CURRICULUM VITAE
Jing Ma, PhD
August 2019

1. Personal Data

Place of Birth:	Henan, China
Work Address:	Fred Hutchinson Cancer Research Center
	Division of Public Health Sciences
	1100 Fairview Ave. N,
	PO Box 19024 - M2-B500
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2. Education

- Fudan University, Shanghai, China, B.S., Mathematics, 2010
    - with University Distinction (Highest)
- University of Michigan, Ann Arbor, MI, Ph.D., Statistics, 2015
    - Advisor: George Michailidis

3. Academic Positions

- Postdoctoral Fellow, Depts of Biostatistics and Statistics, University of Pennsylvania, 08/15-07/17
- Assistant Member, Public Health Sciences Division, Fred Hutchinson Cancer Research Center, 08/17-
    - Affiliate Assistant Professor, Department of Biostatistics, University of Washington, 01/19-
- Assistant Professor, Department of Statistics, Texas A&M University, 09/19-

4. Honors, Awards, Scholarships

A. National Awards

- National Merit Scholarship from Ministry of Education of China, 2008
- Travel Award, National Science Foundation, 2015
- Travel Award, BD2K Data Science Innovation Lab, 2018
- Travel Award, The Jayne Koskinas Ted Giovanis Foundation for Health and Policy, 2018

B. Department/University Awards

- College Graduate Excellence Award of Shanghai, 2010
- Outstanding First Year Ph.D. Student Award, 2011
- Rackham International Students Fellowship, 2011-2012
- Outstanding Graduate Student Instructor Award, 2012-2013
- Rackham School of Graduate Studies Conference Travel Grant, 2012-2015

5. Professional Activities

A. Session Chair

- *Methods for Variable and Model Selection -- Contributed Papers*, Joint Statistical Meetings, San Diego, CA. (08/12)
- *Efficient Methods for Structured Large Genomics Data -- Contributed Papers*, Joint Statistical Meetings, Chicago, IL. (08/16)
- *Understanding the Microbiome Complexity: Genetics and Networks -- Invited Papers*, ICSA Applied Statistics Symposium, Chicago, IL. (06/17)

B. Referee Service

Referee for Bioinformatics, Biometrika, Biometrics, Biostatistics, Electronic Journal of Statistics, Frontiers in Genetics, Journal of the American Statistical Association, Journal of Multivariate Analysis, Molecular & Cellular Proteomics, Scientific Reports (Nature), Statistics in Biosciences

C. Conference Review

- 2016 International Conference on Information Systems
- 2016 Conference on Neural Information Processing Systems
- Judge for 2018 ASA Section on Genomics and Genetics Student Paper Competition
- 2018 Conference on Neural Information Processing Systems
- Judge for 2019 ASA Section on Genomics and Genetics Student Paper Competition

D. Professional Memberships

- American Statistical Association, 2010-present
- International Chinese Statistical Association, 2014-present
- Eastern North American Region International Biometric Society, 2016-present

6. Bibliography

(*indicates alphabetical ordering authorship)

A. Publications in Peer-Refereed Journals

1. **Ma J**, and Michailidis G. Joint structural estimation of multiple graphical models. *Journal of Machine Learning Research* 17:1--48, 2016.

2. **Ma J**, Shojaie A and Michailidis G. Network-based pathway enrichment analysis with incomplete network information. *Bioinformatics* 32(20):3165--3174, 2016.

3. von Rundstedt F, Kimal R, **Ma J**, …, Sreekumar A and Putluri N. Integrated pathway analysis of a metabolic signature in bladder cancer - a linkage to The Cancer Genome Atlas project and prediction of survival. *Journal of Urology* 195(6):1911--1919, 2016.

4. *Cai TT, **Ma J** and Zhang L. CHIME: clustering of high-dimensional Gaussian mixtures with EM algorithm and its optimality. *Annals of Statistics* 47(3):1234--1267, 2019.

   – L. Zhang was a recipient of ASA Biopharmaceutical Section Student Paper Award at the 2017 ICSA Applied Statistics Symposium.

5. *Cai TT, Li H, **Ma J**, and Xia Y. Differential Markov random field analysis with applications to detecting differential microbial community networks. *Biometrika* 106(2):401--416, 2019.

6. **Ma J**, Karnovsky A, Afshinnia F, Wigginton J, Feldman H, Rader D, Shama K, Porter A, Rahman M, He J, Hamm L, Shafi T, Pennathur S, Michailidis G. Differential network-based enrichment analysis of lipid pathways altered in Chronic Kidney Disease progression. *Bioinformatics*, in press, 2019.

7. Vantaku V, Putluri V, Bader D, Maity S, **Ma J**, …, Sreekumar A and Putluri N. Epigenetic loss of AOX1 expression via EZH2 leads to metabolic deregulation in bladder cancer. *Oncogene*, in press, 2019.

B. Book Chapters

1. Li H and **Ma J**. Graphical models in genetics, genomics and metagenomics. In *Handbook of Graphical Models*. Editors: Mathias Drton, Steffen Lauritzen, Marloes Maathuis, Martin Wainwright. Chapman & Hall / CRC, 2018.

C. Other Refereed Scholarly Publications

1. **Ma J.** Estimation and inference in high-dimensional Gaussian graphical models with structural constraints**.** University of Michigan, 2015. [PhD Thesis]

D. Manuscripts Submitted

1. **Ma J**. Mixed graphical models for joint analysis of microbiome and metabolomic data. *Revision invited for Statistics in Biosciences*. July 2019

2. **Ma J**, Shojaie A and Michailidis G. A comparative study of topology-based pathway enrichment analysis methods. *Revision submitted to BMC Bioinformatics*. July 2019

3. Wang Y, Randolph T, Shojaie A and **Ma J**. The GMD-biplot and its application to the microbiome data. *Revision submitted to mSystems*. August 2019

E. Work in Progress

1. Wang Y, Shojaie A, Randolph T and **Ma J**. Generalized matrix decomposition regression. *In preparation for Journal of American Statistical Association*.

7. Research Funding

A. Current

2018-2021	NIH R01 Award; 5 R01 ES025796 Title: The Impact of Prenatal Exposure to Persistent Organic Pollutants on Kinetics of Immune Response to Vaccines and Seroprotection in Infants FTE: 10% Role: Co-Investigator (PI: P. Bhatti)
2018-2022	NIH R01 Award; 1 R01 GM129512 Title: Joint Analysis of Microbiome and Other Genomic Data Types FTE: 15% Role: Co-Investigator (PI: M. C. Wu)
2018-2023	NIH U19 Award; 1 U19 AG057377

Title: The Dog Aging Project: The Genetic and Environmental Determinants of Healthy Aging in Companion Dogs
FTE: 15%
Role: Co-Investigator (PI: D. Promislow; Sub: S. Schwartz)

B. Pending

2019-2024   NIH R01 Award;
Title: Early Life Development of the Gut Microbiome and Its Impact on Health Outcomes Related to Immunity
FTE: 10%
Role: Co-Investigator (PI: J. Kublin)

2020-2024   NIH R01 Award;
Title: Novel Statistical Inference for Biomedical Big Data
FTE: 15%
Role: Co-Investigator (PI: A. Shojaie; Sub-award PI)

C. Completed

2017-2018   NIH R21 Award; 1 R21 AI129712
Title: DMPA Use and Vaginal Bacterial Diversity among African Women
FTE: 4%
Role: Co-Investigator (PI: A. Roxby; Sub: D. Fredricks)

8. Oral Presentations

A. Invited Oral Presentations at Conferences and Symposia

1. ICSA/KISS Joint Applied Statistics Symposium, Portland, OR; *Pathway enrichment analysis with incomplete network information*. (06/14)
2. ICSA Applied Statistics Symposium, Atlanta, GA; *A zero-inflated Poisson model for abundance quantification from shotgun metagenomic data*. (06/16)
3. ICSA Applied Statistics Symposium, Chicago, IL; *A testing framework for detecting differential microbial communities*. (06/17)
4. Fred Hutch Microbiome Symposium, Seattle, WA; *Inferring differential microbial interactions from co-occurrence data using Markov networks*. (03/18)
5. Data Science Innovation Lab: Mathematical Challenges of Single Cell Dynamics, Bend, OR; *Understanding therapeutic failures through 4D single-cell analysis of metabolic heterogeneity*. (06/18)
6. 12th International Vilnius Conference on Probability Theory and Mathematical Statistics / 2018 IMS Annual Meeting on Probability and Statistics, Vilnius, Lithuania; *Mixed graphical models for joint analysis of microbiome and metabolomic data*. (07/18)
7. Joint Statistical Meetings, Vancouver, Canada; *id*. (07/18)
8. CMStatistics Conference, Pisa, Italy; *Sparse clustering of Gaussian mixtures*. (12/18)
9. The Role of Genomics and Metagenomics in Human Health: Recent Developments in Statistical and Computational Methods, Banff, Canada; *Variance components estimation in linear mixed models*. (02/19)
10. ICSA China Conference, Tianjin, China; *A framework for multi-view analysis of microbiome data*. (07/19)

11. CMStatistics Conference, London, UK. (12/19)

B. Invited Seminars and Colloquia

12. Department of Mathematics and Statistics, Lancaster University, Lancaster, UK; *Differential network biology*. (10/16)

13. Student Lunch Seminar, Department of Statistics, University of Pennsylvania; *Statistical methods for microbiome data*. (10/16)

14. Department of Statistics, University of Warwick, Coventry, UK; *Differential network biology: testing differences in microbial networks*. (01/17)

15. Li Lab, Department of Biostatistics, University of Pennsylvania; *id.* (02/17)

16. Biostatistics Program, Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA; *id.* (02/17)

17. Department of Biostatistics, University of Washington, Seattle, WA; *id.* (01/18)

18. Department of Statistics, University of Florida, Gainesville, FL; *id.* (01/18)

19. Biostatistics/ATME Joint Seminar, Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA; *Network-based enrichment analysis*. (01/18)

20. SLAB Lab Seminar, Department of Biostatistics, University of Washington, Seattle, WA; *Statistical machine learning methods in genetics and genomics*. (02/18)

21. Postdoc Meeting, Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA; *Statistical methods for microbiome data*. (02/18)

22. Translational Research Program Faculty Meeting, Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA; *Differential network biology*. (02/18)

23. Department of Statistics, Texas A&M University, College Station, TX; *Differential network biology: testing differences in microbial networks*. (11/18)

24. Department of Statistics, University of Michigan, Ann Arbor, MI. (09/19)

9. Teaching

A. Instructor at Texas A&M University

1. Instructor, Statistics for Biology. Fall 2019

B. Instructor at University of Michigan

- Lab Instructor, Introduction to Statistics and Data Analysis. Fall 2010 & Winter 2011
- Applied Qualifying Exam. Summer 2012, 2013 & 2014
- Review of Linear Algebra. Summer 2013 & 2014

C. Graduate Student Instructor at University of Michigan

- English Language Institute. Summer 2011
- Applied Statistics and Data Analysis. Fall 2011 & 2012
  - *GSI Excellence in Teaching Award*
- Introduction to Probability and Statistics. Fall 2011 & Winter 2012
- Multivariate and Categorical Data Analysis. Winter 2012

10. Publicly Available Software

- **netgsa:** R package for network-based pathway enrichment analysis.
  - Stable release: https://cran.r-project.org/web/packages/netgsa/index.html
  - Development version: https://github.com/drjingma/netgsa

- **TestBMN:** R package for testing high-dimensional binary Markov networks.
  - Development version: https://github.com/drjingma/TestBMN
- **CHIME:** Matlab code for sparse clustering of Gaussian mixtures with the EM algorithm.
  - Development version: https://github.com/drjingma/gmm
- **metaMINT:** R code for joint analysis of microbe and metabolic networks.
  - Development version: https://github.com/drjingma/metaMINT

11. **Mentorship Record**

A. **Postdoctoral Fellows**
- Yue Wang, PhD in Biostatistics, UNC Chapel Hill (joint with A. Shojaie), 2018-

B. **Graduate Students**

C. **Student Collaborators**
- Kun Yue, UW Biostatistics PhD student (joint with A. Shojaie), 2017-
- Nanxun Ma, UW Biostatistics PhD student, working with M. Wu, 2017-2018
- Michael Hellstern, UW Statistics MS student, working with A. Shojaie, 2018-

D. **MS and PhD Committees in Non-Chair Role**
- Arjun Sondhi, UW Biostatistics PhD student (advisor: A. Shojaie), 2018-2019

12. **Service**

A. **University of Michigan**
- Coordinator of Reading Group on Statistical Modeling and Analysis of Networks, Department of Statistics, University of Michigan. (09/11- 03/12)
- Co-Chair, Graduate Student Statistical Topics Seminar Series, Department of Statistics, University of Michigan. (09/11-04/13)
- Student committee member of the Seventh Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS). (09/12-04/13)

B. **Fred Hutch Cancer Research Center**
- Chair, Fred Hutch Microbiome Symposium. (03/18)
- Faculty host for University of Washington prospective student visit. (03/18)
- Chair, Biostatistics Seminar Series, Fred Hutch Cancer Research Center. (01/19-08/19)