

PROMOTION RECOMMENDATION  
The University of Michigan  
School of Public Health

Hui Jiang, associate professor of biostatistics, with tenure, School of Public Health, is recommended for promotion to professor of biostatistics, with tenure, School of Public Health.

Academic Degrees:

Ph.D.	2009	Stanford University, Stanford, CA
M.S.	2004	Peking University, Beijing, China
B.S.	2001	Peking University, Beijing, China

Professional Record:

2018 - Present	Associate Professor, Department of Biostatistics, School of Public Health, University of Michigan, Ann Arbor, MI
2011 - 2018	Assistant Professor, Department of Biostatistics, School of Public Health, University of Michigan, Ann Arbor, MI
2010 - 2010	Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, United Kingdom
2009 - 2011	Post-doctoral Scholar, Department of Statistics, Stanford University, Stanford, CA
2009 - 2011	Post-doctoral Scholar, Stanford Genome Technology Center, Stanford University, Stanford, CA

Summary of Evaluation:

Teaching: Professor Jiang's record of teaching is excellent with the Q1 and Q2 ratings consistently above 4.6 out of 5 in recent years. He taught three courses (BIOSTAT 600, 625, 810) in Fall 2021. His evaluation ratings were excellent, with median scores for Q1631 of 4.7, 4.2, and 4.7 and median scores of 4.7, 4.8, 4.9 for Q199 on a 5-point scale. He teaches students to develop quantitative and statistical skills with a strong mathematical foundation. Professor Jiang was instrumental in developing the health data science concentration in the Department of Biostatistics which will become a standalone master's program in 2023. His work at the interface of statistics and data science is important for training biostatisticians, and the class BIOSTAT 625: Computing with Big Data addresses this area and has been well received with growing enrollment.

Since 2018, Professor Jiang has advised or co-advised three Ph.D. students, is currently advising two Ph.D. students, has served on 12 Ph.D. thesis committees, and has advised or co-advised three postdoctoral scholars.

Research: Professor Jiang is a leading researcher in the field of statistical genomics, bioinformatics and computational statistics. He develops and makes available to the research community statistical and computational methods for the analysis of large-scale biological datasets generated by modern high-throughput technologies. He also works on developing efficient algorithms and methods that deal with computational problems arising from statistical

genomics, including algorithms for resampling-based hypothesis testing, penalized modeling and optimization algorithms for model fitting, as well as computational methods for density estimation and machine learning. Professor Jiang applies his methods to real-world applications in biological and translational research through study design and data analysis and has extensive collaborations with researchers at the University of Michigan. Professor Jiang has had a significant impact on the field of statistical genomics and bioinformatics. Beyond his research, he has released nine software packages to the scientific community that allow implementation of his statistical methodologies.

Professor Jiang has 89 peer-reviewed publications including many in highly ranked scientific journals including the *Journal of the American Statistical Association*, *Biometrics*, *Journal of Computational and Graphical Statistics*, and *Bioinformatics*. Forty of these have been published since 2018. He is the senior author on nine of these, and as of September 2022, his publications have been cited over 6,600 times with an h-index of 37 and an i10-index of 67. Professor Jiang is the principal investigator (PI) on three internal University of Michigan grants and co-PI of the Data Analysis Core for a Taubman Institute Innovation Project. He is a co-investigator on four grants and biostatistician on one grant with funding from the National Institutes of Health (NIH). He was previously a co-investigator on 10 grants with NIH funding including an R01 grant on using microfluidic single cell culture to characterize cancer cell asymmetric division.

#### Recent and Significant Publications:

- Segal, B.D., Elliott, M.R., Braun, T.M., Jiang, H. (2018). P-splines with an l1 penalty for repeated measures. *Electronic Journal of Statistics*. 12 (2): 3554-3600. PMID: not applicable.
- Liu, T.-Y., Jiang, H. (2019). Minimizing sum of truncated convex functions and its applications. *Journal of Computational and Graphical Statistics*. 28(1): 1-10. PMID: not applicable.
- Shi, Y., Wang, M., Shi, W., Lee, J.H., Kang, H., Jiang, H. (2019). Accurate and efficient estimation of small P-values with the cross-entropy method: applications in genomic data analysis. *Bioinformatics*. Jul 15;35(14):2441-2448. doi: 10.1093/bioinformatics/bty1005. PMID: 30521030; PMID: PMC6612894.
- Liu, K., Ye, J., Yang, Y., Shen, L., Jiang, H. (2019). A Unified Model for Joint Normalization and Differential Gene Expression Detection in RNA-Seq Data. *IEEE/ACM Trans Comput Biol Bioinform*. Mar-Apr;16(2):442-454. doi: 10.1109/TCBB.2018.2790918. Epub 2018 Jan 8. PMID: 29993952; PMID: PMC6686202.
- Tran, L., He, K., Wang, D., Jiang, H. (2022). A cross-validation statistical framework for asymmetric data integration. *Biometrics*. May 7:10.1111/biom.13685. doi: 10.1111/biom.13685. Epub ahead of print. PMID: 35524490; PMID: PMC9637892.

Service: Professor Jiang's record of professional service is very strong, both at the University of Michigan and within the broader field. He has taken on leadership and other important roles within the Department of Biostatistics including leading the Center for Statistical Genetics weekly meetings, taking part in the Big Data Seminar Series, co-chairing the seminar committee, and membership on both the curriculum and recruitment committees. Outside the University of Michigan, Professor Jiang has frequently been a reviewer for leading statistical, mathematical, engineering and biomedical journals, and organized and chaired sessions at multiple professional conferences. He is currently an associate editor of *Brazilian Journal of Biometrics*, *Statistica*

*Sinica*, and *Mathematical Biosciences and Engineering* and is on the editorial board of *Genes*. He was also a guest editor for a *Genes* special issue. He has served as a grant reviewer for NIH multiple times.

External Reviewers:

Reviewer A: “One of the...characteristics that sets Dr. Jiang apart is his commitment to developing software implementations of his statistical methodology. This often under-appreciated component of statistical method development is critical for widespread impact of statistical work. Dr. Jiang has developed a number of packages both for RNA-sequencing methodology as well as for his more fundamental statistical work on resampling... Dr. Jiang is an exceptionally strong computational scientist at the intersection of Biostatistics and Computational Biology. His work is highly regarded and he has a strong track record of funding. I have no doubt that he would be promoted to Full Professor at the [my institution], where I work, and it is my strong recommendation that you promote him and support him in his work.”

Reviewer B: “Hui has made fundamental contributions to statistical genomics and bioinformatics. He has made several seminal contributions in statistical modeling of RNA-seq data as evidenced by high citations of his early works, e.g., Jiang and Wong (2009), Au et al. (2010), and Salzman et al. (2011). The packages Hui developed have been widely used and cited in the community. Hui has continuously contributed to this area... Hui is a successful [junior] biostatistician with excellent research, service and teaching records and an extremely valuable faculty member in your school. Given his accomplishments and hard work, I am confident he would also be promoted to Full Professor in other highly ranked statistics/biostatistics departments of the United States.”

Reviewer C: “Dr. Jiang has developed an impressive and active methods research program at the forefront of computational biology and statistical genomics, while maintaining a productive and interdisciplinary biomedical collaborative research... Dr. Jiang’s publication record is so strong that I do not really need to elaborate: he has more than 90 peer reviewed publications with about a half on methods research and the other half on biomedical applications; it is not only about the quantity, but also high quality... In summary, I commend Dr. Jiang’s impressive achievements in research, teaching and services. I have no doubt that Dr. Jiang would easily get promoted to full professor (with tenure) at my university, and believe so at other top research universities too. I most enthusiastically support his promotion to Full Professor of Biostatistics with tenure.”

Reviewer D: “Dr. Jiang’s research is broad and impactful. His main methodology research focused on statistical genomics, in particular, RNA sequencing data analysis. Additionally, Dr. Jiang is interested in solving challenging computational statistics problems and he is also devoted to high-quality collaborative research. Among many of his publications, I really enjoyed his 2018 EJS paper and 2019 JCGS paper. Both papers introduced innovative and efficient statistical methods to conduct rigorous inference on statistical models using sparsity-inducing penalties, overcoming difficulties in model fitting due to their non-differentiability and sometimes nonconvexity... I believe these innovative and important works will received sustained attention and recognition in both biostatistics and bioinformatics fields... Given

Dr. Jiang's productivity and scholarly achievement, I would place him in the top 10 % among all researchers in his peer group working in the same area. He would have no problem to be promoted to the rank of Full Professor at [my institution]."

Reviewer E: "I have noticed several of Dr. Jiang's papers since around 2009. He is famous for several important publications in statistical modeling of RNA-seq data, including isoform-specific quantification and developing models to fit real RNA-seq data. Later, he also developed methods for sparsity-inducing penalties for DE gene detection and some related computational works... In summary, Dr. Jiang has demonstrated as a leader and excellent researcher in bioinformatics and statistical genomics. Some of his research works are widely cited and he has led to begin a master program. I believe he will be awarded the promotion to full professor in other top universities, including [my institution]."

Reviewer F: "Dr. Jiang has had a remarkable career. His research is of high quality and has made great impact in statistical practice in genomics and computational biology. He remained very productive since his promotion to Associate Professor in 2018, publishing a number of important methodology papers and many collaborative papers, despite the challenge posed by the Covid19 pandemic. His publications include both general statistical methodology and those specific to statistical genomics. He has built a national and international reputation as one of the leaders in statistical genomics and computational statistics, as evidenced by the long list of invited talks and seminars on national and international platforms, his service as Associate Editor for international journals, and his role in NIH grant review panels... Dr. Jiang is among the top scholars in his peer group. I would expect Dr. Jiang's promotion to Full Professor to go smoothly in the best Biostatistics departments, and his work definitely meets (and exceeds) the requirement for promotion in my institution. In summary, Dr. Jiang has consistently produced high-quality research over the course of his career and I firmly believe that he will continue to make strong and lasting impact in the field of biostatistics and, in particular, statistical genomics. I give you my very strong support for his promotion to professor with tenure."

Summary of Recommendation: Professor Jiang has an excellent record in research as a leading researcher in the field of statistical genomics, bioinformatics, and computational statistics. He has an excellent record in teaching and service. It is with the support of the School of Public Health Executive Committee that I recommend Hui Jiang for promotion to professor of biostatistics, with tenure, School of Public Health.



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F. DuBois Bowman, Ph.D.  
Dean, School of Public Health

May 2023