

# Tianwen Ma



Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University  
1518 Clifton Road, GCR Building Room 362, Atlanta, GA 30329 USA, Office: (404)727-0710,  
Email: [ma3tian1wen2@emory.edu](mailto:ma3tian1wen2@emory.edu), [LinkedIn](#) (Scan QR code)

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## EDUCATION

- 2022 **University of Michigan School of Public Health**, Ann Arbor, MI  
Ph.D. in Biostatistics  
Dissertation: [Novel Statistical Methods for EEG-Based Brain Computer Interfaces](#)  
Advisor: Professor [Jian Kang](#) (Chair)
- 2018 **University of Michigan School of Public Health**, Ann Arbor, MI  
M.S. in Biostatistics
- 2015 **University of Michigan**, Ann Arbor, MI  
B.S. in Honors Statistics with High Distinction  
Thesis: [A Functional Data Analysis Approach to Looking at Handwriting Data](#)  
Advisor: Professor [Edward Rothman](#)
- 2015 **Sichuan University**, Chengdu, China  
B.S. in Statistics (Dual degree)

## RESEARCH POSITIONS

- Sep 2022 – Present **Research Assistant Professor**  
*Emory University, Rollins School of Public Health*  
Develop novel statistical methods with applications to brain-computer interface and clinical trials for brain health.  
Provide statistical support for physicians at Emory Brain Health Center  
Teach statistical courses for graduate students.
- Jan 2017 – Aug 2022 **Graduate Student Research Assistant**  
*University of Michigan School of Medicine, Department of Radiology*  
Supervisors: Dr. [Timothy D. Johnson](#) and Dr. [Bin Nan](#)  
Provided semi-independent statistical consulting services to more than 20 radiology faculty members and submitted more than 40 abstracts and manuscripts to radiology journals and RSNA annual conferences.
- Jan 2016 – April 2016 **Undergraduate Student Research Consultant**  
*University of Michigan Consulting for Statistics, Computing & Analytics Research (CSCAR)*  
Supervisor: Dr. Edward Rothman  
Built classification tree and logistic regression models to find significant risk factors for coronary artery disease adjusting for troponin level.

April 2015 – Dec 2015 **Undergraduate Student Researcher**

*University of Michigan, Department of Statistics*

Supervisor: Dr. Edward Rothman

Completed an honor thesis on handwriting data recognition with newly collected data (with IRB approval) by fitting functional data curve objects and applying principal differential analysis to create individual writing templates.

**PUBLICATIONS**

1. Bamidele, O., Lee, E., Edith, S., Chaitanya Madamanchi, C., Sowmya, B., **Ma, T.**, Apart, J., Lu, J.C., Adam, D., and Agarwal, P., (2023, January). Effects of Mitral Valve Prolapse on Quantification of Mitral Regurgitation and Ejection Fraction using Cardiac MRI. *Radiology: Cardiothoracic Imaging*. <https://doi.org/10.1148/ryct.220069>
2. Sella, E., Joshi, A., Balasubramanian, S., Senthilkumar, D., **Ma, T.**, and Agarwal, P., (2022). Is there gender bias in radiology job postings? *Current Problems in Diagnostic Radiology*. <https://doi.org/10.1067/j.cpradiol.2022.11.002>
3. Turk, S., Wang, N. C., Kitis, O., Mohammed, S., **Ma, T.**, Lobo, R., Kim, J., Camelo-Piragua, S., Johnson T.D., Kim, M.M., Junck, L., and Bapuraj, J. R., (2022). Comparative study of radiologists vs machine learning in differentiating biopsy-proven pseudoprogression and true progression in diffuse gliomas. *Neuroscience Informatics*, 2(3), 100088. <https://doi.org/10.1016/j.neuri.2022.100088>
4. **Ma, T.**, Li, Y., Huggins, J.E., Zhu, J., and Kang, J., (2022). Bayesian inferences on neural activity in EEG-Based Brain-Computer Interface. *Journal of the American Statistical Association (JASA)*. <https://doi.org/10.1080/01621459.2022.2041422>
5. **Ma, T.**, Huggins, J.E., and Kang, J., (2021, December). Adaptive sequence-based stimulus selection in an ERP-based Brain-Computer Interface by Thompson sampling in a multi-armed bandit problem. *In 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 3648-3655)*. IEEE. <https://doi.org/10.1109/BIBM52615.2021.9669724>
6. Chong, S., Hanna, T., Lamoureux, C., **Ma, T.**, Weber, S., Johnson, J.O., Friedberg, E., Pyatt Jr, R.S., Everett, C.J. and Johnson, T.D., (2021). Interpretations of examinations outside of radiologists' fellowship training: assessment of discrepancy rates among 5.9 million examinations from a national teleradiology databank. *American Journal of Roentgenology*. <https://www.ajronline.org/doi/abs/10.2214/AJR.21.26656>.
7. Ellis, C.N., Neville, S.J., Sayyuh, M., Elder, J.T., Nair, R.P., Gudjonsson, J.E., **Ma, T.**, Kazerooni, E.A., Rubenfire, M. and Agarwal, P.P., (2021). Epicardial adipose tissue volume is greater in men with severe psoriasis implying increased cardiovascular disease risk: A cross-sectional study. *Journal of the American Academy of Dermatology*. <https://doi.org/10.1016/j.jaad.2021.09.069>
8. Pujara, A.C., Joe, A.I., Patterson, S.K., Neal, C.H., Noroozian, M., **Ma, T.**, Chan, H.P., Helvie, M.A. and Maturen, K.E., (2020). Digital breast tomosynthesis slab thickness: impact on reader performance and interpretation time. *Radiology*, 297(3), pp.534-542. <https://doi.org/10.1148/radiol.2020192805>

9. Bapuraj, J.R., Bruzek, A.K., Tarpeh, J.K., Pelissier, L., Garton, H.J., Anderson, R.C., Nan, B., **Ma, T.** and Maher, C.O., (2019). Morphometric changes at the craniocervical junction during childhood. *Journal of Neurosurgery: Pediatrics*, 24(3), pp.227-235. <https://doi.org/10.3171/2019.4.PEDS1968>
10. Türk, S., Kim, J., Lobo, R., Bapuraj, J., **Ma, T.**, Johnson, T.D., Piragua, S.C., Junck, L.R. and Srinivasan, A., (2019). Differentiation of biopsy-proven true and pseudo-progression by conventional and functional MRI sequences. *European Congress of Radiology-ECR 2019*.  
<https://dx.doi.org/10.26044/ecr2019/C-0958>
11. Viglianti, B.L., Wale, D.J., **Ma, T.**, Johnson, T.D., Bohnen, N.I., Wong, K.K., Ky, C., Frey, K.A., Townsend, D.M., Rubello, D. and Gross, M.D., (2019). Effects of plasma glucose levels on regional cerebral 18F-fluorodeoxyglucose uptake: Implications for dementia evaluation with brain PET imaging. *Biomedicine & Pharmacotherapy*, 112, p.108628.  
<https://doi.org/10.1016/j.biopha.2019.108628>
12. Woolen, S.A., Kazerooni, E.A., Steenburg, S.D., Nan, B., **Ma, T.**, Wall, A., Linna, N.B., Gayed, M.J., Kushdilian, M.V., Parent, K. and Cahalan, S., (2018). Optimizing electronic release of imaging results through an online patient portal. *Radiology*, 290(1), pp.136-143.  
<https://doi.org/10.1148/radiol.2018180883>
13. Bailey, L.H., Jeffries, D.O., Bailey, J.J., Pinsky, R.W., Bailey, J.E., Nan, B., **Ma, T.** and Klein, K.A., (2018). Breast care problems on call: training residents to manage effectively. *Emergency Radiology*, 25(4), pp.375-380. <https://doi.org/10.1007/s10140-018-1593-z>

#### MANUSCRIPTS UNDER REVISION

14. Zhou, S., Hanna, T., **Ma, T.**, Johnson, T.D., Lamoureux, C., Johnson, J.O., Steenburg, S.D., Dunkle, J.W., and Chong, S., Daytime, Evening, and Overnight Shifts: The 24-hour Radiology Cycle and Impact on Interpretative Accuracy. *Emergency Radiology (Under revision)*
15. Huggins, J.E., **Ma, T.**, Zhao, B., Ma, G., Aref, A.W., and Kang, J., Computational Neuroscience Opportunities and Challenges in Event-Related Potential Brain-Computer interfaces. *Frontiers in Neuroscience (Under revision)*
16. Chen, S., **Ma, T.**, and Zhang, L., Bayesian dose-response modeling and external data borrowing. *Statistics in Biosciences (SIBS) (Revision Submitted)*

#### MANUSCRIPTS SUBMITTED

17. Noroozian, M., Savage, J.L.B., Pujara, A.C., Sakala, M.D., **Ma, T.** and Helvie, M.A. Comparing frequency and PPV3 of biopsies recommended after image assessment of asymptomatic and symptomatic women in contemporary breast imaging practice. *Radiology Society of North America (RSNA)*.
18. Roseland, M.E., **Ma, T.**, Curci, N.E., Shampain, K.L., Stein, E.B., Wasnik, A.P., Sciallis, A.P., Uppal, S., Johnson, T.D. and Maturen, K.E., Neoadjuvant chemotherapy for high grade serious ovarian cancer: radiologic-pathologic correlation of response assessment and predictors of progression. *Radiology*.

**PRESENTATION****INVITED**

1. Adaptive sequence-based stimulus selection in ERP-based Brain-Computer Interface, [Translational Neuroengineering \(TNE\)](#) Journal Club, University of Michigan, Ann Arbor, June 2022 (Hybrid).
2. Bayesian inferences in EEG-based Brain-Computer Interface via the split-and-merge Gaussian process, Statistical Lecture Series No. 191, Remin University of China, Beijing, May 2022 (Online).
3. Bayesian inferences in EEG-based Brain-Computer Interface via the split-and-merge Gaussian process, *Senior PhD Student Research Showcase Symposium*, University of Michigan, Ann Arbor, April 2022.
4. Bayesian inferences in EEG-based Brain-Computer Interface via the split-and-merge Gaussian process, Emory University, Decatur, March 2022.
5. Adaptive sequence-based stimulus selection in ERP-based Brain-computer Interface by Thompson Sampling in a multi-armed bandit problem, *the IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2021 Workshop*, December 2021 (Virtual)
6. Bayesian inferences in EEG-based Brain-Computer Interface via the split-and-merge Gaussian process, [Stanford CogT Lab](#), September 2021 (Virtual).

**CONTRIBUTED**

7. Bayesian Signal Matching Training Framework for Data Integration in ERP-Based Brain-Computer Interface, *Center for Biomedical Imaging Statistics (CBIS)*, Emory University, Atlanta, GA, March 24, 2023.
8. Bayesian Signal Matching Training Framework for Data Integration in ERP-Based Brain-Computer Interface, *Eastern North American Region (ENAR) Spring Meeting*, Nashville, TN, March 20, 2023.
9. Adaptive sequence-based stimulus selection in ERP-based Brain-computer Interface by Thompson Sampling in a multi-armed bandit problem, *Neuroscience Society (SfN)*, November 2021 (Virtual)
10. Bayesian inferences on neural activity in EEG-based Brain-Computer Interface, *Eastern North American Region (ENAR) Spring Meeting*, March 2021 (Virtual).
11. Bayesian inferences on neural activity in EEG-based Brain-Computer Interface, *Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS)*, February 2021 (Virtual).
12. Proposal of Bayesian inferences on neural activity in EEG-based Brain-Computer Interface, *Michigan Shark Tank Competition*, University of Michigan, Ann Arbor, MI, Feb 2020 (Hybrid).

**REVIEW EXPERIENCE**

2022	Statistics in Biosciences (SIBS)
2022	Journal of American Statistical Association (JASA)
2022	Statistics in Medicine
2021	Journal of Trauma Nursing

## TEACHING EXPERIENCE

- Sep 2015 – Dec 2015    **Undergraduate Student Instructor for Statistics 408 and Math 217**  
*University of Michigan, Department of Statistics*
- Held discussion sessions on introductory statistical consulting for over 100 undergraduate students
  - Answered questions during office hours, graded homework assignments, and mid-term exams

## INDUSTRIAL EXPERIENCE

- Jun 2020 – Aug 2020    **Experimental Intern (Remote)**  
*AbbVie Inc., Statistics, Data, and Statistical Science Department*
- Reviewed existing methods on Bayesian historical borrowing and dose-response clinical trials
  - Conducted simulation studies on Bayesian historical borrowing with applications to dose-response clinical trials under varying prior assumptions and model options
  - Delivered a final presentation to DSS colleagues and submitted the manuscript to *Statistics in Biosciences (SIBS)* *under review*

## HONORS AND AWARDS

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|------|--|
| 2021 | Departmental Excellence in Research Honorable Mention  |
| 2021 | Best Poster of Michigan Student Symposium for Interdisciplinary Statistical Science ( <a href="#">MSSISS</a> ) (100 USD) |
| 2020 | Best Shark Tank Research Proposal Award (1000 USD)   |
| 2019 | <a href="#">American Society of Emergency Radiology</a> (ASER) Grant (6000 USD).   |
| 2016 | Dean's Scholarship (21000 USD)   |
| 2014 | Mathematical Contest in Modeling (MCM) Honorable Mentions  |
| 2013 | The Second Prize Scholarship (3000 CNY)  |
| 2012 | Kebo Scholarship (1500 CNY)  |

## PROGRAMMING LANGUAGES

- R (ggplot2), Python (TensorFlow, Scikit-learn), MATLAB, LaTeX, and SAS

## SPOKEN LANGUAGES

- Native: Chinese | Fluent: English | Conversational: Spanish and Japanese