AARON WOLFE SCHEFFLER

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Education

2019	Biostatistics, University of California, Los Angeles	Ph.D.
2015	Biostatistics, University of California, Los Angeles	M.S.
2011	Biochemistry, Columbia University	B.A.

Employment

Current

2019-present	Faculty Member, Bakar Computational Health Sciences Insitute, UCSF
2019-present	Faculty Member, Center of Intelligent Imaging, UCSF
2019-present	Assistant Professor, Department of Epidemiology & Biostatistics, UCSF

Previous

2015-2019	Graduate Student Researcher, Department of Biostatistics, UCLA
2014-2016	Graduate Student Researcher, Semel Institute, UCLA
2011-2013	Researcher, Healthy Communities Institute, Berkeley, CA

Research Interests

Functional Data Analyais; Bayesian Data Analysis; High-Dimensional Structured Data

Research Publications

Published

[1] Bailey, J. F., Nyayapati, P., Johnson, G. T., Dziesinski, L., **Scheffler**, A. W., Crawford, R., ... Hargens, A. R. et al. (2022). "Biomechanical changes in the lumbar spine following spaceflight and factors associated with postspaceflight disc herniation." *The Spine Journal*, *22*(2), 197–206.

[2] Campos, E., **Scheffler**, A. W., Telesca, D., Sugar, C., DiStefano, C., Jeste, S., ... Shic, F. et al. (2022). "Multilevel hybrid principal components analysis for region-referenced functional electroencephalography data." *Statistics in Medicine*.

[3] Cummins, D. D., Callahan, M., **Scheffler**, A. W., & Theologis, A. A. (2022). "5-year revision rates after elective multilevel lumbar/thoracolumbar instrumented fusions in older patients: An analysis of state databases." *Journal of the American Academy of Orthopaedic Surgeons*, *30*(10), 476–483.

[4] Halvorson, R. T., Castillo, F. T., Ahamed, F., Khattab, K., **Scheffler**, A. W., Matthew, R. P., ... Bailey, J. F. (2022). "Point-of-care motion capture and biomechanical assessment improve clinical utility of dynamic balance testing for lower extremity osteoarthritis." *PLOS Digital Health*, *1*(7), e0000068.

Updated: December 2, 2022

[5] Li, Y., Wisnowski, J. L., Chalak, L., Mathur, A. M., McKinstry, R. C., Licona, G., ... Wu, A. W., Tai-Wei **Scheffler** et al. (2022). "Mild hypoxic-ischemic encephalopathy (hie): Timing and pattern of mri brain injury." *Pediatric research*, 1–6.

[6] Peluso, M. J., Kelly, J. D., Lu, S., Goldberg, S. A., Davidson, M. C., Mathur, S., ... **Scheffler**, A. W. et al. (2022). Persistence, magnitude, and patterns of postacute symptoms and quality of life following onset of sars-cov-2 infection: Cohort description and approaches for measurement. In *Open forum infectious diseases* (Vol. 9, *2*, ofab640). Oxford University Press US.

[7] **Scheffler**, A. W., Dickinson, A., DiStefano, C., Jeste, S., & Şentürk, D. (2022). "Covariate-adjusted hybrid principal components analysis for region-referenced functional eeg data." *Statistics and its interface*, *15*(2), 209.

[8] Weidhaas, J., Marco, N., **Scheffler**, A. W., Kalbasi, A., Wilenius, K., Rietdorf, E., ... Chin, R. K. et al. (2022). "Germline biomarkers predict toxicity to anti-pd1/pdl1 checkpoint therapy." *Journal for immunotherapy of cancer*, *10*(2).

[9] Bach, A. M., Fang, A. Y., Bonifacio, S., Rogers, E. E., **Scheffler**, A. W., Partridge, J. C., ... Glass, H. C. et al. (2021). "Early magnetic resonance imaging predicts 30-month outcomes after therapeutic hypothermia for neonatal encephalopathy." *The Journal of Pediatrics*, *238*, 94–101.

[10] Gibson, D., Ravi, A., Almaraz, E. R., Chang, S., Oberheim-Bush, N. A., Taylor, J., ... Witte, J. et al. (2021). "Biom-07. quantitative mgmt promoter methylation index indicates a non-linear prognostic effect in glioblastoma, suggesting that use of optimal cutoff points may be clinically disadvantageous." *Neuro-Oncology*, *23*(Suppl 6), vi11.

[11] Gibson, D., Ravi, A., Rodriguez, E., Chang, S., Bush, N., Taylor, J., ... Witte, J. et al. (2021). "Ngma-6. quantitative mgmt promoter methylation index indicates non-linear, prognostic effect in glioblastoma." *Neuro-Oncology Advances*, *3*(Supplement_2), ii5–ii5.

[12] Jordan, K. M., Lauricella, M., Licata, A. E., Sacco, S., Asteggiano, C., Wang, C., ... Battistella, G. et al. (2021). "Cortically constrained shape recognition: Automated white matter tract segmentation validated in the pediatric brain." *Journal of Neuroimaging*, *31*(4), 758–772.

[13] Tran, X. A., McDonald, N., Dickinson, A., **Scheffler**, A. W., Frohlich, J., Marin, A., ... Dapretto, M. et al. (2021). "Functional connectivity during language processing in 3-month-old infants at familial risk for autism spectrum disorder." *European Journal of Neuroscience*, *53*(5), 1621–1637.

[14] Levin, A. R., Naples, A. J., **Scheffler**, A. W., Webb, S. J., Shic, F., Sugar, C. A., ... Dawson, G. et al. (2020). "Day-to-day test-retest reliability of eeg profiles in children with autism spectrum disorder and typical development." *Frontiers in integrative neuroscience*, *14*, 21.

[15] McDonald, N. M., Senturk, D., **Scheffler**, A. W., Brian, J. A., Carver, L. J., Charman, T., ... Jones, E. J. et al. (2020). "Developmental trajectories of infants with multiplex family risk for autism: A baby siblings research consortium study." *JAMA neurology*, *77*(1), 73–81.

[16] Saravanapandian, V., Frohlich, J., Hipp, J. F., Hyde, C., **Scheffler**, A. W., Golshani, P., ... Jeste, S. S. (2020). "Properties of beta oscillations in dup15q syndrome." *Journal of Neurodevelopmental Disorders*, *12*(1), 1–15.

[17] **Scheffler**, A. W., Telesca, D., Li, Q., Sugar, C. A., Distefano, C., Jeste, S., & Şentürk, D. (2020). "Hybrid principal components analysis for region-referenced longitudinal functional eeg data." *Biostatistics*, *21*(1), 139–157.

[18] Swendeman, D., Fehrenbacher, A. E., Roy, S., Ray, P., Sumstine, S., **Scheffler**, A. W., ... Jana, S. (2020). "A pilot randomized controlled trial (rct) of daily versus weekly interactive

voice response calls to support adherence among antiretroviral treatment patients in india." *Mhealth*, *6*.

[19] **Scheffler**, A. W., Telesca, D., Sugar, C. A., Jeste, S., Dickinson, A., DiStefano, C., & Şentürk, D. (2019). "Covariate-adjusted region-referenced generalized functional linear model for eeg data." *Statistics in medicine*, *38*(30), 5587–5602.

[20] Dickinson, A., DiStefano, C., Lin, Y.-Y., **Scheffler**, A. W., Senturk, D., & Jeste, S. S. (2018). "Interhemispheric alpha-band hypoconnectivity in children with autism spectrum disorder." *Behavioural brain research*, *348*, 227–234.

[21] Rotheram-Fuller, E. J., Tomlinson, M., **Scheffler**, A. W., Weichle, T. W., Hayati Rezvan, P., Comulada, W. S., & Rotheram-Borus, M. J. (2018). "Maternal patterns of antenatal and postnatal depressed mood and the impact on child health at 3-years postpartum." *Journal of consulting and clinical psychology*, *86*(3), 218.

[22] Arnold, E. M., Desmond, K. A., Rotheram-Borus, M. J., **Scheffler**, A. W., Comulada, W. S., Johnson, M. O., ... Group, H. L. P. (2017). "Drug use and emotional distress differentiate unstably-versus stably-housed adults living with hiv who engage in unprotected sex." *Journal of health psychology*, *22*(3), 302–313.

[23] Rotheram-Borus, M. J., Tomlinson, M., **Scheffler**, A. W., Harris, D. M., & Nelson, S. (2017). "Adjustment of a population of south african children of mothers living with/and without hiv through three years post-birth." *AIDS and Behavior*, *21*(6), 1601–1610.

[24] **Scheffler**, A. W., Hasenstab, K., Telesca, D., Sugar, C. A., Jeste, S., DiStefano, C., & Şentürk, D. (2017). "A multi-dimensional functional principal components analysis of eeg data." *Biometrics*, *73*(3), 999–1009.

[25] Tomlinson, M., Rotheram-Borus, M., **Scheffler**, A. W., & Le Roux, I. (2017). "Antenatal depressed mood and child cognitive and physical growth at 18-months in south africa: A cluster randomised controlled trial of home visiting by community health workers." *Epidemiology and psychiatric sciences*, 1–10.

[26] Tomlinson, M. [Mark], Rotheram-Borus, M. J., Le Roux, I. M., Youssef, M., Nelson, S. H., **Scheffler**, A. W., ... Worthman, C. M. (2016). "Thirty-six-month outcomes of a generalist paraprofessional perinatal home visiting intervention in south africa on maternal health and child health and development." *Prevention Science*, *17*(8), 937–948.

[27] Rotheram-Borus, M. J., Tomlinson, M., **Scheffler**, A. W., & Le Roux, I. M. (2015). "Re-engagement in hiv care among mothers living with hiv in south africa over 36 months post-birth." *AIDS (London, England)*, *29*(17), 2361.

[28] Swendeman, D., Ramanathan, N., Baetscher, L., Medich, M., **Scheffler**, A. W., Comulada, W. S., & Estrin, D. (2015). "Smartphone self-monitoring to support self-management among people living with hiv: Perceived benefits and theory of change from a mixed-methods, randomized pilot study." *Journal of acquired immune deficiency syndromes*, *69*(0 1), S80.

Submitted or Working

[1] Gutierrez, R., **Scheffler**, A. W., & Guhaniyogi, R. (2022). "Bayesian multi-object data integration in the study of primary progressive aphasia."

[2] Guhaniyogi, R., & **Scheffler**, A. W. (2021). "Sketching in bayesian high dimensional regression with big data using gaussian scale mixture priors." *arXiv preprint arXiv:2105.04795*.

[3] Marquez, R. G., **Scheffler**, A. W., Guhaniyogi, R., Dickinson, A., DiStefano, C., & Jeste, S. (2021). "A bayesian covariance based clustering for high dimensional tensors."

Teaching

UCSF | **Department of Epidemiology & Biostatistics**

2023 - present BIOSTAT 208: *Biostatistical Methods for Clinical Research II*
Course Director and Lecturer
This is a second course in biostatistics, focusing on multi-predictor variable methods, including multiple linear and multiple logistic regression. Emphasis is on the practical and proper use of statistical methodology and its interpretation.

UCSF | **School of Medicine**

2020 - present Core Inquiry Curriculum 121A-C: *Epidemiology, Biostatistics, a nd Population Sciences Curriculum*
Lecturer
EBPS compromises tools that all Domains of Understanding rely upon, allowing for the interpretation of data and for researchers and clinicians to test hypotheses of complex questions.
Evaluation* (0-5), mean (sd):
2022, 121A 4.0 (0.89)
2021, 121A 4.33 (0.87); 121B 3.98 (0.82); 121C 4.31 (0.64)
2020, 121B 3.95 (0.79)

UCSF | **Department of Epidemiology & Biostatistics**

2019 - present BIOSTAT 202: *Opportunities and Challenges of Complex Biomedical Data*
Course Director and Lecturer
This course introduces the opportunities and challenges of using biological and health-related ”big data” to perform biomedical research.
Evaluation* (0-5), mean (sd):
2022, 4.65 (0.63)
2021, 4.95 (0.22)
2020 4.93 (0.26)
2019, 4.85 (0.37)

*Evaluations presented when available.

Students and Advisement

Masters Committee Member:
David Gibson (2021, currently PhD student in Bioinformatics at UCLA)
Albert Young (2021, currently MD student at UCSF)
Jack Taylor (2022, currently PhD student in Epidemiology at UCLA)
Jamie Lee (current)

PhD Committee Member:
Eduardo Rodgriguez (current)

Grants

Ongoing

DMS - 2210206 (**Scheffler**) 06/01/2022-05/30/2025 1.1 cal. months
NSF $110,000
Collaborative Research: Use of Random Compression Matrices For Scalable Inference in High Dimensional Structured Regressions
The overarching objective of this project is to develop a computational and storage efficient Bayesian framework for drawing inference/prediction for parametric and non-parametric structured regression models to answer substantive scientific questions in the domain of imaging, genetics and behavioral data.
Role: Principal Investigator

U19 (Lotz) 09/25/2019-08/30/2024 2.4 cal. months
NIH/NIA $29,408,845
UCSF Core Center for Patient-centric Mechanistic Phenotyping in Chronic Low Back Pain
The overall objective of the UCSF Core Center for Patient-centric Mechanistic Phenotyping in Chronic Low Back Pain (UCSF REACH) is to conduct translational and clinical research to clarify biopsychosocial mechanisms of back pain that will be catalytic for new therapeutic, diagnostic and prevention strategies.
Role: Co-Investigator

R01 (Wu) 05/01/2020-04/30/2025 0.6 cal. months
NIH/NICHD $2,872,187
Maternal Antecedents and Electronic Fetal Monitoring in Term Asphyxia
This study tests the hypothesis that established NICHD-approved electronic fetal monitoring (EFM) features used as standard care in the U.S. and other developed countries can exhibit improved sensitivity and specificity for predicting HIE when they are combined with novel EFM features that will be discovered by advanced signal processing and machine learning techniques.
Role: Co-Investigator

R01 (Perry) 03/01/2019-03/05/2024 0.6 cal. months
NIH $3,966,126
Reward processing in genetic frontotemporal dementia and mood disorders
The proposed research will compare reward processing in presymptomatic patients with genetic FTD and those with mood disorders.
Role: Co-Investigator

R01 (Peyvandi) 07/01/2021 – 06/30/2026 1.2 cal. months
NIH $1,838,163
The Risk of Acquired Neonatal Significant Brain Injury during Perinatal Transition in Congenital Heart Disease: TRANSIT CHD study
This is a prospective, two site (UCSF, Toronto Sick Children's Hospital) cohort study of fetal and perinatal risk factors for acquired preoperative brain injury in term newborns with congenital heart disease.
Role: Co-Investigator

R01 (Lee) 09/01/2021 – 08/31/2026 0.6 cal. months
NIH/CSR $500,395
Neurodevelopment in children from families with genetic frontotemporal dementia and Alzheimer's disease
The major goals of the project will study children from families with genetic frontotemporal dementia and Alzheimer's disease and identify cognitive and neuroimaging differences compared to children with idiopathic neurodevelopmental disorders.
Role: Co-Investigator

R01 (Hahn) 05/2022 – 02/2025 0.6 cal. months
NIH/NIAAA $1,814,900
The Biomarkers for Alcohol/HIV Research (BAHR) Study
The goal of this study is to pool previously collected data using the alcohol biomarker phosphatidylethanol (PEth) to answer lingering questions about alcohol's role in HIV viral failure, mortality, and the efficacy of alcohol interventions.
Role: Co-Investigator

R01 (Gorno-Tempini) 09/19/2022 – 08/31/2025 1.2 cal. months
NIH/CSR $4,705,247
Primary Progressive Aphasia: Cognition, Anatomy and Progression
The major goal of this project is to investigate the cognitive and neural basis of speech and language impairments in primary progressive aphasia.
Role: Co-Investigator

Pending

R01 (Bailey) 09/01/2023 – 08/31/2028 0.6 cal. months
NIH/CSR $2,422,501
Predicting long-term patient-specific treatment response trajectories for musculoskeletal pain from multidimensional biopsychosocial algorithms
I will be conducting a prospective study across several MSK patient populations to explore whether: 1) there are generalizable non-linear response trajectory patterns across diverse MSK patient populations, 2) how non-linear response trajectory patterns relate to poor clinical outcomes like subsequent complications and prolonged opioid use, and 3) if comprehensive patient history (electronic medical record) and physiological (full-body kinematic motion and pain mapping) data predict patient response trajectory before treatments.
Role: Co-Investigator

P05 (Gorno-Tempini) 09/01/2022 – 08/31/2027 1.8 cal. months
NIH/NIA $28,069,335
Frontotemporal Dementia: Genes, Images, and Emotions The FTD PPG primary goal is to advance clinical practice in dementia by improving diagnosis and to further the understanding of the anatomy and biology of FTLD spectrum disorders.
Role: Co-Investigator

Presentations

Invited Presentations

2022 International Conference on Computational and Methodological Statistics, London, UK

2022 Joint Statistical Meetings, Washington D.C.

2022 Western North American Region of the International Biometric Society, Virtual

2022 Statistical Methods in Imaging, Virtual

2021 International Conference on Computational and Methodological Statistics, Virtual

2021 New England Conference on Statistics, Virtual

2021 Joint Statistical Meetings, Virtual

2020 Statistical Learning and Data Science Section Meeting - ASA, Virtual

2020 International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Virtual

2019 International Conference on Computational and Methodological Statistics, London, UK

2019 Department of Population Health, Langone Health, New York University

2019 Department of Biostatistics, Mailman School of Public Health, Columbia University

2019 Department of Epidemiology & Biostatistics, School of Medicine, University of California, San Francisco

2019 Department of Biostatistics, College of Global Public Health, New York University

2019 Department of Biostatistics, Rollins School of Public Health, Emory University

2019 Department of Biostatistics, School of Medicine, Vanderbilt University

Contributed Presentations

2020 Eastern North American Region of the International Biometric Society Meeting, Virtual (March)

2019 Eastern North American Region of the International Biometric Society Meeting, Philadelpha, PA (March)

2019 International Biometric Society Meeting, Barcelona, Spain (June)

2018 Eastern North American Region of the International Biometric Society Meeting, Atlanta, GA (March)

2017 Western North American Region of the International Biometric Society Meeting, Santa Fe, NM (June)

2016 Western North American Region of the International Biometric Society Meeting, Victoria, BC (July)

Honors and Awards

2019	Carolbeth Korn Award for most outstanding graduating student of the Fielding School of Public Health, UCLA ($10,000)
2018	Dissertation Year Fellowship, Graduate Division, UCLA ($35,000)
2017	Graduate Research Mentorship, Graduate Division, UCLA ($35,000)
2016	Best Student Paper, Western North American Region of the Int'l. Biometric Society ($500)
2016	Graduate Summer Research Mentorship, Graduate Division, UCLA ($6,000)

Professional Memberships

2016-present	Member, Western North American Region of the International Biometric Society
2015-present	Member, American Statistical Association

Editorial Service

Reviewer for:
Human Brain Mapping
Neuroimage
American Journal of Neuroradiology
Statistics and its Interface
Statistics in Medicine
Journal of the American Statistical Association
Annals of Applied Statistics
Biometrics
Journal of the Royal Statistical Society - Series B

Professional Service

- Organizer, Invited Session on "Statistical Image Processing and Analysis, with Applications in Neuroimaging", 2020 International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Lisbon, Portugal
- Organizer, Invited Session on "Recent Advances in Bayesian Approaches to Neuroimaging", 2021 Joint Statistical Meetings, Virtual
- Organizer, Invited Session on "Recent Advances in Bayesian Approaches to Neuroimaging", 2021 Computational and Methodological Statistics 14th International Conference, London, UK
- Organizer, Invited Session on "Opportunities and challenges of neuroimaging data", 2022 Computational and Methodological Statistics 15th International Conference, London, UK

University Service

University of California, San Francisco

2022-present	Member, Finance Committee, Department of Epidemiology & Biostatistics, UCSF
2021-present	Faculty Mentor, K Scholars Program, Department of Epidemiology & Biostatistics, UCSF
2020-2021	Co-lead, Sampling Knowledge Hub, Department of Epidemiology & Biostatistics, UCSF
2020	Selection Committee Member, Innovate for Health Fellowship, UCSF
2019-present	Co-organizer, Divisions of Biostatistics and Bionformatics Seminar Series Department of Epidemiology & Biostatistics, UCSF

University of California, Los Angeles

2018-2019 Mentor, Fielding School of Public Health Mentorship Program, UCLA
2017-2019 Student Representative, Department of Biostatistics, UCLA
2017-2019 President, Biostatistics Student Association, UCLA
2014-2015 VP of Finance, Fielding School of Public Health Student Association, UCLA