Kaidi Kang

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Education

2019 – present	**Ph.D. program in Biostatistics** Vanderbilt University, Nashville, TN • Expected to graduate in May 2025 • Advisor: Simon Vandekar, Ph.D.
2017 – 2019	**M.S. in Biostatistics** Georgetown University, Washington, D.C.
2013 – 2017	**B.S. in Applied Statistics** Southern Medical University, Guangzhou, China

Research Interests

Robust Statistics · Effect Sizes · Study Replicability · Longitudinal Data Analysis.

Application areas:
Mental Health · Neurodevelopment · Neuroimaging · Psychiatry · Psychology · Alzheimer's Disease · Behavioral Sciences · Health Equity

Peer-reviewed Publications & Working Papers

[†]: corresponding author; [*]: co-first author

[1] **Kaidi Kang**[†], Jakob Seidlitz, Richard A.I. Bethlehem, Jiangmei Xiong, Megan T. Jones, Kahini Pankaj Mehta, Arielle Keller, Ran Tao, Anita Randolph, Bart Larsen, Brenden Tervo-Clemmens, Eric J Feczko, Oscar Miranda Dominguez, Steve Nelson, Lifespan Brain Chart Consortium, 3R-BRAIN, AIBL, Alzheimer's Disease Neuroimaging Initiative, Alzheimer's Disease Repository Without Borders Investigators, CALM Team, CCNP, COBRE, cVEDA, Harvard Aging Brain Study, IMAGEN, POND, The PREVENT-AD Research Group, Jonathan Schildcrout, Damien Fair, Theodore D Satterthwaite, Aaron Alexander-Bloch, Simon Vandekar[†]. Study design features increase replicability in cross-sectional and longitudinal brain-wide association studies. *Nature* (accepted; pre-print).

[2] Megan Jones, **Kaidi Kang**, Simon Vandekar[†]. RESI: an R package for robust effect sizes. *Journal of Statistical Software* (accepted; pre-print; R package).

[3] Anna Huang, **Kaidi Kang**, Simon Vandekar, Baxter P. Rogers, Stephan Heckers, Neil D. Woodward[†]. Lifespan development of thalamic nuclei and characterizing thalamic nuclei abnormalities in psychotic disorders using normative modeling. *Neuropsychopharmacology*, 49, 1518–1527 (2024).

[4] Chao Yan[*], Xinmeng Zhang[*], Yuyang Yang[*], **Kaidi Kang**, Martin C Were, Peter Embí, Mayur B Patel, Bradley A Malin[†], Abel N Kho[†], You Chen. Differences in health professionals' engagement with electronic health records based on inpatient race and ethnicity. *JAMA Network Open*, 6(10):e2336383 (2023)

[5] **Kaidi Kang**[†], Megan T Jones, Kristan Armstrong, Suzanne Avery, Maureen McHugo, Stephan Heckers, Simon Vandekar[†]. Accurate confidence and Bayesian interval estimation for non-centrality parameters and effect size indices. *Psychometrika*, 88, 253–273 (2023).
   • Highlighted as the top 5 most downloaded papers in *Psychometrika* for 2023 (link).

[6] Mirte A G Kuipers, **Kaidi Kang**, Anca D Dragomir, Karin Monshouwer, Elisa Benedetti, Gabriele Lombardi, George Luta, Anton E Kunst[†]. A novel methodological approach to measure linear trends in health inequalities: proof-of-concept for adolescent smoking in Europe. *American Journal of Epidemiology,* 192 (6), 963-971 (2023).

[7] Xinmeng Zhang, **Kaidi Kang**, Chao Yan, Yubo Feng, Simon Vandekar, Danxia Yu, S. Trent Rosenbloom, Jason Samuels, Gitanjali Srivastava, Brandon Williams, Vance L. Albaugh, Wayne J. English, Charles R. Flynn, You Chen[†]. Enhanced patient portal engagement associated with improved weight loss outcomes in post-bariatric surgery patients (under a 2nd review; pre-print)

[8] Melissa Balderrama, Kimberly Kayser, Grace Mucci, **Kaidi Kang**, Simon Vandekar, Emily Nishimura, Kathleen Ingman, Heather Huszti, Van Huynh, and Sunita Patel†. The association between child-reported school functioning and objective neurocognitive performance in pediatric leukemia survivors (under review).

[9] Jinyuan Liu, Ke Xu, Jane F Ferguson, **Kaidi Kang**, Lydia Yao, Yue Wang, Tanya T. Nguyen, Xinlian Zhang, Xin M. Tu. Edger[†]: Ensembled semiparametric regression for distance-based between-subject outcomes in longitudinal data: application to microbiome beta-diversity (under review).

[10] **Kaidi Kang***, Panpan Zhang*, Shubhabrata Mukherjee, Michael L. Lee, Seo-Eun Choi, Emily H. Trittschuh, Jesse Mez, Katherine A. Gifford, Rachel F. Buckley, Xiaoting Gao, Jianing Di, Paul K. Crane, Timothy J. Hohman and Dandan Liu[†]. Double anchoring events-based sigmoidal mixed model for longitudinal memory decline in Alzheimer's disease (in preparation; pre-print)
   - **Student Research Award,** 36th New England Statistics Symposium (NESS)
   - **Best Blitz Talk Award,** the 4th Annual Vanderbilt Alzheimer's Disease Research Day

[11] Simon N. Vandekar[†], **Kaidi Kang**, Neil Woodward, Anna Huang, Maureen McHugo, Shawn Garbett, Jeremy Stephens, Russell T. Shinohara, Armin Schwartzman, and Jeffrey Blume. Evaluation of resampling-based inference for topological features of neuroimages (in preparation; pre-print).

[12] Seri Lim, **Kaidi Kang**, and Joshua Smith[†]. Electroconvulsive therapy in the treatment of catatonia in Down syndrome regressive disorder: a mega-analysis (in preparation).

Presentations

Invited Talks

2024	June	Study features improve replicability in brain-wide association studies

   - *International Chinese Statistical Association (ICSA) Applied Statistics Symposium, Nashville, TN*

2023	June	Double-anchoring events based sigmoidal mixed-effects model for Alzheimer's disease progression.

   - *36th New England Statistics Symposium (NESS), Boston, MA*
   - Student Paper Competition Session & **2023 NESS Student Research Award**

2023	May	Study features contributing to replicable brain-wide association studies.

- *Statistical Methods in Imaging (SMI) Conference, Minneapolis, MN.*

2023   Mar   Double-anchoring events based sigmoidal mixed-effects model: an application in Alzheimer's disease progression.
- *The 4th Annual Vanderbilt Alzheimer's Disease Research Day, Nashville, TN*
- Invited Blitz Talk & **Best Blitz Talk Award of the Year**

2022   Dec   A unifying framework for the analysis of effect sizes in cross-sectional and longitudinal studies.
- *Computational and Methodological Statistics (CMStatistics) Conference, London, UK*

Contributed Talks

2024   Mar   Study design features the improve the replicability of brain-wide association studies
- *ENAR Spring Meeting, Baltimore, MD*

2023   Aug   Study features impacting replicability of brain-wide association studies
- *Joint Statistical Meetings (JSM), Toronto, Canada*

2023   Mar   A unifying framework for the analysis of effect sizes in cross-sectional and longitudinal studies
- *ENAR Spring Meeting, Nashville, TN*

2022   Mar   Accurate confidence interval estimation for non-centrality parameters and effect sizes.
- *ENAR Spring Meeting, Houston, TX*

Poster Presentations

2024   Aug   Comparing the dynamics of multiple cognitive markers for Alzheimer's disease progression using a novel double anchoring events-based sigmoidal mixed model.
- *Alzheimer's Association International Conference (AAIC), Philadelphia, PA*

2024   Mar   Detrimental longitudinal study design in ABCD for cognition and psychopathology associations with the brain outcomes.
- *ABCD Insights & Innovation Meeting (AIIM), NIH, Bethesda, MD*

2023   July   Study features contributing to replicable brain-wide association studies.
- *Organization for Human Brain Mapping (OHBM) Annual Meeting, Montreal, Canada.*

2023   Mar   Double-anchoring events based sigmoidal mixed-effects model: an application in Alzheimer's disease progression.
- *The 4th Annual Vanderbilt Alzheimer's Disease Research Day, Nashville, TN*

2022	Aug	A framework of the analysis of effect sizes (ANOES).
		• *Joint Statistical Meetings (JSM), Washington, D.C.*

2022	Aug	Synchronized sigmoidal mixed-effects model for dynamics of cognitive decline relative to onset of Alzheimer's disease in aging adults in the Alzheimer's Disease Neuroimaging Initiative (ADNI) study ([link](#)).
		• *Alzheimer's Association International Conference (AAIC), San Diego, CA*

2022	May	A framework of the analysis of effect sizes (ANOES).
		• *Statistical Methods in Imaging (SMI) Conference, Nashville, TN*

2022	Apr	Using analysis of effect sizes (ANOES) to study relational memory in schizophrenia and early psychosis ([link](#)).
		• *Society of Biological Psychiatry (SOBP) Annual Meeting, New Orleans, LA.*

Other

2023	Mar	A unifying framework for the analysis of effect sizes in cross-sectional and longitudinal studies
		• *Vanderbilt Biostatistics Graduate Student Association Journal Club*

2018	Aug	An Alzheimer's disease progression model for a cognitive composite score based on ADNI data.
		• *Department of Statistics & Decision Sciences, Janssen Research & Development*

Honors and Awards

2023	Student Research Award, the 36th New England Statistics Symposium (NESS)
2023	Best Blitz Talk Award, 4th Annual Vanderbilt Alzheimer's Disease Research Day

Professional Experience

2023 Summer	**Biostatistics Intern**
	Sanofi
	• Power analysis for longitudinal data
	• Supervisor: Qi Zhang, Ph.D. & Yuanyuan Duan, Ph.D.
Dec. 2020 – present	**Research Assistant**
	Vanderbilt University Medical Center
	• Work on a robust effect size reporting framework to facilitate the result communication between scientific studies using different statistical methods and designs.
	• Provide statistical support to collaborative research in mental health, Psychiatry, Neurodevelopment, etc.
	• Supervisor: Simon Vandekar, Ph.D.

2018 Summer	**Biostatistics Intern**
	Janssen Research & Development, Johnson & Johnson Inc.
	• Worked on the development of an Alzheimer's disease progression model based on Alzheimer's Disease Neuroimaging Initiative (ADNI) database
	• Supervisor: Grace Gao, Ph.D. & Jianing Di, Ph.D.
Jan. 2018 – June 2018	**Graduate Research Assistant**
	Georgetown University Medical Center
	• Supervisor: George Luta, Ph.D.

Teaching

Teaching Assistant

Vanderbilt University, Nashville, TN

Spring 2023	BIOS 7352: Statistical Collaboration in Health Sciences II
Fall 2022	BIOS 7345: Generalized Linear Regression
Fall 2021	BIOS 7323: Survival Analysis
Spring 2021	BIOS 6321: Clinical Trials and Experimental Designs

Georgetown University, Washington, D.C.

Fall 2018	PBIO 504: Introductory Biostatistics

Software

RESI	R package for the implementation of the robust effect size index (RESI)

Service & Peer Review

Session chair at
- 2023 ENAR Spring Meeting
- 2023 Joint Statistical Meetings (JSM)

Session organizer:
- Invited session on "Reliable and rigorous inference for brain structure and networks", 2024 ICSA Applied Statistics Symposium, *Nashville, TN, June 2024*

Abstract reviewer for
- OHBM 2024

Poster grader for
- 2024 ENAR Spring Meeting

Ad-hoc peer reviewer for the following journals:
2024	• *JAMA Network Open* (3 times)

- *eLife* (2 times)
- *Communications Biology*
- *Heliyon* (3 times)
- *AStA Advances in Statistical Analysis*
- *Clinical Epidemiology and Global Health* (2 times)

2023
- *Human Brain Mapping*
- *Communications Biology*

Memberships in Professional & Scientific Societies

2019 – Present	Eastern North American Region (ENAR) of the International Biometric Society (IBS)
2020 – Present	American Statistical Association
2022 – Present	Alzheimer's Association (ISTAART)
2023 – Present	International Chinese Statistical Association (ICSA)
2023 – Present	Organization for Human Brain Mapping (OHBM)

Skills

Statistical Software: R, R Shiny, SAS, Stata, SPSS

Athletic Activities: Kendo
- Rank: Black belt (1-Dan)
- Member of All US Kendo Federation since 2019
- Co-founder of Vanderbilt University Kendo Club

Honors:

2022   Kanto-sho (best fighting spirit) award at Southeastern US Kendo tournament

2023   Top 8 at Detroit Open Kendo Tournament 2023
- In Mudansha (people below black belt) individual division

2023   3rd place at 2023 All US National Kendo Championships
- Representing Southeast US Mudansha team

2023   3rd place at Midwest Kendo Tournament 2023
- In Mudansha individual division

References

Simon Vandekar, Ph.D.
- Department of Biostatistics, Vanderbilt University Medical Center
- Email: simon.vandekar@vumc.org

Aaron Alexander-Bloch, M.D., Ph.D.
- Department of Child and Adolescent Psychiatry and Behavioral Sciences, The Children's Hospital of Philadelphia

- Department of Psychiatry, University of Pennsylvania
- Lifespan Brain Institute of The Children's Hospital of Philadelphia and Penn Medicine
- Email: aaron.alexander-bloch@pennmedicine.upenn.edu

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