Adam Robert Pines

Postdoctoral Scholar | Precision Psychiatry and Translational Neuroscience Laboratory | Stanford University

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Education

Ph.D, Neuroscience **August 2017 - August 2022**
Dissertation: Layers of Maturation in Cortical Hierarchies
University of Pennsylvania, Philadelphia, PA
Advisor: Theodore Satterthwaite, M.D., M.A.

Bachelor of Arts, *magna cum laude,* Psychology (Major), Biology (Minor) **August 2011 - May 2015**
Loyola Marymount University, Los Angeles, CA

Work experience

A.C.E. Certified Personal Trainer
Burns Recreation Center, Westchester, CA **August 2013 - May 2015**
24 Hour Fitness, Mountain View Sport, Mountain View, CA **June 2015 - October 2015**

Research

Postdoctoral Scholar **August 2022 - Present**
Stanford University, Stanford, CA. PI: Leanne Williams
Clinical Research Coordinator **October 2015 - May 2017**
Stanford University, Stanford, CA. PI: Leanne Williams

Research Assistant **September 2013 - May 2015**
Loyola Marymount University, Los Angeles, CA. PI: Cheryl Grills

Research Volunteer **June 2015 - October 2015**
Stanford University, Palo Alto, CA. PI: Amit Etkin

Awards and Funding

Stanford Psychiatry Trailblazing Trainee Award **February 2024 - October 2024**
Stanford School of Medicine Dean's Fellowship **July 2023 - July 2024**
Ruth L. Kirschstein National Research Service Award (NRSA) **February 2021 - August 2022**
Jameson-Hurvich Travel Award for Behavioral Neuroscience **June 2021**
LMU Achievement Award, Loyola Marymount University **August 2011 - May 2015**

Publications

Pines, A., Larsen, B., Cui, Z., Sydnor, V., Bertolero, M., Adebimpe, A., Alexander-Bloch, A., Davatzikos, C., Fair, D., Gur, R.C., Gur R.E., Li, H., Milham, M., Moore, T., Murtha, K., Parkes, L., Thompson-Schill, S., Shanmugan, S., Shinohara, T., Weinstein, S., Bassett, D., Fan, Y., & Satterthwaite T. (2022) Dissociable Multi-scale Patterns of Development in Personalized Brain Networks. *Nature Communications*.

Pines, A, Keller, A., Larsen, B., Bertolero, M., Ashourvan, A., Bassett, D., Cieslak, M., Covitz, S., Fan, Y., Feczcko, E., Houghton A., Rueter, A., Tapera, T., Vogel, J., Weinstein, S., Shinohara, R., Fair, D., & Satterthwaite, T. (2023). Development of Top-Down Cortical Propagations in Youth. *Neuron*.

Pines, A., Cieslak M., Larsen, B., Baum, G., Cook, P., Adebimpe, A., Dávila, D., Elliott, M., Jirsaraie, R., Murtha, K., Oathes, D., Piiwaa, K., Rosen, A., Rush, S., Shinohara, R., Bassett, D., & Satterthwaite, T. (2020) Leveraging multi-shell diffusion for studies of brain development in youth and young adulthood. *Developmental Cognitive Neuroscience.*

Pines, A., Sacchet, M., Kullar, M., Ma., J., & Williams, L. (2018) Multi-unit relations among neural, self-report, and behavioral correlates of emotion regulation in comorbid depression and obesity. *Scientific Reports.*

Cui, Z., **Pines, A.**., Larsen, B., Sydnor, V. J., Li, H., Adebimpe, A., Alexander-Bloch, A. F., Bassett, D. S., Bertolero, M., Calkins, M. E., Davatzikos, C., Fair, D. A., Gur, R. C., Gur, R. E., Moore, T. M., Shanmugan, S., Shinohara, R. T., Vogel, J. W., Xia, C. H., Fan, Y., & Satterthwaite, T. D. (2022). Linking Individual Differences in Personalized Functional Network Topography to Psychopathology in Youth. *Biological Psychiatry.*

Keller, A. S., **Pines, A.**, Sydnor, V. J., Cui, Z., Bertolero, M. A., Barzilay, R., Alexander-Bloch, A. F., Byington, N., Chen, A., Conan, G. M., Davatazikos, C., Feczko, E., Hendrickson, T. J., Houghton, A., Larsen, B., Li, H., Miranda-Dominguez, O., Roalf, D. R., Perrone, A., Shanmugan, S., Shinohara, R., Fan, Y., Fair, D., & Satterthwaite, T. D. (2022). Personalized Functional Brain Network Topography Predicts Individual Differences in Youth Cognition. *Nature Communications*.

Mehta, K., **Pines, A**, Adebimpe, A., Larsen, B., Bassett, D., Calkins, M., Baller, E., Gell, M., Patrick, L., Gur, R.E., Gur, R.C., Roalf, D., Romer, D., Wolf., D., Kable, J., & Satterthwaite, T. (2023). Individual Differences in Delay Discounting are Associated with Dorsal Prefrontal Cortex Connectivity in Youth. *Developmental Cognitive Neuroscience*.

Williams, L., **Pines, A**., Goldman Rosas, L., Goldstein-Piekarski, A., Lavori, P., Dagum, P., Wandell, B., Correa, C., Greenleaf, W., Suppes, T., Perry, L., Smyth, J., Lewis, M., Venditti, E., Snowden, M., Simmons J., & Ma, J. (2018). The ENGAGE study: Integrating neuroimaging, virtual reality and smartphone sensing to understand self-regulation for managing depression and obesity in a precision medicine model. *Behaviour Research and Therapy.*

Keller, A. S., Sydnor, V., **Pines**, **A**., Fair, D., Bassett, D., & Satterthwaite T., (2022). Hierarchical functional system development supports executive function. *Trends in Cognitive Sciences*.

Luo, A., Sydnor, V., **Pines A.**, [and 24 others] (2024). Functional Connectivity Development along the Sensorimotor–Association Axis Enhances the Cortical Hierarchy. *Nature Communications*.

Keller, A. S., Mackey, A. P., **Pines. A.**, Fair, D., Hoffman, M.S., Salum, G., Barzilay, R., & Satterthwaite, T. (2022). Caregiver monitoring, but not caregiver warmth, is associated with general cognition in two large sub-samples of youth. *Developmental Science.*

Ashourvan, A., Shah, P., **Pines, A**., Gu, S., Lynn, C., Bassett*,* D.*,* Davis, K., & Litt, B. (2021). Pairwise maximum entropy model explains the role of white matter structure in shaping emergent co-activation states**.** *Nature Communications Biology.*

Li, B., Bailenson, J., **Pines, A.** Greenleaf, W., & Williams, L. (2017) A public database of immersive VR videos with corresponding ratings of arousal, valence, and correlations between head movements

and self report measures. *Frontiers in Psychology.*

Murtha, K., Larsen, B., **Pines, A**., Parkes, L., Moore, T. M., Adebimpe, A., Bertolero, M., Alexander-Bloch, A., Calkins, M. E., Davila, D. G., Lindquist, M. A., Mackey, A. P., Roalf, D. R., Scott, J. C., Wolf, D. H., Gur, R. C., Gur, R. E., Barzilay, R., & Satterthwaite, T. D. (2022). Associations between neighborhood socioeconomic status, parental education, and executive system activation in youth. *Cerebral Cortex.*

Hermosillo, R., Moore, L., Fezcko, E., Miranda-Domínguez, O., **Pines, A.**, Dworetsky, A.**,** Conan, G., Mooney, M., Randolph, A., Graham, A., Adeyemo, B., Earl, E., Perrone, A., Carrasco, C., Uriarte-Lopez, J., Snider, K., Doyle., O., Cordova, M., Koirala, S., Grimsrud, G., Byington, N., Nelson, S., Gratton, C., Peterson, S., Feldstein Ewin, S., Nagel, B., Dosenbach, N., Satterthwaite, T., & Fair., D. (2024). A Precision Functional Atlas of Personalized Network Topography and Probabilities, *Nature Neuroscience.*

Cieslak, M., Cook, P., He, X., [and 39 others, including **Pines, A.**] (2021). QSIPrep: An integrative platform for preprocessing and reconstructing diffusion MRI. *Nature Methods.*

Larsen, B., Cui, Z., Adebimpe, A., **Pines, A.**, Alexander-Bloch, A., Bertolero, M., Calkins, M. E., Gur, R. E., Gur, R. C., Mahadevan, A. S., Moore, T. M., Roalf, D. R., Seidlitz, J., Sydnor, V. J., Wolf, D. H., & Satterthwaite, T. D. (2021). A Developmental Reduction of the Excitation:Inhibition Ratio in Association Cortex during Adolescence. *Science Advances.*

Shah, P., Ashourvan, A., Mikhail, F., **Pines, A.**, Kini, L., Shinohara, R., Bassett, D., Litt, B., & Davis, K. (2019). Characterizing the role of the structural connectome in seizure dynamics. *Brain.*

Sydnor, V., Larsen, B., Bassett, D., Alexander-Bloch, A., Fair, D., Liston, C., Mackey, A., Milham., M., **Pines, A.**, Roalf., D., Seidlitz, J., Xu, T., Raznahan, A., & Sattertwhaite, T. (2021) Neurodevelopment of the association cortices: patterns, mechanisms, and implications for psychopathology. *Neuron.*

Linguiti, S., Vogel, J., Sydnor V., **Pines, A**, Wellman, N., Basbaum, A., Eickhoff, C., Eickhoff, S., Edwards, R., Larsen, B., McKinstry-Wu, A., Cobb Scott, K., Roalf, D., Sharma, V., Strain, E., Corder, G., Dworkin, R., & Satterthwaite T. (2023). Functional imaging studies of acute administration of classic psychedelics, ketamine, and MDMA: Methodological limitations and convergent results. *Neuroscience and Biobehavioral Reviews.*

Shanmugan, S., Seidlitz, J., Cui, Z., Adebimpe, A., Bassett, D., Bertolero, M., Davatzikos, C., Fair, D., Gur, R. E., Gur, R. C., Larsen, B., Li, H., **Pines, A**., Raznahan, A., Roalf, D., Shinohara, R., Vogel, J., Wolf., D., Fan., Y., Alexander-Bloch, A., & Satterthwaite, T. (2021). Sex differences in functional topography of association networks. *Proceedings of the National Academy of Sciences.*

Keller, A., Moore, T., Luo, A., Visoki, E., Gatavins, M., Shetty, A., Cui, Z., Fan, Y., Feczko, E., Houghton A., Li, H., Mackey, A., Miranda-Dominguez, O., **Pines, A.**, Shinohara, R., Sun, K., Fair, D., Satterthwaite, T., & Barzilay, R. (2024). A general exposome factor explains individual differences in functional brain network topography and cognition in youth. *Developmental Cognitive Neuroscience.*

Richie-Halford, A., Cieslak, M., Ai, L., Caffarra, S., Covitz, S., Franco, A., Karipidis, I., Kruper, J., Milham, M., Avelar-Pereira, B., Roy, E., Sydnor, V., Yeatman, J., **The Fibr Community Science**

Consortium, Satterthwaite T., & Rokem, A. (2022). An analysis-ready and quality controlled resource for pediatric brain white-matter research. *Scientific Data.*

Baller, E. B., Valcarcel, A. M., Adebimpe, A., Alexander-Bloch, A., Cui, Z., Gur, R. C., Gur, R. E., Larsen, B. L., Linn, K. A., O'Donnell, C. M., **Pines, A.**, Raznahan, A., Roalf, D. R., Sydnor, V. J., Tapera, T. M., Tisdall, M. D., Vandekar, S., Xia, C. H., Detre, J. A., Shinohara, R. T., & Satterthwaite, T. D. (2022). Developmental coupling of cerebral blood flow and fMRI fluctuations in youth. *Cell Reports.*

Xia, C., Barnett, I., Tapera, T., Cui, Z., Moore, T., Adebimpe, A., Rush-Goebel, S., Piiwaa, K., Murtha, K., Linguiti, S., Leibenluft, E., Brotman, M., Martin, M., **Pines, A.**, Calkins, M., Roalf, D., Wolf, D., Bassett, D., Lydon-Staley, D., Baker, J., Ungar, L., & Satterthwaite T. (2022). Mobile Footprinting: Linking Individual Distinctiveness in Mobility Patterns to Mood, Sleep, and Brain Functional Connectivity. *Neuropsychopharmacology.*

SUBMITTED

Pines, A., Tozzi, L., Bertrand, C., Keller, A., Zhang, X., Whitfield-Gabrieli, S., Hastie, T., Larsen, B., Leikauf, J., & Williams, L. (2024). Co-existence of negative and positive associations between cognition and intergenerational psychiatric symptoms reveal necessity of socioeconomic and clinical enrichment. In Revision, *JAMA Psychiatry.* Available from https://www.medrxiv.org/content/10.1101/2023.08.28.23294743v1

Zhang, X., **Pines, A.**, Stetz, P., Goldstein-Piekarski, A., Xiao, L., Lv., N., Lavori, P., Snowden, M., Venditti, E., Smyth, J., Suppes, T., Ajilore, O., Ma., J., & Williams, L. (2023). Adaptive Changes in the Cognitive Control Brain Circuit Underlie and Predict Behavioral Outcomes for Depression over Two Years. In Revision, *Science Translational Medicine.*

Tozzi, L., Zhang, X., **Pines, A.**, Olmstead, A., Zhai, E., Anene, E., Chesnut, M.m Holt-Gosselin, B., Chang, S., Stetz, P., Ramierz, C., Hack, L., Korgaonkar, M., Wintermark, M., Gotlib, I., Ma., J., & Williams L., (2023). Personalized brain circuit scores characterize depression biotypes with distinct symptoms, behavioral profiles, and treatment outcomes. In Press, *Nature Medicine*

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. (2022). Compression supports low-dimensional representations of behavior across neural circuits. Available from https://www.biorxiv.org/content/10.1101/2022.11.29.518415v1

Vogel, J. W., Alexander-Bloch, A., Wagstyl, K., Bertolero, M., Markello, R., **Pines, A.**, Sydnor, V. J., Diaz-Papkovich, A., Hansen, J., Evans, A. C., Bernhardt, B., Misic, B., Satterthwaite, T., & Seidlitz, J. (2022). Conserved whole-brain spatiomolecular gradients shape adult brain functional organization. Available from https://www.biorxiv.org/content/10.1101/2022.09.18.508425v1.

Yang, H., Wu, G., Li, Y., Xu, X., Ma, Y., Chen, R., **Pines, A.**, Xu, T., Sydnor, V., Satterthwaite T., & Cui., Z (2023). A connectional gradient of individual variability across functional network edges.

Jirsaraie, R., Gatavins, M., **Pines, A.,** Kandala, S., Bijsterbosch, J., Marek, S., Bogdan, R., Barch, D., & Sotiras, A. (2023) Mapping the Neurobiological Markers of Psychopathology.

Zhao, S., Su, H., Cong, J., Chen, P., Wu, G., Li, Y., Fan, Q., Ma, Y., Xu, X., Yang, H., Li, H., **Pines, A.**, Chen, R., & Cui, Z. (2023) Personalized Large-scale Functional Networks in ABCD Children: Linking Functional Network Topography with Socioeconomic status.

Teaching

Hierarchical Neuroaesthetics. Guest lecturer, University of San Francisco, October 2022
Introduction to the Brain and Behavior. Teaching Assistant, University of Pennsylvania, Fall 2019
Approaches to delineating hierarchical directionality in BOLD. Gradients of Brain Organization 2024 (Invited)
Hierarchical Cognition, Guest lecturer, University of Kansas, April 2024
Hierarchical Neurodevelopment, Guest lecturer, University of Kansas, April 2024
Contemporary Structural MRI Processing for Neuroscience, Guest lecturer, University of Kansas, March 2024
Contemporary Functional MRI Processing for Neuroscience, Guest lecturer, University of Kansas, March 2024
California State Science and Engineering Fair, Panel Judge, April 2023 & 2024

Ad Hoc Reviewer

Proceedings of the National Academy of the Sciences
Neuroimage
Developmental Science
Science Advances
Nature Medicine
BMC Medicine
npj Science of Learning
Human Brain mapping
PLOS One
PLOS Biology