

# Andrew An Chen

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## Academic Appointments

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2023 - Present     Assistant Professor of Biostatistics  
Medical University of South Carolina

## Education

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2023	PhD	University of Pennsylvania (Biostatistics) Advisors: Taki Shinohara, Ph.D. and Haochang Shou, Ph.D.
2020	MS	University of Pennsylvania (Biostatistics) Advisor: Jing Huang, Ph.D.
2017	BA	University of Pennsylvania (Cognitive Science and Psychology)

## Publications

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### Peer Reviewed

- Green, R., Wolf, B. J., **Chen, A. A.**, Kirkland, A. E., Ferguson, P. L., Browning, B. D., Bryant, B. E., Tomko, R. L., Gray, K. M., Mewton, L., & Squeglia, L. M. (in press). Predictors of substance use initiation by early adolescence. *American Journal of Psychiatry*.
- Keller, A. S., Pines, A. R., Sydnor, V. J., Cui, Z., Bertolero, M. A., Barzilay, R., Alexander-Bloch, A. F., Byington, N., **Chen, A. 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., ... Satterthwaite, T. D. (in press). Personalized Functional Brain Network Topography Predicts Individual Differences in Youth Cognition. *Nature Communications*.
- Chen, A. A.**, Weinstein, S. M., Adebimpe, A., Gur, R. C., Gur, R. E., Merikangas, K. R., Satterthwaite, T. D., Shinohara, R. T., & Shou, H. (2023). Similarity-Based multimodal regression. *Biostatistics*, kxad033.
- Middleton, D. M., Li, Y., **Chen, A. A.**, Shinohara, R., Fisher, J., Krisa, L., Elliot, M., Faro, S. H., Woo, J. H., Flanders, A. E., & Mohamed, F. B. (2023). Harmonization of multi-site diffusion tensor imaging data for cervical and thoracic spinal cord at 1.5 T and 3 T using longitudinal ComBat. *Scientific Reports*, 13(1), Article 1.
- Agraz, J. L., Grenko, C. M., **Chen, A. A.**, Viaene, A. N., Nasrallah, M. D., Pati, S., Kurc, T., Saltz, J., Feldman, M. D., Akbari, H., Sharma, P., Shinohara, R. T., & Bakas, S. (2022). Robust Image Cohort Subset-based Stain Color Normalization: How Many Normalization Reference Slides Are Enough? *IEEE Open Journal of Engineering in Medicine and Biology*.
- Bayer, J., Thompson, P. M., Ching, C. R. K., Liu, M., **Chen, A. A.**, Panzenhagen, A. C., Jahanshad, N., Marquand, A., Schmaal, L., & Sämann, P. G. (2022). Site effects how-to & when: An overview

of retrospective techniques to accommodate site effects in multi-site neuroimaging analyses. *Frontiers in Neurology*, 13.

7. **Chen, A. A.**, Srinivasan, D., Pomponio, R., Fan, Y., Nasrallah, I. M., Resnick, S. M., Beason-Held, L. L., Davatzikos, C., Satterthwaite, T. D., Bassett, D. S., Shinohara, R. T., & Shou, H. (2022). Harmonizing functional connectivity reduces scanner effects in community detection. *NeuroImage*, 256, 119198.
8. Zuroff, L., Rezk, A., Shinoda, K., Espinoza, D. A., Elyahu, Y., Zhang, B., **Chen, A. A.**, Shinohara, R. T., Jacobs, D., Alcalay, R. N., Tropea, T. F., Chen-Plotkin, A., Monsonego, A., Li, R., & Bar-Or, A. (2022). Immune aging in multiple sclerosis is characterized by abnormal CD4 T cell activation and increased frequencies of cytotoxic CD4 T cells with advancing age. *eBioMedicine*, 82.
9. Liu, L. P., Shapira, N., **Chen, A. A.**, Shinohara, R. T., Sahbaee, P., Schnall, M., Litt, H. I., & Noël, P. B. (2022). First-generation clinical dual-source photon-counting CT: Ultra-low dose quantitative spectral imaging. *European Radiology*, 1-9.
10. Spitzer, H., Ripart, M., Whitaker, K., D'Arco, F., Mankad, K., **Chen, A. A.**, Napolitano, A., De Palma, L., De Benedictis, A., ... Wagstyl, K. (2022). Interpretable surface-based detection of focal cortical dysplasias: A MELD study. *Brain*, awac224.
11. **Chen, A. A.**, Stein, R., Baldassano, R. N., & Huang, J. (2022). Learning longitudinal patterns and identifying subtypes of pediatric Crohn disease treated with infliximab via trajectory cluster analysis of electronic health records. *Journal of Pediatric Gastroenterology and Nutrition*, 74(3), 383–388.
12. **Chen, A. A.**, Luo, C., Chen, Y., Shinohara, R. T., & Shou, H. (2022). Privacy-preserving harmonization via distributed ComBat. *NeuroImage*, 248, 118822.
13. **Chen, A. A.**, Beer, J. C., Tustison, N. J., Cook, P. A., Shinohara, R. T., Shou, H. (2022). Mitigating site effects in covariance for machine learning in neuroimaging data. *Human Brain Mapping*, 43(4), 1179–1195.
14. Butler, E. R., **Chen, A. A.**, Ramadan, R., Le, T. T., Ruparel, K., Moore, T. M., Satterthwaite, T. D., Zhang, F., Shou, H., Gur, R. C., Nichols, T. E., & Shinohara, R. T. (2021). Pitfalls in brain age analyses. *Human Brain Mapping*, 42(13), 4092–4101.

## Presentations

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### Invited Presentations

2024	International Chinese Statistical Association (ICSA) Applied Statistics Symposium. Nashville, TN.
2023	16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023). Berlin, Germany
2023	Penn Statistics in Imaging and Visualization Endeavor. Department of Biostatistics, Epidemiology, and Informatics, University of Pennsylvania, Philadelphia, PA.
2022	ENAR 2022 Spring Meeting. Houston, TX.

## Contributed Presentations

2023	Removal of Batch Effects in the Presence of Outliers via Robust ComBat. <i>ENAR 2023 Spring Meeting</i> .
2022	Harmonization of Functional Connectivity Reduces Scanner Effects in Community Detection. <i>2022 Joint Statistical Meetings</i> .
2022	Harmonization of Functional Connectivity Reduces Scanner Effects in Community Detection. <i>2022 Organization for Human Brain Mapping Annual Meeting</i> .
2022	Similarity-Based Multimodal Regression. <i>Statistical Methods in Imaging 2022 Conference</i> .
2021	Similarity-Based Multimodal Regression. <i>14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021)</i> .
2021	Similarity-Based Multimodal Regression. <i>2021 Joint Statistical Meetings</i> .
2021	Harmonization of Functional Connectivity Reduces Scanner Effects in Community Detection. <i>Statistical Methods in Imaging 2021 Conference</i> .
2020	Removal of Scanner Effects in Covariance Improves Multivariate Pattern Analysis. <i>2020 Joint Statistical Meetings</i> .
2020	Removal of Scanner Effects in Covariance Improves Multivariate Pattern Analysis. <i>2020 Organization for Human Brain Mapping Annual Meeting</i> .
2020	Removal of Scanner Effects in Covariance Improves Multivariate Pattern Analysis. <i>ENAR 2020 Spring Meeting</i> .

## Teaching

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### Teaching Assistant

Department of Biostatistics, Epidemiology, and Informatics, University of Pennsylvania, Philadelphia, PA

Spring 2021	BSTA 670: Programming and Computation for Biomedical Data Science
Spring 2020	BIOM 611: Statistical Methods for the Design and Analysis of Experiments

## Service

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2023	Session Organizer and Chair at 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023)
2022	Session Chair at the 2022 Statistical Methods in Imaging Conference
2020 - 2021	Interview Day Coordinator, Graduate Group in Epidemiology & Biostatistics
2019 - 2020	Graduate Group in Epidemiology & Biostatistics Representative, Biomedical Graduate Student Association

Peer reviewer for Biostatistics, Human Brain Mapping, Imaging Neuroscience, NeuroImage, Medical Image Analysis, Nature Computational Science, Psychiatry Research: Neuroimaging, Frontiers in Oncology, Japanese Journal of Radiology

## Awards & Honors

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2024	Invitation to join the 2024 Advanced Research Institute in Aging and Mental Health Mentored Biostatistics Faculty Program
2022	Student Paper Award, JSM Section on Imaging Statistics

## Memberships in Professional & Scientific Societies

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2020 - Present	Organization for Human Brain Mapping
2019 - Present	American Statistical Association
2018 - Present	Eastern North American Region of the International Biometric Society (ENAR IBS)

## Software

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CovBat	R and Python implementations for Correcting Covariance Batch Effects (CovBat) published in “Mitigating site effects in covariance for machine learning in neuroimaging data.” <i>Human Brain Mapping</i> . Hosted on GitHub.
FCHarmony	R implementations for multiple functional connectivity harmonization methods including FC-ComBat, Block-ComBat, and FC-CovBat compared in “Harmonizing functional connectivity reduces scanner effects in community detection.” <i>NeuroImage</i> . Hosted on GitHub.
dComBat	R and Python implementations for distributed ComBat (dComBat) published in “Privacy-preserving harmonization via distributed ComBat.” Hosted on GitHub.
SiMMR	R implementation for multimodal regression using similarity profiles, published in “Similarity-based multimodal regression.” <i>Biostatistics</i> . Hosted on GitHub.
PARE	R implementation for PARTial Embeddings for deconfounded dimension reduction, manuscript currently under review. Hosted on GitHub.

*Last updated 2/15/24*