

Dale Zhou

Last update: November 14, 2022

CONTACT
INFORMATION

Complex Systems Lab
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Philadelphia, PA 19104

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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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://doi.org/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](https://doi.org/10.1101/2020.10.12.336230)

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](https://doi.org/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](https://doi.org/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 on Information-Theoretic Principles in Cognitive Systems*. 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] *9th 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

- [15] Kang, Y., Ahn, J., Cosme, D., McGowan, A., Mwilambwe-tshilobo, L., **Zhou, D.**, Jovanova, M., Stanoi, O., Mucha, P.J., Ochsner, K.N., Bassett, D.S., Lydon-Staley, D. Falk, E.B.. Frontoparietal system functional connectivity moderates the within-day associations between increases in time spent on social media and subsequent negative affect". *73rd Annual International Communication Association Conference*. Toronto, CA. May 25-29, 2023.

- [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 on Information-Theoretic Principles in Cognitive Systems*. 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. *9th 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., Alacantha 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)
(Accenture AI) Diversity in science; network science; semantic networks
 - (a) University Scholars Program
- [1] Mark Choi (University of Pennsylvania, Computer Science 2021)
(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.