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Date of Preparation

December 9, 2023

Academic Appointments / Work Experience

- 02/2023–Present **Mailman School of Public Health, Columbia University**
Associate Dean for Data Science
- 06/2018–Present **Department of Biostatistics**
Mailman School of Public Health, Columbia University
Associate Professor
- 06/2012–05/2018 **Department of Biostatistics**
Mailman School of Public Health, Columbia University
Assistant Professor
- 01/2009–12/2010 **Department of Biostatistics**
Bloomberg School of Public Health, Johns Hopkins University
Research Assistant (R01NS060910)
- 01/2008–12/2009 **Department of Biostatistics**
Bloomberg School of Public Health, Johns Hopkins University
Research Assistant (U19 AI060614 and U19 AI082637)
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Education

- 08/2007–05/2012 Johns Hopkins University
PhD in Biostatistics, May 2012
Thesis: Statistical Methods for Cross-sectional and Longitudinal Functional Observations
Advisors: Ciprian Crainiceanu and Brian Caffo
- 08/2003–05/2007 Dickinson College
BS in Mathematics, May 2007
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Honors

04/2021	Dean's Excellence in Leadership Award
03/2021	COPSS Leadership Academy For Emerging Leaders in Statistics
06/2017	Tow Faculty Scholar
01/2016	Public Voices Fellow
10/2013	Calderone Junior Faculty Prize
05/2012	ASA Biometrics Section Travel Award
12/2011	Invited Paper in "Highlights of JCGS" Session at Interface
05/2011	Margaret Merrell Award for Outstanding Research by a Biostatistics Doctoral Student
05/2011	School-wide Teaching Assistant Recognition Award
05/2011	Helen Abbey Award for Excellence in Teaching
03/2011	ENAR Distinguished Student Paper Award
05/2010	Jane and Steve Dykacz Award for Outstanding Paper in Medical Statistics
05/2009	Nominated for School-wide Teaching Assistant Recognition Award
09/2008–08/2011	Reigning Biostatistics Department Annual Chili Cook-off Champion
08/2007–05/2012	Sommer Scholar
05/2007	James Fowler Rusling Prize
05/2007	Lance E. Kohlhaas Memorial Prize in Mathematics
05/2007	Phi Beta Kappa National Honor Society
05/2005	Pi Mu Epsilon Mathematics Honor Society
05/2004, 05/2005	Caroline Hatton Clark Mathematics Scholarship
08/2003–05/2007	John Dickinson Scholar
05/2002	National Merit Scholar

Professional Organizations, Societies, and Service

GRANT REVIEW SERVICE

2023	NIH ZRG1 F18 E20
2023	NIH Clinical Trial Special Emphasis Panel ZNS1 SRB-G (62)
2020	Dutch Research Council (NWO) Vici
2016	NSF/NIH Initiative on Quantitative Approaches to Biomedical Big Data (QuBBD)

EDITORIAL SERVICE

- 10/2020–10/2022 Guest Editor, Computational Statistics and Data Analysis (Special Issue on High Dimensional and Functional Data Analysis)
- 08/2019–02/2023 Statistical Reviewer, JAMA Network Open
- 09/2018–Present Associate Editor for Reproducibility, Journal of the American Statistical Association
- Applications and Case Studies 09/2018–Present
 - Theory and Methods 06/2021–Present
- 02/2017–Present Associate Editor, Biostatistics
- 12/2015–09/2018 Associate Editor, Journal of the American Statistical Association (Applications and Case Studies)
- 08/2012–03/2015 Consulting Editor in Statistics, Journal of Cardiovascular Pharmacology

- Referee Advances in Statistical Analysis, American Journal of Public Health, Annals of Applied Statistics, Australian & New Zealand Journal of Statistics, Bioinformatics, Biometrics, Biometrika, Biostatistics, Chemometrics, Chemometrics and Intelligent Laboratory Systems, Computational Statistics and Data Analysis, CRC Press (Book review), Econometrics and Statistics, Electronic Journal of Statistics, Environmental and Ecological Statistics, Environmental Research, IEEE/AMC Transactions on Computational Biology and Bioinformatics, International Journal of Biostatistics, Journal of the American Statistical Association, Journal of Child Psychology and Psychiatry, Journal of Computational and Graphical Statistics, Journal of Gerontology: Medical Sciences, Journal of Multivariate Analysis, Journal of the Royal Statistical Society (Series A, B & C), Journal of Nonparametric Statistics, Journal of Statistical Computation and Simulation, Journal of Statistical Planning and Inference, Journal of Science and Medicine in Sport, Pediatric Obesity, Proceedings of the National Academy of Sciences, PLOS One, R Journal, Scandinavian Journal of Statistics, Statistica Sinica, Statistical Modeling, Statistics in Medicine, WIREs Computational Statistics.

MEMBERSHIPS AND POSITIONS

- 10/2022–10/2023 COPSS Emerging Leader Award Committee
- 06/2018–06/2020 ENAR Nominations Committee
- 03/2017–03/2018 Associate Program Chair, ENAR 2018 Meeting
- 01/2017–12/2019 Regional Advisory Board (Member), ENAR
- 10/2010–Present ENAR (Member)
- 08/2009–Present ASA (Member)
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Departmental and University Committees

12/2021–Present	Director of the Data Collection, Translation and Sharing Technical Core, NYC Pandemic Response Institute
08/2020–08/2023	Director of the PhD Program, Department of Biostatistics
07/2020–Present	Faculty Director of the Collaboratory, Columbia University
09/2019–Present	Member, Qualifying Exam Committee (Applied), Department of Biostatistics
07/2019–Present	Co-Chair, Mailman Data Science Faculty Advisory Committee
09/2018–09/2020	Member, Annual Faculty Review Committee, Department of Biostatistics <ul style="list-style-type: none"> ■ Co-Chair 09/2019–09/2020
02/2018–Present	Member, Mailman Corporate-Academic Committee
02/2018–Present	Member, Education Working Group, Data Science Institute, Columbia University <ul style="list-style-type: none"> ■ Co-Chair 07/2020–Present
09/2017–09/2019	Member, PhD Program Taskforce, Department of Biostatistics <ul style="list-style-type: none"> ■ Co-Chair 09/2018–09/2019
09/2016–09/2019	Member, Student Recruitment Committee, Department of Biostatistics <ul style="list-style-type: none"> ■ Chair 09/2016–09/2017
09/2016–Present	Member, Health Analytics Center Committee, Data Science Institute <ul style="list-style-type: none"> ■ Member of Steering Committee, 01/2021–Present
08/2015–09/2020	Member, Curriculum Committee, Department of Biostatistics
10/2014–06/2015	Co-Director, Global Research Analytics for Population Health (GRAPH), Mailman School of Public Health
08/2014–08/2019, 09/2017–Present	Member, Faculty Recruitment Advisory Committee, Department of Biostatistics <ul style="list-style-type: none"> ■ Co-Chair 09/2021–09/2022 ■ Chair 09/2017–09/2018
08/2014–09/2016, 09/2020–Present	Member, Research Advisory Committee, Department of Biostatistics
08/2014–05/2015	Co-Organizer, Levin Lecture Series, Department of Biostatistics
12/2012–Present	Member, Doctoral Admissions Committee, Department of Biostatistics <ul style="list-style-type: none"> ■ Chair 09/2018–09/2020; Co-Chair 09/2020–Present

Fellowship and Grant Support

PRESENT SUPPORT

09/2022-07/2027	P42ES033719, NIEHS, NIH (Navas-Acien) Columbia University And Northern Plains Partnership For The Superfund Research Program Principal Investigator, Data Management and Analysis Core
07/2022-04/2024	R25HL096260, NHLBI, NIH (Begg, Palmer, Goldsmith) BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program Contact Principal Investigator
09/2021-07/2026	1U2RTW012123-01, NIEHS, NIH (Berhane, Bekele, Weke) Advancing Public Health Research in Eastern Africa through Data Science Training (APHREA-DST) Co-Investigator
09/2020-08/2023	5R01ES030945-02, NIEHS, NIH (Gamble) Interdisciplinary approaches for understanding the metabolic effects of arsenic and manganese Co-Investigator
8/2020–4/2024	R01 DK123285-01A1, NIH / NIDDK & Ofc of the Dir, NIH (Gamble) Metabolomic and Nutrigenetic Effects of Folic Acid Supplementation and Unmetabolized Folic Acid Co-Investigator
3/2020–12/2024	R01MD014872-01 , NIH/NIMHHD, NIH (Woo Baidal) LINC: Leveraging IT for Neighborhoods in Childhood Co-Investigator
4/2019–3/2024	R01 AG062401, NIH / NIA (McKeague) Inferential methods for functional data from wearable devices Co-Investigator
12/2018 – 11/2023	R01 HS025937, AHRQ (Poghosyan) Social Networks in Medical Homes and Impact on Patient Care and Outcome Co-Investigator

PAST SUPPORT

- 07/2016–07/2023 R01 NS097423-01, NIH / NINDS (Goldsmith)
Functional data analytics for kinematic assessments of motor control
Principal Investigator
- 01/2018–12/2023 R01 ES028805, NIH/NIEHS (Kioumourtzoglou)
Principal Component Pursuit to Assess Exposure to Environmental Mixtures
in Epidemiologic Studies
Co-Investigator
- 7/2018– 6/2021 DDCF 2018090, Doris Duke Charitable Foundation (Woo Baidal)
Developing novel clinical approaches to reduce childhood obesity risk
Co-Investigator
- 08/2017–06/2021 R01 EB024526-02, NIH / NIBIB (Ogden)
Advanced Modeling Techniques for Brain Imaging Data with PET
Co-Investigator
- 09/2014–07/2019 R01 HL123407, NIH / NHLBI (Crainiceanu)
Statistical methods for biosignals with varying domains
Subcontract Principal Investigator
- 11/1998–07/2019 P50 ES009600, NIH / NIEHS (Perera)
The Columbia Center for Children’s Environmental Health
Co-Investigator
- 09/2015–05/2019 R01 AG049970, NIH / NIA (Lovasi)
Communities Designed to Support Cardiovascular Health for Older Adults
Co-Investigator
- 04/2018–03/2019 R25 GM062454, NIH / NIGMS (Contact PI: Wingood)
IMSD at Columbia’s Mailman School of Public Health
Co-PI
- 06/2015–06/2017 R21 EB018917, NIH / NIBIB (Goldsmith)
Generalized, multilevel functional response models applied to accelerometer
data
Principal Investigator
- 09/2014–05/2016 R21 AG046703, NIH / NIA (Maurer)
Can Ventricular Assist Devices Reverse the Frailty Phenotype
Co-Investigator
- 07/2014–07/2016 McDonnell Foundation (Kitago)
Augmenting spontaneous recovery with robotic arm therapy and non-
invasive brain stimulation
Co-Investigator
- 04/2012–04/2016 R01 NS078419, NIH / NINDS (Ottman)
Psychosocial Impact of Genetics in Epilepsy
Co-Investigator
- 09/2010–04/2021 K24 AG036778-10, NIH / NIA (Maurer)
Midcareer Mentoring Award for Patient Oriented Research In Geriatric Car-
diology
Co-Investigator
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Teaching Experience and Responsibilities

SPECIFIC COURSES

Fall 2023	Data Science I (~200 enrolled students)
Fall 2022	Data Science I (~200 enrolled students)
Fall 2021	Data Science I (~200 enrolled students)
Fall 2020	Data Science I (~200 enrolled students)
Fall 2019	Data Science I (~180 enrolled students)
Summer 2019	Introduction to Biostatistics (23 enrolled students)
Fall 2018	Data Science I (143 enrolled students)
Fall 2017	Data Science I (76 enrolled students)
Spring 2016	Linear Regression Models (43 enrolled students)
Spring 2015	Linear Regression Models (55 enrolled students)
Summer 2015	Applied Regression II (6 enrolled students)
Spring 2014	Categorical Data Analysis (15 enrolled students)
Spring 2014	Linear Regression Models (34 enrolled students)
Spring 2013	Categorical Data Analysis (16 enrolled students)
Spring 2013	Linear Regression Models (17 enrolled students)

GENERAL TEACHING ACTIVITIES

Summer 2021	Undergraduate Mentor, Biostatistics Enrichment Summer Training Diversity Program
Spring 2021	ENAR Short Course (“Functional Data Analysis for Wearables: Methods and Applications”; co-taught with Vadim Zipunnikov)
Fall 2019	Joint Statistical Meeting Short Course (“Functional Data Analysis for Wearables: Methods and Applications”; co-taught with Vadim Zipunnikov)
Summer 2018	Undergraduate Mentor, Biostatistics Enrichment Summer Training Diversity Program
Spring 2017	International Conference on Ambulatory Monitoring of Physical Activity Short Course (“Functional Data Analysis for Wearables: Methods and Applications”; co-taught with Vadim Zipunnikov)
Spring 2017	International Workshop on Advances in Functional Data Analysis Short Course (“Variable Selection in Functional Regression”)
Summer 2016	Undergraduate Mentor, Biostatistics Enrichment Summer Training Diversity Program
Summer 2016	Grant Mentor, Columbia Summer Research Institute
Summer 2014	Grant Mentor, Columbia Summer Research Institute
Summer 2014	Undergraduate Mentor, Columbia Summer Institute for Training in Biostatistics
Summer 2014	Undergraduate Mentor, Biostatistics Enrichment Summer Training Diversity Program
Spring 2014	ENAR Short Course (Functional Data Analysis: Techniques and Applications; co-taught with Todd Ogden)
Summer 2013	Grant Mentor, Columbia Summer Research Institute
08/2013–08/2016	Biostatistics Faculty Liaison, Columbia University Biostatistics and Epidemiology Digital Education (CUBED) Master’s program
01/2013–Present	Co-founder and Director, Functional Data Analysis Working Group (FDAWG)

DOCTORAL ADVISEES

2024 (Expected)	Madison Stoms
2022	Angel Garcia de la Garza (First employment: Assistant Professor, Department of Biostatistics, Albert Einstein College of Medicine)
2021	Patrick Hilden (First employment: Janssen; Winner of Sanford Bolton-John Fertig Award, which recognizes a top doctoral dissertation in Biostatistics)
2019	Julia Wrobel (First employment: Assistant Professor, Department of Biostatistics, University of Colorado Denver)
2018	Daniel Backenroth (First employment: Quantitative scientist, cancer genomics at Flatiron Health)
2018	Jihui Lee (First employment: Post Doctoral Researcher at Weill Cornell Department of Biostatistics)
2016	Yakuan Chen (First employment: Senior Inventive Scientist at AT&T Labs)

MASTER'S ADVISEES

2022	Emil Hafeez (Theory and Methods)
2021	Kevin Wongsodirdjo (Theory and Methods)
2020	Christian Pascual (Theory and Methods)
2020	Priyanka Srinivasan (Theory and Methods)
2019	Nadiya Pavlishyn (Theory and Methods)
2016	Yuexia Mei (Theory and Methods)
2016	Hanwei Yue (Theory and Methods)
2015	Xinyue Liu (Theory and Methods)
2015	Xiaoqi Lu (Theory and Methods)
2015	Yao Ma (Theory and Methods)
2015	Tianyi Sun (Theory and Methods)
2015	Julia Wrobel (Theory and Methods)
2014	Xinyu Hu (Theory and Methods)
2014	Zhi Pan (Theory and Methods)
2014	Guangwei Qui (Theory and Methods)
2014	Wenxi Tang (Theory and Methods)
2014	Madeline Vossbrinck (Theory and Methods)

DOCTORAL EXAMINATION, ADVISORY, AND DEFENSE COMMITTEES

2023	Laura Raaen (Dissertation Committee)
2022	Alex Bauer (External Examiner)
2022	Ahlam Abuawad (Dissertation Committee)
2022	Marco Palma (External Examiner)
2021	Elizabeth Gibson (Dissertation Committee)
2021	Erin McDonnell (Dissertation Committee)
2020	Juan Carlos Laria de la Cruz (Dissertation Reader)
2020	Yuan Gao (External Thesis Examiner)
2019	Andrea Duran (Dissertation Defense)
2019	Beth Rubenstein (Dissertation Defense)
2018	Sang il Kim (External Thesis Examiner)
2018	Javier Alvarez Libana (Dissertation Reader)
2018	Elizabeth Gibson (Oral Examination)
2017	Sharifa Barracks (Oral Examination and Dissertation Defense)
2014	Tianle Chen (Dissertation Defense)
2014	Xiaochen Cai (Oral Examination and Dissertation Defense)
2013	Adam Ciarleglio (Dissertation Defense)

Publications

† indicates equal contribution

‡ indicates graduate student or postdoc under my supervision

BOOKS

- Crainiceanu, C.M., **Goldsmith, J.**, Leroux, A. and Cui, E. (available March 2024). Functional Data Analysis with R.

PAPERS UNDER REVIEW

- Wrobel, J., Sauerbrei, B., Kirk, E.A., Guo, J.-Z., Hantman, A., and **Goldsmith, J.** Modeling trajectories using functional linear differential equations. *Under review*
- Stoms, M.†, Houghton, L., Terry, M.B., Ulanday, K. Herbstman, J. and **Goldsmith, J.** Estimation of Menstrual Cycle Day using Cross-Sectional Biomarker Measurements *Under review*
- de la Garza, A.G.‡, Sauerbrei, B., Hantman, A. and **Goldsmith, J.** Adaptive Functional Principal Component Analysis. *Under review*
- de la Garza, A.G.‡, Sauerbrei, B., and **Goldsmith, J.** Two Sample Test for Eigendecompositions of Functional Data. *Under review*
- Hilden, P.‡, Shahu, A.‡, Gibson, E.A., Wright, J., Kioumourtzoglou, M.A., and **Goldsmith, J.** Robust Decomposition of Accelerometer Data through Functional Principal Component Pursuit. *Under review*

ORIGINAL, PEER REVIEWED ARTICLES

- Li, M., Do, V., Brooks, J.L., Hilpert, M., **Goldsmith, J.**, Chillrud, S.N., Ali, T., Best, L.G., Yracheta, J., Umans, J.G. and van Donkelaar, A., (2023). Fine particulate matter composition in American Indian vs. Non-American Indian communities. *Environmental Research*, **237**, p.117091.
- Schilling, K., Glabonjat, R.A., Balac, O., Galvez-Fernandez, M., Relloso, A.D., Slavkovich, V., **Goldsmith, J.**, Jones, M.R., Sanchez, T.R. and Navas-Acien, A., (2023+). Method validation for (ultra)-trace element concentrations in urine for small sample volumes in large epidemiological studies: application to the population-based epidemiological Multi-Ethnic Study of Atherosclerosis (MESA). *Analytical Methods*, accepted.
- Nolan, T.H., **Goldsmith, J.**, and Ruppert, D. (2023+) “Bayesian Functional Principal Components Analysis via Variational Message Passing with Multilevel Extensions.” *Bayesian Analysis*, accepted.
- Lin, D.J., Hardstone, R., DiCarlo, J.A., Mckiernan, S., Snider, S.B., Jacobs, H., Erler, K.S., Rishe, K., Boyne, P., **Goldsmith, J.**, Ranford, J., Finklestein, S.P., Schwamm, L.H., Hochberg, L.R., and Cramer, S.C. (2023). Distinguishing Distinct Neural Systems for Proximal vs Distal Upper Extremity Motor Control After Acute Stroke. *accepted.Neurology*, accepted.
- Woo Baidal, J.A., Duong, N., **Goldsmith, J.**, Hur, C., Lauren, B.N., Partida, I., Rosenthal, A., Hulse, E., Shea, S., Cheung, K. and Meyer, D., (2023). Association of a primary

- care-based mobile food pantry with child body mass index: A propensity score matched cohort study. *Pediatric Obesity*, **18**, p.e13023.
- Benavides, J., Rowland, S.T., Do, V., **Goldsmith, J.**, and Kioumourtzoglou, M.A. (2023) Unintended impacts of the Open Streets program on noise complaints in New York City. *Environmental research*, **224**, p.115501.
 - Nunez, Y., Balalian, A., Parks, R.M., He, M.Z., Hansen, J., Raaschou-Nielsen, O., Ketznel, M., Khan, J., Brandt, J., Vermeulen, R. Peters, S., Weisskopf, M.G., Re, D.B, **Goldsmith, J.**, and Kioumourtzoglou, M.A. (2023+). Exploring Relevant Time Windows in the Association Between PM_{2.5} Exposure and Amyotrophic Lateral Sclerosis: A Case-Control Study in Denmark. *American Journal of Epidemiology*, accepted.
 - Tao, R.H., Chillrud, L.G., Nunez, Y., Rowland, S.T., Boehme, A.K., Yan, J., **Goldsmith, J.**, Wright, J., and Kioumourtzoglou, M.A. (2023) Applying principal component pursuit to investigate the association between source-specific fine particulate matter and myocardial infarction hospitalizations in New York City. *Environmental Epidemiology*, **7**, p.e243.
 - Wu, H., Kalia, V., Niedzwiecki, M.M., Kioumourtzoglou, M.A., Pierce, B., Ilievski, V., **Goldsmith, J.**, Jones, D.P., Navas-Acien, A., Walker, D.I., and Gamble, M.V. (2023) Metabolomic changes associated with chronic arsenic exposure in a Bangladeshi population. *Chemosphere*, **320**, p.137998.
 - Abuawad, A.K., Bozack, A.K., Navas-Acien, A., **Goldsmith, J.**, Liu, X., Hall, M.N., Ilievski, V., Lomax-Luu, A.M., Parvez, F., Shahriar, H., Uddin, M.N., Islam, T., Graziano, J.H., and Gamble, M.V. (2023) The Folic Acid and Creatine Trial: Treatment Effects of Supplementation on Arsenic Methylation Indices and Metabolite Concentrations in Blood in a Bangladeshi Population. *Environmental Health Perspectives*, **131**, p.037015.
 - Woo Baidal, J.A., Duong, N., **Goldsmith, J.**, Hur, C., Lauren, B.N., Partida, I., Rosenthal, A., Hulse, E., Shea, S., Cheung, K., and Meyer, D. (2023) Association of a primary care-based mobile food pantry with child body mass index: A propensity score matched cohort study. *Pediatric Obesity*, p.e13023.
 - Powell, M.P., Verma, N., Sorensen, E., Carranza, E., Boos, A., Fields, D.P., Roy, S., Ensel, S., Barra, B., Balzer, J., **Goldsmith, J.**, Friedlander, R.M., Wittenberg, G.F., Fisher, L.E., Krakauer, J.W., Gerszten, P.C., Pirondini, E., Weber, D.J. and Capogrosso, M. (2023). Epidural stimulation of the cervical spinal cord for post-stroke upper-limb paresis. *Nature medicine*, **29** pp.1-11.
 - Kupsco, A., Bloomquist, T.R., Hu, H., Reddam, A., Tang, D., **Goldsmith, J.**, Rundle, A.G., Baccarelli, A.A., and Herbstman, J.B. (2023) Mitochondrial DNA copy number dynamics and associations with the prenatal environment from birth through adolescence in a population of Dominican and African American children. *Mitochondrion*, **69**, pp.140-146.
 - Zheng, Z., Fiore, A.M., Westervelt, D.M., Milly, G.P., **Goldsmith, J.**, Karambelas, A., Curci, G., Randles, C.A., Paiva, A.R., Wang, C., and Wu, Q. (2023) Automated machine learning to evaluate the information content of tropospheric trace gas columns for fine particle estimates over India: A modeling testbed. *Journal of Advances in Modeling Earth Systems*, **15**, p.e2022MS003099.
 - Hilden, P.[‡], Schwartz, J.E., Pascual, C., Diaz, K.M., **Goldsmith, J.** (2023). How Many Days are Needed? Measurement Reliability of Wearable Device Data to Assess Physical Activity *PLOS ONE*, **18** e0282162.

- Mitrani, L.R., Tumasian III, R.A., Vilches, S., De Los Santos, J., Gonzalez-Lopez, E., Caponetti, A.G., Satri, G., Mirelis, J.G., Longhi, S., Gagliardi, C., **Goldsmith, J.**, Rapezzi, C., Garcia-Pavia, G., and Maurer, M.S. (2023) Racial Differences in Atrial Fibrillation Management Between White Patients and Black Patients in Transthyretin Cardiac Amyloid. *The American Journal of Cardiology*, **187**, pp.164-170.
- Finkel, M.A., Bryan, A., Partida, I., Raaen, L., Duong, N., **Goldsmith, J.**, and Woo Baidal, J.A. (2023) Longitudinal trends in parent-reported child sleep, physical activity, and screen use during the COVID-19 pandemic in New York City. *SAGE Open Medicine*, **11**.
- Park, Y., Quinn, J.W., Hurvitz, P.M., Hirsch, J.A., **Goldsmith, J.**, Neckerman, K.M., Lovasi, G.S. and Rundle, A.G. (2022). Addressing patient's unmet social needs: disparities in access to social services in the United States from 1990 to 2014, a national times series study. *BMC Health Services Research*, **22** 1-12.
- Gibson, E.A., Zhang, J., Yan, J., Chillrud, L., Benavides, J., Nunez, Y., Herbstman, J.B., **Goldsmith, J.**, Wright, J. and Kioumourtzoglou, M.A. (2022) Principal component pursuit for pattern identification in environmental mixtures.' *Environmental Health Perspectives*, **130**, p. 117008.
- **Goldsmith, J.**, Kitago, T., Garcia de la Garza, A.[‡], Kundert, R., Luft, A., Stinear, C., Byblow, W.D., Kwakkel, G., Krakauer, J.W. (2022). Arguments for the biological and predictive relevance of the proportional recovery rule. *eLife*, **11** e80458.
- Kupsco, A., Sjödin, A., Cowell, W., Jones, R., Oberfield, S., Wang, S., Hoepner, L.A., Gallagher, D., Baccarelli, A.A., **Goldsmith, J.** and Rundle, A.G. (2022). Prenatal exposure to polybrominated diphenyl ethers and BMI Z-scores from 5 to 14 years. *Environmental Health*, **21** 1-10.
- Cornelius, T., Denes, A., Webber, K.T., Guest, C., **Goldsmith, J.**, Schwartz, J.E. and Gorin, A.A. (2022) Relationship quality and objectively measured physical activity before and after implementation of COVID-19 stay-home orders. *Journal of Health Psychology*, **27** 2390-2401.
- McDonnell, E.I., Zipunnikov, V., Schrack, J.A., **Goldsmith, J.** and Wrobel, J., (2022). Registration of 24-hour accelerometric rest-activity profiles and its application to human chronotypes. *Biological Rhythm Research*, **58** 1299-1319.
- Parks, R.M., Nunez, Y., Balalian, A.A., Gibson, E.A., Hansen, J., Raaschou-Nielsen, O., Kettel, M., Khan, J., Brandt, J., Vermeulen, R., Peters, S., **Goldsmith, J.**, Re, D.B, Weisskopf, M.G., and Kioumourtzoglou, M.A. (2022). Long-term traffic-related air pollutant exposure and amyotrophic lateral sclerosis diagnosis in Denmark: A Bayesian hierarchical analysis. *Epidemiology*, **33** 757-766.
- Daouda, M., Henneman, L., **Goldsmith, J.**, Kioumourtzoglou, M.A. and Casey, J.A. (2022). Racial/Ethnic Disparities in Nationwide PM 2.5 Concentrations: Perils of Assuming a Linear Relationship. *Environmental health perspectives*, **130** p.077701.
- Abuawad, A., **Goldsmith, J.**, Herbstman, J.B., Parvez, F., Islam, T., LoIacono, N., Graziano, J.H., Navas-Acien, A. and Gamble, M.V. (2022). Urine Dilution Correction Methods Utilizing Urine Creatinine or Specific Gravity in Arsenic Analyses: Comparisons to Blood and Water Arsenic in the FACT and FOX Studies in Bangladesh. *Water*, **14** p.1477.
- Nunez, Y., Boehme, A.K., **Goldsmith, J.**, Li, M., van Donkelaar, A., Weisskopf, M.G., Re, D.B., Martin, R.V. and Kioumourtzoglou, M.A. (2022). PM2. 5 composition and disease

aggravation in amyotrophic lateral sclerosis: An analysis of long-term exposure to components of fine particulate matter in New York State. *Environmental Epidemiology*, **6** e204.

- Li, M., Hilpert, M., **Goldsmith, J.**, Brooks, J.L., Shearston, J.A., Chillrud, S.N., Ali, T., Umans, J.G., Best, L.G., Yracheta, J. and van Donkelaar, A. (2022). Air Pollution in American Indian Versus Non-American Indian Communities, 2000-2018. *American Journal of Public Health*, **112** pp.615-623.
- Yan, X., **Goldsmith, J.**, Mohan, S., Turnbull, Z.A., Freundlich, R.E., Billings, F.T., Kiran, R.P., Li, G. and Kim, M. (2021). Impact of Intraoperative Data on Risk Prediction for Mortality After Intra-Abdominal Surgery. *Anesthesia & Analgesia*, **134** 102-113.
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REVIEWS AND EDITORIALS

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SOFTWARE

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- Other packages available on GitHub include `vbvs.concurrent`, `BayesFoSR`, and `tiger.king`

Presentations

- “Functional Data Methods for Wearable Device Data.” JSM, Department of Mathematics and Statistics, Georgetown University. (10/2023).
- “Functional data methods for neuroscience: Adaptive FPCA & Functional Linear ODEs.” Department of Statistics, Florida State University. (10/2023).
- “Functional Data Methods for Wearable Device Data.” JSM, Toronto *invited*. (08/2023).
- “Arguments for the biological and predictive relevance of the proportional recovery rule” EcoSTA, Tokyo / hybrid *invited*. (07/2023).
- “Functional data methods for wearable device data.” ICASA, Ann Arbor, *invited*. (06/2023).
- “Public Health Data Science and Biostatistics.” NISS Panel on the Role of Biostatistics in Data Science. (05/2023).
- “Functional data methods for wearable device data.” Department of Biostatistics, Virginia Commonwealth University. (03/2023).
- “Public health data science, wearable devices, and functional data analysis.” Grand Rounds, Department of Anesthesiology, Montefiore Einstein. (03/2023).
- “Functional data methods for wearable device data.” Department of Statistics and Data Science, Duke-NUS Medical School, Singapore, *virtual*. (01/2022).
- “Public health data science, wearable devices, and functional data analysis.” School of Data Science, City University of Hong Kong. (10/2022).
- “Public health data science, wearable devices, and functional data analysis.” Department of Biostatistics, University at Buffalo. (08/2022).
- “Functional data methods for wearable device data.” JSM, Washington DC, *invited*. (08/2022).
- “Registration of 24-hour accelerometric rest-activity profiles and its application to human chronotypes.” Conference of the International Federation of Classification Societies, Porto, Portugal, *invited*. (7/2022).
- “Functional data methods for wearable device data.” Institute for Statistics, Ludwig-Maximilians-University, Munich, Germany. (07/2022).
- “Adaptive Functional Principal Component Analysis.” WNAR, online, *invited*. (06/2022).
- “Adaptive Functional Principal Component Analysis.” EcoSta 2022, online / hybrid, *invited*. (06/2022).
- “Functional data methods for wearable device data.” Department of Environmental Medicine and Public Health, Icahn School of Medicine at Mount Sinai. (03/2022).
- “Functional data methods for wearable device data.” ENAR, Houston, *invited*. (03/2022).
- “Adaptive Functional Principal Component Analysis” CMStatistics, online / hybrid, *invited*. (12/2021)
- “Motor Control Data and AI.” Stanford AI + Health Online Conference, *invited panel discussion*. (12/2021).
- “The emergence and future of public health data science.” Department of Biostatistics, UCLA. (11/2021).
- “Functional Data Methods for Wearable Device Data.” Bridges Between Mathematics and Data Science Workshop, Valladolid, Spain, *plenary address*. (11/2021).

- “Functional Data Methods for Wearable Device Data.” ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, *town hall session*. (09/2021).
- “tidyfun: A new framework for representing and working with function-valued data” JSM, online, *invited poster*. (08/2021).
- “Functional Data Methods for Wearable Device Data.” Statistics and Econometrics seminar, Humboldt University of Berlin. (05/2021).
- “The emergence and future of public health data science.” Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health. (4/2021).
- “What the proportional recovery rule is (and is not): Methodological and statistical considerations.” ENAR 2021, online *invited*. (3/2021).
- “tidyfun: A new framework for representing and working with function-valued data” CM-Statistics, online, *invited*. (12/2020)
- “Data Science Ethics: a View from Public Health”, Data Science Day, Columbia University Data Science Institute, *invited panel*. (09/2020).
- “The Emergence and Future of Data Science”, Ergon Professional Hub (online). (09/2020).
- “Considerations for ethical data science” and “Rigorous research using wearable devices”. University of Michigan Rogel Cancer Center, *virtual workshop*. (09/2020).
- “Data-driven chronotype discovery using functional data methods”, JSM 2020, online, *invited*. (08/2020).
- “The Three M’s: Meetings, Memberships, and Money!” ENAR 2020, Nashville / online, *invited panel*. (03/2020).
- “Functional Data Methods for Wearable Device Data.” BIRS Workshop, Banff, *invited*. (02/2020).
- “Ethics for Public Health Data Science.” Data Science for Public Health Summit, New York *invited panel*. (01/2020).
- “What the proportional recovery rule is (and is not): Methodological and statistical considerations.” CMStatistics 2019, London *invited*. (12/2019).
- “Proportional Recovery” American Society for Neurorehabilitation 2019, Chicago *Panel Debate*. (10/2019).
- “Registration for Exponential Family Functional Data.” JSM 2019, Denver, *invited*. (08/2019)
- “tidyfun” ICSA 2019, Raleigh, *invited*. (06/2019)
- “Models for Functional Responses.” Bill and Melinda Gates Foundation. (05/2019)
- “Variable Selection for the Concurrent Functional Linear Model.” ENAR 2019, Philadelphia, *invited*. (03/2019)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Department of Statistics, Rice University. (02/2019)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Department of Population Health Science and Policy Grand Rounds, Icahn School of Medicine at Mount Sinai. (02/2019)
- “Registration for Exponential Family Functional Data.” CMStatistics 2018, Pisa. (12/2018)

- “Registration for Exponential Family Functional Data.” Department of Statistics and Computational Biology, University of Rochester. (10/2018)
- “Functional data methods for wearable device data.” Ai4 / Healthcare, NYC. (11/2018)
- “Functional data methods for wearable device data.” Department of Biostatistics and Epidemiology, Drexel University. (10/2018)
- “Non-Negative Decomposition of Functional Count Data”, JSM 2018, Vancouver, *invited*. (08/2018)
- “Non-Negative Decomposition of Functional Count Data”, IBC 2018, Barcelona, *invited*. (06/2018)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Conference on Statistical Learning and Data Science, New York, *invited*. (06/2018)
- “Functional Data Analysis for High Dimensional Data.” Rockefeller University. (05/2018)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Department of Biostatistics, Emory. (04/2018)
- “Matrix Factorization Approaches to Analysis of Functional Count Data.” ENAR 2018, Atlanta, *invited*. (3/2018)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” CMStatistics 2017, London, *invited*. (12/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Department of Statistics, Pennsylvania State University. (09/2017)
- “New insights into activity patterns in children, found using functional data analyses.” JSM 2017, Baltimore, *topic contributed*. (08/2017)
- Discussion on “Recent developments for functional data exploration.” ISI WSC 2017, Marrakech. (07/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” ISI WSC 2017, Marrakech, *invited*. (07/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” SIS 2017, Florence, *invited*. (06/2017)
- “Registration for Exponential Family Functional Data.” International Workshop on Functional and Operatorial Statistics, Coruna, Spain, *invited*. (06/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Division of Biostatistics & Epidemiology, Weill Cornell Medicine. (04/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” International Workshop on Advances in Functional Data Analysis, Madrid, Spain, *plenary presentation*. (03/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” ENAR 2017, Washington DC, *topic contributed*. (03/2017)
- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” Department of Statistics, Columbia University. (02/2017)
- “New insights into activity patterns in children, found using functional data analyses.” Department of Epidemiology and Population Health, Albert Einstein College of Medicine. (02/2017)

- “Modeling Motor Learning Using Heteroskedastic Functional Principal Components Analysis.” ERCIM, Sevilla, *invited*. (12/2016)
- “Variable Selection for the Concurrent Functional Linear Model.” CRoNoS Workshop on FDA, Oviedo, Spain, *invited*. (08/2016)
- “Variable Selection for the Concurrent Functional Linear Model.” JSM, Chicago, *topic contributed*. (08/2016)
- Discussion on “Statistical Analysis of Wearable Sensor Data To Understand Human Movement and Activity.”, IBC, Victoria, British Columbia, *invited*. (06/2016)
- “Variable Selection for the Concurrent Functional Linear Model.” ICSA, Atlanta, *invited*. (06/2016)
- “Kinematic data in motor control experiments.” ENAR 2016, Austin, *invited*. (03/2016)
- “Kinematic data in motor control experiments.” Department of Biostatistics, University of Texas Health Science Center at Houston. (02/2016)
- “Variable Selection for the Concurrent Functional Linear Model.” ERCIM, London, *invited*. (12/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA.” Department of Bioinformatics, Columbia University. (12/2015)
- “Kinematic data in motor control experiments.” Department of Biostatistics, University of Washington. (10/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA + Visualization.” JSM 2015, Seattle. (07/2015)
- “Kinematic data in motor control experiments + Visualization.” ISI WSC 2015, Rio de Janeiro. (07/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA + Visualization.” ISI WSC 2015, Rio de Janeiro. (07/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA + Visualization.” BIRS Workshop, Banff. (07/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA.” ENAR 2015, Miami, *invited*. (03/2015)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA.” ERCIM, Pisa, *invited*. (12/2014)
- “Using Functional Data Methods to Assess Covariate Effects on Daily Activity Patterns.” Gerontological Society of America Annual Meeting, Washington DC. *invited symposium*. (11/2014)
- “Generalized Multilevel Functional-on-Scalar Regression and PCA.” Department of Biostatistics, University of Minnesota. (09/2014)
- “Smooth Scalar-on-Image Regression via Spatial Bayesian Variable Selection.” JSM 2014, Boston, *topic contributed*. (08/2014)
- “Generalized Multilevel Functional-on-Scalar Regression and Principal Component Analysis.” Department of Statistics, University of Pennsylvania. (04/2014)
- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” Department of Statistics, Columbia University. (03/2014)

- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” ENAR 2014, Baltimore, *invited*. (03/2014)
- “Corrected Confidence Intervals for Functional Data Using Principal Components.” ERCIM, London, *invited*. (12/2013)
- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” ERCIM, London, *invited*. (12/2013)
- “Bayesian Penalized Function-on-Scalar Regression for Longitudinal Accelerometry Data.” Division of Biostatistics in the Department of Psychiatry, Columbia University. (09/2013)
- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” Department of Biostatistics, Johns Hopkins University. (09/2013)
- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” Department of Statistics, Seoul National University. (08/2013)
- “Estimating Energy Expenditure from Heart Rate and Activity Counts: a Bayesian Approach.” IASC Seoul, South Korea, *invited*. (08/2013)
- “Assessing Systematic Effects of Stroke on Motor Control using Hierarchical Function-on-Scalar Regression.” JSM, Montreal, *Topic Contributed*. (08/2013)
- “Estimating Energy Expenditure from Heart Rate and Activity Counts: a Bayesian Approach.” ICAMPAM, Amherst, MA, *invited*. (06/2013)
- “Bayesian Penalized Function-on-Scalar Regression for Longitudinal Accelerometry Data.” SRCOS, Nashville, TN, *invited*. (06/2013)
- “Smooth Scalar-on-Image Regression.” University of Miami Spatial Statistics Conference, Miami, FL, *invited*. (12/2012)
- “Longitudinal Penalized Functional Regression.” Annual Conference of the German and Austrian Statistical Associations, Vienna, Austria, *invited*. (09/2012)
- “A Modular Approach to Functional Regression”. Annual Conference of the International Society for Clinical Biostatistics, Bergen, Norway, *invited*. (08/2012)
- “Fast Joint Functional Regression Modeling via Variational Bayes”. JSM 2012, San Diego, *invited*. (07/2012)
- “Corrected Confidence Intervals for Functional Data Using Principal Components”. JSM 2012, San Diego, *topic contributed*. (07/2012)
- “Movelets: A Dictionary of Movement”. Interface 2012, *invited*. (05/2012)
- “Corrected Confidence Intervals for Functional Data Using Principal Components”. ENAR 2012, Washington DC, *contributed*. (04/2012)
- “Longitudinal Penalized Functional Regression”. JSM 2011, Miami, *contributed*. (08/2011)
- “Cross-Sectional and Longitudinal Penalized Functional Regression”. Ludwig-Maximilians-University, *invited*. (06/2011)
- “Cross-Sectional and Longitudinal Penalized Functional Regression”. Interface 2011, *invited by Editor of JCGS*. (06/2011)
- “Longitudinal Penalized Functional Regression”. ENAR 2011, Miami, *invited*. (03/2011)
- “Non-linear Tube-fitting and Penalized Functional Regression in Diffusion Tensor Imaging”. National Institutes of Health, Translational Neuroradiology Unit. (03/2011)

- “Penalized Functional Regression”. Joint Statistical Meetings 2010, Vancouver, *topic contributed*. (08/2010)
- “Penalized Functional Regression”. University of Wollongong, Australia. (06/2010)
- “Medical Imaging and Biostatistics”. Dickinson College, Department of Mathematics and Computer Science. (04/2010)