Neuroscience
Advisors: Dani Bassett, Theodore Satterthwaite

University of Maryland, College Park
B.A. in Philosophy
B.S. in Psychology
Minor in Neuroscience
Advisors: Peter Carruthers, Michael Dougherty, D.J. Bolger

Publications

SUBMITTED/ UNDER REVISION

[20] Stiso, J., Oudyk, K., Bertolero, M.A., **Zhou, D.**, Teich, E.G., Lydon-Staley, D.M., Zurn, P., & Bassett, D.S. (2022). Modeling observed gender imbalances in academic citation practices. *arXiv*: 10.48550/arXiv.2204.12555

[19] Patankar, S.P., **Zhou, D.**, Lynn, C.W., Kim, J., Ouellet, M., Ju, H., Zurn, P., Lydon-Staley, D.M., & Bassett, D.S. (2022). Curiosity as filling, compressing, and reconfiguring knowledge networks. *arXiv*: 10.48550/arXiv.2204.01182

[18] Mahadevan, A., Cornblath, E., Lydon-Staley, D.M., **Zhou, D.**, Parkes, L., Larsen, B., Adebimpe, A., Kahn, A.E., Gur, R.C., Gur, R.E., Satterthwaite, T.D., Wolf, D.H., & Bassett, D.S. (2021). Alprazolam modulates persistence energy during emotion processing in first-degree relatives of individuals with schizophrenia: a network control study. *bioRxiv*: 10.1101/2021.04.22.440935v1

[17] Bertolero, M.A., Dworkin, J.D., David, S.U., López Lloreda, C., Srivastava, P., Stiso, J., **Zhou, D.**, Dzirasa, K., Fair, D.A., Kaczkurkin, A.N., Marlin, B.J., Shohamy, D., Uddin, L.Q., Zurn, P., & Bassett, D.S. (2020). Racial imbalance in neuroscience reference lists and intersections with gender. *bioRxiv*: 2020.10.12.336230

JOURNAL ARTICLES

[16] **Zhou, D.**, Kang, Y., Cosme, D. Jovanova, M., He, X., Mahadevan, A., Ahn, J., Stanoi, O., Brynildsen, J.K., Cooper, N., Cornblath, E.J., Parkes, L., Mucha, P., Ochsner, K., Lydon-Staley, D., Falk, E., & Bassett, D.S. (2022). Mindfulness Promotes Control of Brain Network Dynamics for Self-Regulation and Discontinues the Past from the Present. Proceedings of the National Academy of Sciences (in press). *PsyArXiv*: 10.31234/osf.io/u83my.

[15] Richie-Halford, A., Cieslak, M., Ai, L., Caffarra, S., Covitz, S., Franco, A.R., Karipidis, I.I., Kruper, J., Milham, M., Avelar-Pereira, B., Roy, E., Sydnor, V.J., Yeatman, J.D., [The Fibr Community Science Consortium, including **Zhou, D.**], Satterthwaite, T.D., and Rokem, Ariel,, 2022. An open, analysis-ready, and quality controlled resource for pediatric brain white-matter research. Scientific Data. *bioRxiv*: 10.1101/2022.02.24.481303v1.

[14] Ju, H., **Zhou, D.**, Blevins, A.S., Lydon-Staley, D.M., Kaplan, J., Tuma, J.R., Bassett, D.S. (In press). Historical growth of concept networks in Wikipedia. Collective Intelligence. *SocArXiv*: https://osf.io/preprints/socarxiv/tga9c/

[13] Weninger, L., Srivastava, P., **Zhou, D.**, Kim, J.Z., Cornblath, E.J., Bertolero, M.A., Habel, U., Merhof, D., and Bassett, D.S. (In press). The information content of brain states is explained by structural constraints on state energetics. Physical Review E. *arXiv*: 10.48550/arXiv.2110.13781

[12] Adebimpe, A., Bertolero, M.A, [33 others, including **Zhou, D.**, and the ALLFTD Consortium], & Satterthwaite, T.D. ASLPrep: A Platform for Processing of Arterial Spin Labeled MRI and Quantification of Regional Brain Perfusion. *Nature Methods*. DOI: 10.1038/s41592-022-01458-7

[11] **Zhou, D.**, Lynn, C.W., Cui, Z., Ciric, R., Baum, G.L., Moore, T.M., Roalf, D.R., Detre, J.A., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. (2021). Efficient Coding in the Economics of Human Brain Connectomics. *Network Neuroscience.* DOI: 10.1162/netn_a_00223

[10] Wang, X., Dworkin, J.D., **Zhou, D.**, Stiso, J., Falk, E., Bassett, D.S., Zurn, P., Lydon-Staley, D.M. (2021). Gendered citation practices in the field of communication. *Annals of the International Communication Association*. DOI: 10.31234/osf.io/ywrcq

[9] Lydon-Staley, D.M., **Zhou, D.**, Blevins, A.S., Zurn, P., & Bassett, D.S. (2020). Hunters, busybodies, and the knowledge network building associated with deprivation curiosity. *Nature Human Behavior.* DOI: 10.1038/s41562-020-00985-7

[8] Chai, L.R., **Zhou, D.**, & Bassett, D.S. (2019). Evolution of semantic networks in biomedical texts. *Journal of Complex Networks.* DOI: 10.1093/comnet/cnz023

[7] **Zhou, D.**, Liu, S., Zhou, X., Berman, R.A., Broadnax, D.D., Rapoport, J.L, & Thomas, A.G. (2018) 7 Tesla MRI reveals hippocampal structural abnormalities associated with memory intrusions in childhood-onset schizophrenia. *Schizophrenia Research.* DOI: 10.1016/j.schres.2018.07.023

[6] **Zhou, D.**, Gochman, P., Broadnax, D.D., Rapoport, J.L., & Ahn, K. (2016). 15q13.3 duplication in two patients with childhood-onset schizophrenia. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics.* DOI: 10.1002/ajmg.b.32439

Reviews & Book Chapters

[5] Zurn, P., **Zhou, D.**, Lydon-Staley, D.M., & Bassett, D.S. (2022). Edgework: Viewing curiosity as fundamentally relational. In Cogliati Dezza, I., Wu, C., Schulz, E. (Eds.). The Drive for Knowledge: The Science of Human Information Seeking. Cambridge University Press. [pre-print]

[4] **Zhou, D.**, Lydon-Staley, D.M., Zurn, P., & Bassett, D.S. (2020). The growth and form of knowledge networks by kinesthetic curiosity. *Current Opinion in Behavioral Sciences.* DOI:10.1016/j.cobeha.2020.09.007

[3] Srivastava, P., Nozari, E., Kim, J.Z., Ju, H., **Zhou, D.**, Becker, C., Pasqualetti, F., & Bassett, D.S. (2020). Models of communication and control for brain networks: distinctions, convergence, and future outlook. *Network Neuroscience.* DOI: 10.1162/netn_a_00158

[2] Rapoport, J. L., **Zhou, D.**, & Ahn, K. (2020). Intellectual disabilities. *New Oxford Textbook of Psychiatry, 3rd edition.* Oxford University Press, USA. ISBN: 9780198713005

[1] **Zhou, D.**, Sequeira, S., Driver, D., & Thomas, S. (2018). Disruptive Mood Dysregulation Disorder. In S. Thomas and D. Driver (Eds.), *Complex Disorders in Pediatric Psychiatry: A Clinician's Guide*. Clinics Review Articles, Elsevier Inc. ISBN: 9780323511476

In Prep

[3] **Zhou, D.**, Kim, J.Z., Pines, A., Sydnor, V.J., Roalf, D.R., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. Integrating sensation to cognition in human brain networks.

[2] **Zhou, D.**, Lydon-Staley, D.M., Mucha, P., Falk, E., Ochsner, K., & Bassett, D.S. Cognitive control & network control: Current tensions and future promise.

[1] Simon, S., **Zhou, D.**, [23 others in the Spring 2019 class of BE566], Lydon-Staley, D.M., & Bassett, D.S. Diversity in neuroscience research.

Fellowships, Awards, & Honors

2021-23	NIH F31 National Research Service Award F31MH126569
2019	National Academy of Sciences Travel Award
2018-20	Language and Communication Sciences Research Fund Stipend
2018-	Language and Communication Sciences Program
2015-17	NIH Intramural Research Training Award
2015	Departmental Honors in Psychology
2015	Departmental Honors in Philosophy
2013	College Park Scholars Co-Curricular Scholarship Award
2011	Ling Ho Anita K'ung Tong Scholarship
2010-12	College Park Scholar in Global Public Health
2010-14	University of Maryland President's Scholarship

Conference Presentations

Talks

[3] *NeurIPS 2022 workshop Information-Theoretic Principles in Cognitive Systems workshop*. New Orleans, LA. December 3, 2022. Compression supports low-dimensional representations of behavior across neural circuits.

[2] *National Academy of Sciences Colloquium: The Brain Produces the Mind By Modeling*. Irvine, California. May 1, 2019. Network Mechanisms of Curiosity and Information Seeking During Wikipedia Exploration.

[1] 9^{th} *Annual Julius Axelrod Symposium*. NIMH, Intramural Research Program. Bethesda, Maryland. April 13, 2017. Ultra-high field 7-Tesla MRI reveals hippocampal subfield volume and shape abnormalities in childhood-onset schizophrenia patients compared to healthy siblings and controls.

Refereed Conference Proceedings

[14] Wang, X., Lydon-Staley, D., Stiso, J., **Zhou, D.**, Falk, E., Bassett, D., Zurn, P. Gendered citation practices in the field of communication. *71st Annual International Communication Association Conference.* (virtual due to COVID-19). May 27-31, 2021.

Communication & Science Biology Top Paper Award

Posters

[13] **Zhou, D.**, Kim, J.Z., Pines, A., Sydnor, V.J., Roalf, D.R., Detre, J.A., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. Compression supports low-dimensional representations of behavior across neural circuits. *NeurIPS 2022 workshop Information-Theoretic Principles in Cognitive Systems workshop*. New Orleans, LA. December 3, 2022.

[12] Brynildsen, J. K., **Zhou, D.**, Cosme, D., Jovanova, M., He, X., Mucha, P.J., Ochsner, K.N., Lydon-Staley, D.M. , Falk, E. B., Bassett, D.S. Regulation of alcohol cue reactivity in a social context. *Society for Neuroscience*. San Diego, CA. November 12, 2022.

[11] **Zhou, D.**, Lynn, C.W., Cui, Z., Ciric, R., Baum, G.L., Moore, T.M., Roalf, D.R., Detre, J.A., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. Network Fidelity Improves with Brain Network Maturation and Executive Function. *Flux Society*. Paris, France. September 6-9, 2022.

[10] **Zhou, D.**, Kim, J.Z., Pines, A., Sydnor, V.J., Roalf, D.R., Detre, J.A., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. Communication and compression principles integrate sensation to cognition in human brain networks. *Organization for Human Brain Mapping*. June 19-23, 2022.

[9] **Zhou, D.**, Kang, Y., Cosme, D. Jovanova, M., He, X., Mahadevan, A., Stanoi, O., Brynildsen, J.K., Cooper, N., Cornblath, E.J., Parkes, L., Mucha, P., Ochsner, K., Lydon-Staley, D., Falk, E., and Bassett, D.S. Mindfulness Promotes Control of Network Dynamics for Self-Regulation and Updates the Past to Present. *Organization for Human Brain Mapping*. June 19-23, 2022.

[8] Ju, H., **Zhou, D.**, Blevins, A.S., Lydon-Staley, D.M., Kaplan, J., Tuma, J.R., Bassett, D.S. The network structure of scientific revolutions. *American Physical Society March Meeting* (virtual due to COVID-19). March 15-19, 2021.

[7] **Zhou, D.**, Lynn, C.W., Cui, Z., Ciric, R., Baum, G.L., Moore, T.M., Roalf, D.R., Detre, J.A., Gur, R.C., Gur, R.E., Satterthwaite, T.D., & Bassett, D.S. Efficient Coding in the Economics of Human Brain Connectomics. *Organization for Human Brain Mapping*. Montreal, CA (virtual due to COVID-19). June 23-July 3, 2020.

[6] **Zhou, D.**, Lydon-Staley, D., Zurn, P., Bassett, & D.S. Network Mechanisms of Curiosity and Information Seeking During Wikipedia Exploration. *National Academy of Sciences Colloquium: The Brain Produces the Mind By Modeling*, Beckman Center of the National Academy of Sciences & Engineering, Irvine, California. May 1-3, 2019.

[5] **Zhou, D.**, Liu, S., Zhou, X., Berman, R.A., Broadnax, D.D., Rapoport, J.L, & Thomas, A.G. Ultra-high field 7-Tesla MRI reveals hippocampal subfield volume and shape abnormalities in childhood-onset schizophrenia patients compared to healthy siblings and controls. 9^{th} *Annual Julius Axelrod Symposium*, Bethesda, Maryland. April 13, 2017.

[4] **Zhou, D.**, Liu, S., Zhou, X., Berman, R.A., Broadnax, D.D., Rapoport, J.L, & Thomas, A.G. Ultra-High Field 7-Tesla MRI Shape Analysis of Hippocampal Subfields in Childhood-Onset Schizophrenia and Healthy Siblings. *Society of Biological Psychiatry*, San Diego, California. May 18-20, 2017.

[3] **Zhou, D.**, Liu, S., Berman, R.A., Broadnax, D.D., Rapoport, J.L, & Thomas, A.G. 7-Tesla MRI Reveals Regional Hippocampal Deficits in Childhood-Onset Schizophrenia. *American College of Neuropsychopharmacology*, Hollywood, Florida. In *Neuropsychopharmacology*, Vol. 41, pp. S591-S591. December 4-8, 2016.

[2] **Zhou, D.**, Liu, S., Berman, R.A., Broadnax, D.D., Rapoport, J.L, & Thomas, A.G. 7-Tesla MRI reveals regional hippocampal volume deficits of dentate gyrus in childhood-onset schizophrenia. *Society for Neuroscience*, San Diego, California. November 12-16, 2016.

[1] **Zhou, D.**, Gochman, P., Broadnax, D.D., Rapoport, J.L., & Ahn, K. 15q13.3 duplication in two patients with childhood-onset schizophrenia. *Society of Biological Psychiatry*, Atlanta, Georgia. May 12-14, 2016.

Open-source Code

[4] **Zhou, D.** (2022). Sparking Curiosity, `link`

[3] **Zhou, D.**, Bertolero, M.A., Stiso, J., Cornblath, E.J., Teich, E.G., Blevins, A.S., Oudyk, K., Cleanthis, M., Urai, A., Matelsky, J., Virtualmario, Camp, C., Alacantra Castillo, R., Saxe, R., Dworkin, J.D., & Bassett, D.S. (2022). *Citation Diversity Statement and Code Notebook v1.1.2.* Zenodo. DOI: 10.5281/zenodo.4104748

[2] **Zhou, D.** (2018). *Building word2vec and Co-Occurrence Networks*, `link`

[1] Gorgolewski, K.J., Esteban, O., [110 others, including **Zhou, D.**], & Ghosh, S. (2016). *Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python. 0.13.0.* DOI: 10.5281/zenodo.581704

Teaching

2022	Teaching Assistant, Goals of Scientific Inquiry; or, On the Curiosity of Beasts (with Dani Bassett) Student evaluation of TA: 3.6/4.0
2020	Teaching Assistant, Curiosity: Ancient and Modern Thinking About Thinking (with Dani Bassett)
2019-20	Guest Lecturer, Network Neuroscience (with Dani Bassett)
2019	Teaching Assistant, Computational Neuroscience Lab (with Nicole Rust) Student evaluation of TA: 3.7/4.0

Students Advised

[3] Ivan Tseytlin (Haverford College, Physics 2023)
Network control theory

(a) Marian E. Koshland Integrated Natural Sciences Center Research Fund

[2] Samantha Simon (University of Pennsylvania, Physics 2023)
Diversity in science; network science; semantic networks

(a) University Scholars Program

[1] Mark Choi (University of Pennsylvania, Computer Science 2021)
(Went to Facebook/Meta)
Network structure in mathematics

(a) Top Poster Presentation for Rachleff Scholars Program at Penn Engineering Summer REU Symposium. August 1, 2019.

Professional Service

Outreach

2020– Organizing Committee, Innovators in Cognitive Neuroscience Symposia, [link]
2020– Web Developer, Black in STEM in Academia, [link]
2019– Creator/Maintainer, Citation Diversity Statement Code Notebook, [link]
2019–20 Organizer, Web Developer, Penn Network Visualization program, [link]
2019–21 Apprentice Chief, Upward Bound: Research Fridays, [link]
2019–20 Committee, APICAL Service Award
2017–20 Section Chief, Brains in Brief science communication, [link]
2017–18 Founder, Psychology Honors Alumni (University of Maryland)
2014–15 Vice President, Philosophy Club (University of Maryland)

Mentorship

2020–21 MindCORE Step-Ahead Mentorship Program, [link]
2019–21 Upward Bound: Research Fridays, [link]

Reviewer

Biological Psychiatry
Cerebral Cortex
IEEE: Transactions on Network Science and Engineering
Network Neuroscience
NeurIPS (Information-Theoretic Principles in Cognitive Systems workshop)

Art Exhibitions

[3] American Philosophical Society Museum exhibition: Celebrating Women in Science. Philadelphia, PA. March 2023.

[2] Kamen's Lens. Rebecca Kamen, S.J. Fowler, Dale Zhou. *Dyslexic Dictionary.* Organized and curated by Gil Gershoni, Tasmin Smith, and Ted Gioia. Arion Press Gallery, 1802 Hays Street, The Presidio, San Francisco, CA. October 22–December 22, 2022. [link] [video 1] [video 2]

[1] Sparking Curiosity. Dale Zhou, David Lydon-Staley, Perry Zurn, and Dani Bassett. *Reveal: The Art of Reimagining Scientific Discovery.* Organized and curated by Rebecca Kamen and Sarah Tanguy. Museum at the Katzen Arts Center, American University, Washington, D.C., August 29–December 12, 2021. [link]

Hackathons

Stiso, J.* & **Zhou, D.*** (2020). *Tools for Combating Citation Bias.* Organization for Human Brain Mapping Hackathon, Montreal, Canada. June 16–18, 2020. [link]

Invited Talks

Panelist, Post-Baccalaureate Research Experiences, University of Maryland. March 30, 2017.

Technical Skills & Training

Programming

R, Python, MATLAB, Bash

Image Processing

Nipype, Freesurfer, ANTs, FSL, AFNI

Workshops

NeurIPS 2022 workshop Information-Theoretic Principles in Cognitive Systems workshop. December 3, 2022

Penn Institute for Computational Science C++ Workshop, Philadelphia, PA (virtual). October 22, 2022

Summer Workshop in Cognitive Electrophysiology, Philadelphia, PA (virtual). August 4-13, 2020.

Computational Psychiatry Summer Course, New York, New York. July 29-30, 2019.