

EDUCATION

- Ph.D. in Statistics 2014: University of Chicago, Chicago, IL, USA
Dissertation: "Statistical Methods for Genetic Association Analysis in Samples with Related Individuals and Population Structure"
Advisor: Dr. Mary Sara McPeck
- B.S. in Mathematics 2009: Tsinghua University, Beijing, China

EMPLOYMENT

- Sept. 2014 to Present *Assistant Professor*
Departments of Statistics, Oregon State University
- Sept. 2014 to Present *Affiliate Faculty*
Center for Genome Research and Biocomputing,
Oregon State University
- Jun. 2010 to Aug. 2014 *Graduate Student Researcher*
Department of Statistics, The University of Chicago
Advisor: Mary Sara McPeck
- Jan. 2013 to Mar. 2013 *Graduate Student Lecturer*
Department of Statistics, The University of Chicago

PUBLICATIONS

Preprints

- Zhuo B, **Jiang D**. MEACA: efficient gene-set analysis of genome-wide expression data.[\[pdf\]](#)
- Hu C, Shapton T, **Jiang D**. Testing monotonic trends among multiple group means against a composite null.[\[pdf\]](#)
- Tian C, **Jiang D**, Sharpton T, Jiang Y. Microbial network recovery by compositional graphical lasso.[\[pdf\]](#)
- Tian C, **Jiang D**, Jiang Y. Reference-invariance property of inverse covariance matrix estimation under additive log- ratio transformation and its application to microbial.[\[pdf\]](#)

Peer reviewed articles

- Zhuo B, **Jiang D**, Di Y. 2020. Test-statistic correlation and data-row correlation. *Statistics and Probability Letters*. Accepted [\[pdf\]](#)
- Duringer J, Roberts H, Doupovec B, Faas J, Estill C, **Jiang D**, Schatzmayr D. 2020. I. Effects of deoxynivalenol and fumonisins fed in combination on beef cattle: health and performance indices. *World Mycotoxin Journal*. In press [\[pdf\]](#)
- Jiang D**, Sharpton T, Jiang Y. 2020. Microbial interaction network estimation via bias-corrected graphical lasso. *Statistics in Biosciences*. 10.1007/s12561-020-09279-y.[\[pdf\]](#)
- Warman C, Panda K, Vejlupekova Z, Hokin S, Unger-Wallace E, Cole RA, Chettoor AM, **Jiang D**, Vollbrecht E, Evans MMS, Slotkin RK, Fowler JE. 2020. High expression in maize pollen correlates with genetic contributions to pollen fitness as well as with coordinated transcription from neighboring transposable elements. *PLOS Genetics* 16(4): e1008462.[\[pdf\]](#)
- Jiang D**, Armour CR., Hu C, Mei M, Tian C, Sharpton TJ, Jiang Y. 2019. Microbiome multi-omics network analysis: statistical considerations, limitations, and opportunities. *Frontier in Genetics* 10: 995.[\[pdf\]](#)

Zhang Z, **Jiang D**, Wang C, Garzotto M, Kopp R, Wilmot B, Thuillier P, Dang A, Palma A, Farris PE, Shannon J. 2019. Polymorphisms in oxidative stress pathway genes and prostate cancer risk. *Cancer Causes and Control* 30(12): 1365-1375.[\[pdf\]](#)

Gao ST, Ma L, Zhou Z, Zhou ZK, Baumgard LH, **Jiang D**, Bionaz M, Bu DP. 2019. Heat stress negatively affects the transcriptome related to overall metabolism and milk protein synthesis in mammary tissue of midlactating dairy cows. *Physiological Genomics* 51: 400-409.[\[pdf\]](#)

Meroueh L, Yenduru K, Dasgupta A, **Jiang D**, AuYeung N. 2019. Energy storage based on SrCO₃ and Sorbents—A probabilistic analysis towards realizing solar thermochemical power plants. *Renewable energy* 133: 770-786.[\[pdf\]](#)

Karen Bennett, Jay Noller, **Duo Jiang**, David Moore, Chris Ringo. Modeling soil moisture drought potential at regional scales in pacific northwest forests, usa. *Forest Ecology and Management* 424. 10.1016/j.foreco.2018.04.019.[\[pdf\]](#)

Jiang D, Wang M. 2018. Recent developments in statistical methods for gwas and high-throughput sequencing association studies of complex traits. *Biostatistics & Epidemiology* 2: 132-159.[\[pdf\]](#)

Fedewa E, Miller JA, Hurst TP, **Jiang D**. 2017. The potential effects of pre-settlement processes on post-settlement growth and survival of juvenile northern rock sole (*Lepidopsetta polyxystra*). *Estuarine, Coastal and Shelf Science* 189: 46-57.[\[pdf\]](#)

Jiang D, Zhong S, McPeck MS. 2016. Retrospective binary-trait association test elucidates genetic architecture of crohn disease. *The American Journal of Human Genetics* 98:1-13.[\[pdf\]](#)

Zhong S, **Jiang D**, McPeck MS. 2016. CERAMIC: case-control association testing in samples with related individuals based on retrospective mixed model analysis with adjustment for covariates. *PLOS Genetics* 12: e1006329.[\[pdf\]](#)

Jiang D, Mbatchou J, McPeck MS. 2016. Retrospective association analysis of binary traits: Overcoming Some Limitations of the Additive Polygenic Model. *Human Heredity* 80: 187-95.[\[pdf\]](#)

Jiang D, McPeck MS. 2014. Robust rare variant association testing for quantitative traits in samples with related individuals. *Genetic Epidemiology* 38: 10-20.[\[pdf\]](#)

Choi CH, Poroyko V, Watanabe S, **Jiang D**, Lane J, deTineo M, Baroody FM, Naclerio RM, Pinto JM. 2014. Seasonal allergic rhinitis affects sinonasal microbiota. *American Journal of Rhinology and Allergy* 28: 281-286.[\[pdf\]](#)

Li S, Zhang B, **Jiang D**, Wei Y, Zhang N. 2010. Herb network construction and co-module analysis for uncovering the combination rule of traditional Chinese herbal formulae. *BMC Bioinformatics* 11: S6.[\[pdf\]](#)

GRANTS

Current

NIH R01GM126549 (PI: Y. Jiang) 07/01/17 – 06/30/21 \$770,260
“Network-based statistical methods to decode interactions within microbiomes”
D. Jiang’s role: Co-I* (Co-PI in proposal with equal contribution as the lead PI. Awarded as co-I due to the single PI requirement of the funding mechanism) 1.5 months/year
Total direct cost for D. Jiang: \$216,473

NIH R01HD101098 (PIs: McDonald, Udell) 04/01/20 – 03/31/25 \$1,840,545
“The evaluation of a multi-site novel imitation-based animal assisted intervention for children with developmental disabilities and their family dog”

D. Jiang's role: Co-I (1.2 months/year)
Total direct cost for D. Jiang: \$96,254

NIH/NIEHS P01 (PI: Tanguay) 09/16/20 – 05/31/25 \$5,450,266
“Pacific Northwest Center for Translational Environmental Health Research”
D. Jiang's role: *Biostatistician* (estimated 1.25 months/year on average, budget being finalized)
Total direct cost for D. Jiang: estimated \$130,750

National Cancer Institute 1018947 (PI: Zhang, OHSU) 07/24/20-06/23/21 \$10,000
“Socioeconomic status and breast cancer by age group and race/ethnicity (part of the validation study of California Breast Cancer Registry data with synthetic census tracts)”
D. Jiang's role: *Co-I* (no salary support allowed for this funding mechanism)
Total direct cost for D. Jiang: \$2,020

SciRes-II College of Science, OSU (PI: Halsey) 01/31/20 – 01/31/21 \$10,000
“Predicting the trajectory of toxic harmful algal blooms using multi-omics data integration”
D. Jiang's role: *collaborator* (no salary support allowed for this funding mechanism)
Total direct cost for D. Jiang: \$0

Knight Cancer Institute (PI: Zhang, OHSU) 01/01/20 – 12/31/21 \$60,000
“Socioeconomic area characteristics on breast cancer by age group and race/ethnicity”
D. Jiang's role: *advisor* (no salary support)
Total direct cost for D. Jiang: \$0

Pending

NIH R21 (PI: D. Jiang) 03/01/21 - 02/28/23 \$275,000
“Conquering correlations in genome-scale hypothesis testing”
D. Jiang's role: *PI* (1.2 months/year)
Total direct cost for D. Jiang: \$99,791

NIH P01 (PI: Ho) 04/01/21 – 03/31/26 \$16,969,685
“Integration of mechanism, metabolome and microbiome for prevention and cancer translational sciences (IMMPACTS)”
D. Jiang's role: *Co-PI* (average 2.6 months/year)
Total direct cost for D. Jiang: \$129,746

NSF (PI: Fowler) 01/01/21 – 12/31/24 \$ 1,516,387
“RESEARCH-PGR: Predicting Gene-Specific Functional Contributions to Maize Reproduction: A Machine-Learning Approach”
D. Jiang's role: *Co-PI* (1 month/year)
Total direct cost for D. Jiang: \$58,383

OHSU Cancer Early Detection Advanced Research Center (PI: Zhang, OHSU) 01/01/21 – 12/31/22 \$240,000
“Microbiota and esophageal cancer progression”
D. Jiang's role: *Co-I* (no salary support)
Total direct cost for D. Jiang: \$0

NSF (PI: Chaplen) 10/01/20 – 09/30/24 \$3,000,000
“MTM 2: Modeling of microbial cross-talk during nitrification and denitrification by multiple species can identify rules for interaction and system function”
D. Jiang's role: *Senior personnel* (0.5 months/year)
Total direct cost for D. Jiang: \$317,343

NIH R21 (PI: Udell) 07/01/20 – 06/30/22 \$408,375

“Evaluation of a kitten assisted training intervention (KAT) to promote positive health and wellbeing outcomes in adolescents”

D. Jiang's role: Co-I (1 month/year)

Total direct cost for D. Jiang: \$28,428

Waltham Centre for Pet Nutrition (PI: McDonald) 02/01/19 – 01/31/23 \$21,739

“Evaluating a novel imitation-based 'DAID' dog training intervention designed to strengthen the child-dog bond and improve adolescent physical and social wellbeing”

D. Jiang's role: Co-I (0.4 months/year on average)

Total direct cost for D. Jiang: \$14,494

Completed

NIH R21HD091895 (PI: MacDonald) 04/01/17 – 03/31/19 \$390,648

“Development and evaluation of a novel imitation-based dog assisted intervention, 'DAID Training', to increase joint activity and social wellbeing for adolescents with developmental disabilities”

D. Jiang's role: Co-I (0.5 summer month/year)

Total cost for D. Jiang: \$19,423

Horizon Cancer Initiative Team Building Project (PIs: Kopp, OHSU & D. Jiang, OSU)

07/01/17 – 06/30/18 \$10,000

“An integrative approach towards understanding the diet-oxidative stress pathway gene interaction in prostate cancer risk”

D. Jiang's role: Principal Investigator

Total cost for D. Jiang: \$4,999

NSF DMS/ASA (PI: Sharpton) 06/19/17-08/21/17 \$38,666

“Summer experience in interdisciplinary statistics research for undergraduate students”

D. Jiang's role: Investigator

Total cost for D. Jiang: \$7,733

John C. Erkkila, M.D. Endowment for Health & Human Performance (PIs: MacDonald, Udell),

07/01/18-06/30/19 \$18,000

“Physical activity and social well-being for adolescents and their family dog”

D. Jiang's role: Co-I

Total cost for D. Jiang: \$0

Oregon Beef Council (PI: Udell) 09/01/16 – 08/31/17 \$10,000

“Evaluation of biological deterrents to manage wolf movements and minimize Cattle stress”

D. Jiang's role: Co-I

Total cost for D. Jiang: \$0

RESEARCH PRESENTATIONS

Invited Talks

7/2019 Jiang D, Jiang Y, Tian C, Sharpton T. *Inverse Covariance Estimation for Compositional Counts* (Invited seminar speaker)

Tsinghua University, Beijing, China

7/2019 Jiang D, Zhuo B. *Mixed model enrichment analysis of gene expression data* (Invited speaker)

International Workshop on Data Science, Jilin University, Changchun, China

- 7/2019 Jiang D, Sharpton T, Jiang Y. *Microbial Interaction Network Estimation via Bias-Corrected Graphical Lasso* (Invited speaker)
2019 ICSA China Conference, Nankai University, Tianjin, China
- 6/2019 Jiang D, Zhuo B. *Mixed models enrichment analysis accounting for inter-gene correlation* (Invited speaker)
The Western North American Region of the International Biometric Society Annual Meeting.
Portland, OR
- 4/2018 Jiang D, Zhuo B. *Accounting for gene-gene correlation in gene-set interpretation of expression data.* (Invited seminar speaker)
Department of Mathematics, Oregon State University. Corvallis, OR
- 3/2018 Jiang D, Zhuo B. *Efficient gene-set interpretation of expression data using mixed models.* (Invited seminar speaker)
Biostatistics Division. Medical College of Milwaukee. Milwaukee, WI
- 6/2017 Jiang D, Sharpton T, Jiang Y. *Microbial network estimation using bias-corrected graphical lasso.* (Invited speaker)
Joint 26th ICSA Applied Statistics Symposium. Chicago, IL
- 5/2017 Jiang D. *Discovering microbial interactions from 16S data: opportunities and statistical challenges.* (Invited speaker and panelist)
Microbiome Research Forum. Oregon State University, Corvallis, OR
- 8/2016 Jiang D, Zhuo B. *Adjusting for gene-gene correlation in gene-set tests in expression data.* (Invited speaker)
IISA International Conference on Statistics, Corvallis, OR
- 7/2016 Jiang D, Jiang Y. *Weighted inverse covariance estimation for compositional count data with applications to microbiome data.* (Invited speaker)
International Biometric Conference (IBC2016), Victoria, BC, Canada
- 7/2016 Jiang D. *Adaptive multiple-trait association detection with population structure adjustment.* (Invited speaker)
Joint 25th ICSA Applied Statistics Symposium. Atlanta, GA
- 11/2015 Jiang D. *Methods for correlated data analysis with applications in genetic and biological research.* (Invited speaker)
Department of Fisheries and Wildlife Seminar, Oregon State University, Corvallis, OR
- 6/2015 Jiang D, Zhong S, McPeck MS. *Genetic association testing for binary traits in the presence of population structure.* (Invited speaker)
Joint 24th ICSA Applied Statistics Symposium and 13th Graybill Conference. Fort Collins, CO
- 4/2015 Jiang D, Zhong S, McPeck MS. *Statistical methods for genetic association mapping of binary traits.* (Invited speaker)
CGRB Spring Conference. Corvallis, OR
- 3/2015 Jiang D, Zhong S, McPeck MS. *Quasi-likelihood based genetic association testing for binary traits.* (Invited speaker)
American Statistical Association Oregon Chapter Winter Meeting. Portland, OR
- 2/2015 Jiang D. *Statistics in genetics/biological research: two success stories.* (Invited speaker)
Hatfield Marine Science Center Seminar, Newport, OR

12/2014 Jiang D. *Statistics in biological/genetics research: two success stories*. (Invited speaker)
Department of Integrative Biology Research Seminar, Oregon State University, Corvallis, OR

3/2014 Jiang D, McPeck MS. *Robust rare variant association testing in samples with related individuals*.
(Invited speaker)
Midwest Statistics Research Colloquium, Chicago, IL

Other Conference Presentations

Trainee presenters are underlined.

8/2020 Jiang D, Sharpton T, Jiang Y. *Microbial interaction network estimation via bias-corrected graphical lasso*. (Contributed talk, presenting author)
Joint Statistical Meetings, virtual meeting

8/2020 Hu C, Jiang D. *Greedy trend test for detecting monotonic patterns from a composite null with applications in biomedical studies*. (Contributed talk by graduate student, senior author)
Joint Statistical Meetings, virtual meeting

8/2020 Tian C, Jiang Y, Jiang D. *Reference invariance property of inverse covariance matrix under additive log-ratio transformation*. (Contributed talk, non-presenting author)
Joint Statistical Meetings, virtual meeting

7/2019 Tian C, Jiang D, Jiang Y. *Microbial network recovery via compositional graphical lasso*. (Invited talk, non-presenting author)
2019 ICSCA China Conference, Tianjin, China

6/2019 Hu C, Jiang D. *Testing monotonic trends among multiple group means against a composite null*. (Contributed talk by graduate student, senior author)
The Western North American Region of the International Biometric Society Annual Meeting.
Portland, OR

6/2019 Zhuo B, Jiang D, Di Y. *Test-statistic correlation and data-row correlation*. (Invited talk, non-presenting author)
The Western North American Region of the International Biometric Society Annual Meeting.
Portland, OR

6/2019 Tian C, Jiang D, Jiang Y. *Microbial network recovery via compositional graphical lasso*. (Invited talk, non-presenting author)
The Western North American Region of the International Biometric Society Annual Meeting.
Portland, OR

3/2019 Zhang Z, Jiang D (Co-first), Kopp R, Garzotto M, Stoller W, Palma A, Farris P, Shannon J. *Investigation of gene-diet interaction and risk of prostate cancer in men presenting for biopsy of the prostate gland*. (Contributed talk, co-first-author, non-presenting)
12th Annual Multi-Institutional Prostate Cancer Program Retreat, Fort Lauderdale, Florida

7/2018 Tian C, Jiang D, Jiang Y. *Microbial network estimation using compositional graphical lasso*. (Contributed talk, non-presenting author)
Joint Statistical Meetings. Vancouver, Canada

6/2018 Swanson K, Hendrix D, Jiang D, Bionaz M. *The effect of bovine milk consumption on in vivo porcine adipose stem cells*. (Contributed talk, non-presenting author)
ADSA Annual Meeting. Knoxville, Tennessee

- 4/2018 Hu C, Armour C, Jiang Y, Sharpton T, Jiang D. *Estimating microbial interaction networks on primate gut microbiome data*. (Contributed talk by graduate student, non-presenting author)
CGRB Spring Conference. Corvallis, OR
- 5/2017 Fino N, Jiang D, Lapidus J, Orwoll E. *The association of the gut microbiome with bone density and structure in older men*. (Contributed poster by trainee, non-presenting author)
Microbiome Research Forum, Corvallis, OR
- 5/2017 Fino N, Jiang D, Lapidus J, Orwoll E. *Gut microbiome is associated with measures of bone microarchitecture*. (Contributed poster by trainee, non-presenting author)
OHSU Research Week, Portland, OR
- 3/2017 Sahagun E, Bell J, Belveal J, Akers S, Wilson R, Naito C, Ingham C, Goddik L, Hendrix D, Jiang J, Bionaz M. *Effect of poison oak and pasteurization on miRNA of milk exosomes of goats*. (Contributed talk, non-presenting author)
FFC's 21st International Conference and Expo on Functional Foods, San Diego, CA
- 11/2016 AuYeung N, Bagherisereshki E, Meroueh L, Yenduru K, Dasgupta A, Jiang D. *Solar thermochemical energy storage based on strontium carbonate chemistry*. (Contributed talk, non-presenting author)
AIChE Annual Meetings, San Francisco, CA
- 11/2016 AuYeung N, Bagherisereshki E, Meroueh L, Yenduru K, Dasgupta A, Jiang D. *Exergetic and Techno-economic analysis of solar thermochemical energy storage subsystem based on SrO/SrCO₃ chemistry*. (Contributed poster, non-presenting author)
MRS Fall Meetings and Exhibit, Boston, MA
- 8/2016 Jiang D, Zhuo B. *Accounting for correlations in genetic enrichment analysis for improved interpretation of genome-scale data*. (Contributed talk, speaker)
Joint Statistical Meetings. Chicago, IL
- 4/2016 Jiang D, Zhuo B. *Taming false discoveries for improved interpretation of genome-scale data*. (Contributed talk, speaker)
CGRB Spring Conference. Corvallis, OR
- 8/2015 Jiang D, Zhong S, McPeck MS. *Covariate-adjusted genetic association testing for binary traits in the presence of population structure*. (Contributed talk, speaker)
Joint Statistical Meetings. Seattle, WA
- 8/2015 McPeck MS, Jiang D, Zhong S. *Genetic association mapping of binary traits in samples with related individuals*. (Invited talk, non-presenting author)
Joint Statistical Meetings. Seattle, WA
- 9/2013 Jiang D, McPeck MS. *Robust rare variant association testing in samples with related individuals*. (Contributed poster, presenter)
22nd IGES Annual Conference, Chicago, IL
- 8/2013 McPeck MS, Jiang D. *Association mapping of rare variants in samples with related individuals*. (Invited talk, non-presenting author)
2013 Joint Statistical Meetings. Montréal, Canada.
- 3/2013 McPeck MS, Jiang D. *Association mapping of rare variants in samples with related individuals*. (Invited talk, non-presenting author)
2013 ENAR Spring Meeting. Orlando, FL

2/2013 Choi CH, Poroyko V, Watanabe S, Jiang D, Lane J, deTineo M, Baroody FM, Naclerio RM, Pinto JM. *Allergen exposure affects sinonasal microbiota*. (Contributed talk, non-presenting author)
2013 AAAAI Annual Meeting. San Antonio, TX

5/2012 Choi CH, Poroyko V, Watanabe S, Jiang D, Lane J, deTineo M, Baroody FM, Naclerio RM, Pinto JM. *Subjects with seasonal allergies show altered sinonasal microbiota*. (Contributed talk, non-presenting author)
19th Annual Huggins Research Symposium. Chicago, IL

SERVICE

2019-2020 *President*. American Statistical Association Oregon Chapter.
2018-2019 *Vice President*. American Statistical Association Oregon Chapter.
2019 *Session organizer and chair*. IMS-China International Conference on Statistics and Probability
2019 *Session organizer and chair*. WNAR
2017-2018 *Secretary and Treasurer*. American Statistical Association Oregon Chapter.
2017 *Ad hoc reviewer*. ASA Statistical Genetics Student Paper Competition (2 reviews).
2016- *Editorial board member*. Journal of Genetics and Genomic Sciences and SM Journal of Biometrics and Biostatistics
2016 *Session organizer*. International Biometric Conference, IISA International Conference on Statistics
2016 *Ad hoc referee*. NIPS, AISTATS
2016 *Session chair*. IISA International Conference, Corvallis, OR
2016 *VIP consultant*. Oregon DataFest 2016, Corvallis, OR
2015 *Session chair*. Joint Statistical Meetings, Seattle, WA
2015 *Judge for student talk award*. Infinite Possibilities Conference, Corvallis, OR
2014- *Ad hoc referee*. Journal of American Statistical Association (1 review), Annals of Applied Statistics (4 reviews), Biometrics (5 reviews), American Journal of Human Genetics (3 reviews), PLOS Genetics (2 reviews), Statistics in Medicine (1 review), Genetic Epidemiology (5 reviews), Annals of Human Genetics (3 reviews), BMC Genetics (1 review), BMC Bioinformatics (3 reviews)
2014 *Monograph reviewer*. Taylor & Francis