Debangan Dey, Ph.D.

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Work Experience

2022 – · · · ·	**Postdoctoral fellow.** National Institute of Mental Health.
2021	**Applied Scientist Intern.** Amazon.
2020	**Analyst.** Baltimore City Health Department - Johns Hopkins Data Analysis Support Team for COVID-19 Response.
2015, 2016	**Summer Intern.** Johns Hopkins Bloomberg School of Public Health Dept. of Biostatistics.

Education

2017 – 2022	**Ph.D., Johns Hopkins Bloomberg School of Public Health** in Biostatistics. Thesis title: *Topics in Modeling of Multivariate Mixed Data Types and Highly Multivariate Spatial Data*
2015 – 2017	**Masters, Indian Statistical Institute** in Statistics. Thesis title: *On Investigation of Genotypic Association with Longitudinal Observations of Traits*.
2012 – 2015	**Bachelors, Indian Statistical Institute** in Statistics.

Research Publications and Repositories

Journal Articles

1. T. M. Lateef, **D. Dey**, A. Leroux, L. Cui, M. Xiao, V. Zipunnikov, and K. R. Merikangas, "Association between electronic diary–rated sleep, mood, energy, and stress with incident headache in a community-based sample," *Neurology*, vol. 102, no. 4, e208102, 2024, **Article featured at CNN, Nat Geo, NIH Director's blog and others**.

2. **D. Dey**, A. Datta, and S. Banerjee, "Modeling multivariate spatial dependencies using graphical models," *The New England Journal of Statistics in Data Science*, pp. 1–13, 2023.

3. J. Glaus, S. J. Kang, W. Guo, F. Lamers, M.-P. F. Strippoli, A. Leroux, **D. Dey**, K. J. Plessen, J. Vaucher, P. Vollenweider, *et al.*, "Objectively assessed sleep and physical activity in depression subtypes and its mediating role in their association with cardiovascular risk factors," *Journal of psychiatric research*, vol. 163, pp. 325–336, 2023.

4. E. K. Stapp, V. Zipunnikov, A. Leroux, L. Cui, M. M. Husky, **D. Dey**, and K. R. Merikangas, "Specificity of affective dynamics of bipolar and major depressive disorder," *Brain and Behavior*, e3134, 2023.

5. **D. Dey**, A. Datta, and S. Banerjee, "Graphical gaussian process models for highly multivariate spatial data," *Biometrika*, vol. 109, no. 4, pp. 993–1014, 2022.

6. M. R. Kaufman, **D. Dey**, C. Crainiceanu, and M. Dredze, "# Metoo and google inquiries into sexual violence: A hashtag campaign can sustain information seeking," *Journal of interpersonal violence*, vol. 36, no. 19-20, pp. 9857–9867, 2021.

7. **D. Dey** and V. Zipunnikov, "Discussion of "an epidemiological forecast model and software assessing interventions on the covid-19 epidemic in China"," *Journal of Data Science*, vol. 18, no. 3, pp. 433–436, 2020.

8. S. Deb and **D. Dey**, "Spatial modeling of shot conversion in soccer to single out goalscoring ability," *Journal of Sports Analytics*, vol. 5, no. 4, pp. 281–297, 2019.

9. V. R. Varma, **D. Dey**, A. Leroux, J. Di, J. Urbanek, L. Xiao, and V. Zipunnikov, "Total volume of physical activity: TAC, TLAC or TAC (λ)," *Preventive medicine*, vol. 106, pp. 233–235, 2018.

10. A. Spira, V. Zipunnikov, M. Wu, **D. Dey**, E. Simonsick, L. Ferrucci, C. Davatzikos, and S. Resnick, "Association of circadian rest and activity rhythms with brain volumes in cognitively normal older adults," *Innovation in Aging*, vol. 1, no. suppl_1, pp. 866–866, 2017.

11. V. R. Varma, **D. Dey**, A. Leroux, J. Di, J. Urbanek, L. Xiao, and V. Zipunnikov, "Re-evaluating the effect of age on physical activity over the lifespan." *Preventive medicine*, vol. 101, pp. 102–108, 2017, **Article featured at TIME, Washington Post, WSJ, BBC, WPYR and others**.

12. V. Zipunnikov, **D. Dey**, A. Leroux, J. Di, J. Urbanek, J. Schrack, and C. Crainiceanu, "Total physical activity and its circadian allocation are independent predictors of mortality," *Innovation in Aging*, vol. 1, no. Suppl 1, p. 1239, 2017.

Preprints and Under Revision

1. **D. Dey**, S. Banerjee, M. Lindquist, and A. Datta, *Graph-constrained analysis for multivariate functional data*, 2023. arXiv: 2209.06294 [stat.ME].

2. **D. Dey**, R. Ghosal, K. Merikangas, and V. Zipunnikov, *Functional principal component analysis for continuous non-gaussian, truncated, and discrete functional data*, 2023. arXiv: 2306.15084 [stat.ME].

3. **D. Dey** and V. Zipunnikov, *Semiparametric gaussian copula regression modeling for mixed data types (SGCRM)*, 2022. arXiv: 2205.06868 [stat.ME].

4. **D. Dey** and V. Zipunnikov, *Connecting population-level auc and latent scale-invariant R^2 via semiparametric gaussian copula and rank correlations*, 2019. arXiv: 1910.14233 [stat.ME].

Packages and Repositories

1. **D. Dey** and R. Ghosal, *R package – SGCTools: Analysis tools for multivariate mixed data and continuous/truncated/discrete functional data using Semiparametric Gaussian Copula (SGC)*, https://github.com/Ddey07/SGCTools, 2023.

2. **D. Dey** and A. Pita, *The Good, The Bad, and The Ugly of the Beautiful Game — Analyzing FIFA World Cup 2018 data*, https://ddey07.github.io/open-data/, 2018.

Books and Chapters

1. S. Deb and **D. Dey**, *Mathematical Techniques for Competitive Examinations*, English, Paperback, ISBN: 978-9393330109. 🔗 URL: https://lead.to/amazon/com/?op=bt&la=en&cu=usd&key=9393330107.

Miscellaneous Experience

Awards and Achievements

2021 🔖 **Selected among top six presenters**, Opta Pro Fourm, 2021, one of the biggest soccer analytics conferences attended by professionals from over 80 clubs and federations worldwide.

🔖 **Joint Statistical Meetings paper award**, *Section on Bayesian Statistical Science* of American Statistical Association.

2020 🔖 **Joint Statistical Meetings paper award**, *Section on Survey Research and Methods* of American Statistical Association.

2018 🔖 **Top five finalist**, US Soccer Hackathon 2018, Chicago, USA, July 14-15, 2018.

2012 🔖 **INSPIRE scholarship**, Department of Science and Techonology, Govt. of India.

Miscellaneous Experience (continued)

2011	🔖	**Top 5%**, UNESCO Science Olympiad.
2011, 2012	🔖	**Awardee**, Regional Math Olympiad, India.

Conferences

2023	🔖	**JSM 2023**. Organized the session "Recent developments in methods for digital Brain Health data".
2022	🔖	**24th Anuual NIMH IRP Scientific Training Day**. Presented the poster *Influences of mood, energy and sleep on incident headache assessed with prospective real time electronic assessments*.
2021	🔖	**ICAMPAM 2021**. Presented the talk *Using Mobile Technologies to Investigate Impaired Sleep, Mood, and Energy as Real-Time Triggers of Migraine*.
	🔖	**MASS 2021**. Presented the talk *Modelling of mixed type intensive longitudinal data via Semiparametric Gaussian Copula and its application to real-time mobile monitoring of daily health behaviors*.

Teaching

2017-2022	🔖	Worked as a teaching assistant for nine graduate and undergraduate-level statistics courses.
2015-2017	🔖	Instructor at Ramanujan School of Mathematics for two years, giving lessons on advanced high school mathematics.

Reviewer

2021–	🔖	Journal of Computational and Graphical Statistics, Annals of Applied Statistics, Econometrics and Statistics, Mental Health and Physical Activity, TEST.

Skills

Languages	🔖	Strong reading, writing and speaking competencies for English, Bengali, Hindi.
Coding	🔖	R, Python, HTML, LaTeX

References

Dr. Vadim Zipunnikov, *PhD advisor*
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Dr. Abhirup Datta, *PhD advisor*
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Dr. Kathleen Merikangas, *Postdoc advisor*
Chief of the Genetic Epidemiology Research Branch
National Institute of Mental Health,
NIH
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Dr. Sudipto Banerjee, *Collaborator*
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