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
The 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

Research

Postdoctoral Scholar **August 2022 - Present**
Stanford University, Stanford, CA. PI: Leanne Williams
Graduate Student **August 2017 - August 2022**
The University of Pennsylvania, Philadelphia, PA. PI: Theodore Satterthwaite
Clinical Research Coordinator **October 2015 - May 2017**
Stanford University, Stanford, CA. PI: Leanne Williams
Research Volunteer **June 2015 - October 2015**
Stanford University, Palo Alto, CA. PI: Amit Etkin
Research Assistant **September 2013 - May 2015**
Loyola Marymount University, Los Angeles, CA. PI: Cheryl Grills

Awards and Funding

Psychiatry Trailblazing Trainee Award (Stanford) **February 2024 - October 2024**
School of Medicine Dean's Fellowship (Stanford) **July 2023 - July 2024**
Ruth L. Kirschstein National Research Service Award (F31, NIMH) **February 2021 - August 2022**
Jameson-Hurvich Travel Award for Behavioral Neuroscience (Penn) **June 2021**
LMU Achievement Award, Loyola Marymount University (LMU) **August 2011 - May 2015**

Publications

Pines, A., Tozzi, L., Bertrand, C., Keller, A., Zhang, X., Whitfield-Gabrieli, S., Hastie, T., Larsen, B., Leikauf, J., & Williams, L. (2024). Psychiatric Symptoms, Cognition, and Symptom Severity in Children. *JAMA Psychiatry*.

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., 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., 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.*

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. (2024). Adaptive Changes in the Cognitive Control Brain Circuit Underlie and Predict Behavioral Outcomes for Depression over Two Years. In Press, *Science Translational Medicine.*

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.**, Shanmugan, S., 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., Shinohara, R., Fan, Y., Fair, D., & Satterthwaite, T. D. (2023). 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.*

Tozzi, L., Zhang, X., **Pines, A.**, Olmstead, A., Zhai, E., Anene, E., Chesnut, M., Holt-Gosselin, B., Chang, S., Stetz, P., Ramierz, C., Hack, L., Korgaonkar, M., Wintermark, M., Gotlib, I., Ma., J., & Williams L., (2024). Personalized brain circuit identify clinically distinct biotypes in depression and anxiety. *Nature Medicine.*

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.*

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.*

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.*

Jirsaraie, R., Gatavins, M., **Pines, A.,** Kandala, S., Bijsterbosch, J., Marek, S., Bogdan, R., Barch, D., & Sotiras, A. (2024) Mapping the Neurodevelopmental Predictors of Psychopathology. *Molecular Psychiatry*.

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*.

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. (2024). Deciphering the functional specialization of whole-brain spatiomolecular gradients in the adult brain. *Proceedings of the National Academy of Sciences.*

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

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.

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.

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/Talks

Hierarchy-traversing cortical activity in neurodevelopment and psychedelics, Washington U. in St. Louis **June 2024**
Precision Mental Health and Wellness Trainee Workshop Series **Spring-Summer 2024**
Delineating hierarchical directionality in BOLD. Gradients of Brain Organization (Invited) **June 2024**
Hierarchical Neurodevelopment, University of Kansas **April 2024**
Hierarchical Cognition, University of Kansas **April 2024**
Development of top-down cortical propagations, University of Maryland, College Park **March 2024**
Co-existence of negative and positive associations between cognition and intergenerational psychiatric symptoms reveal necessity of socioeconomic and clinical enrichment, Boehringer-ingelheim Idea Club **March 2024**
Contemporary MRI processing pipelines for neuroscience, University of Kansas **March 2024**
Cortical Functions and Psychopathologies in Adolescence. Northeastern University **June 2023**
Hierarchical neurodevelopment, The University of Sydney **June 2023**
Development of top-down cortical propagations, Stanford University **January 2023**
Hierarchical neuroaesthetics. University of San Francisco **October 2022**
Multimodal approaches to delineating neurocognitive development, Stanford University **January 2022**
Dissociable multi-scale patterns of development in brain networks, University of Minnesota **February 2021**
Introduction to the Brain and Behavior. Teaching Assistant, University of Pennsylvania **Fall 2019**

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**

SERVICE

California State Science and Engineering Fair, Panel Judge **April 2023 & 2024**
Mind Center for Outreach, Research, and Education Fellowship Mentor **Summer 2018**
Guadalupe Homeless Project Volunteer **Fall 2012-Spring 2013**

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, Biological Psychiatry: Cognitive Neuroscience and Neuroimaging