Daiwei (David) Zhang

University of Michigan
Department of Biostatistics
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Reserach interests

Methodology: deep learning with quantifiable uncertainties, Bayesian neural networks

Applications: neuroimaging, genomics

Education

Ph.D. Biostatistics and Scientific Computing, University of Michigan 2016 –

Novel statistical learning methods for complex biomedical data analysis

Advisors: Jian Kang & Seunggeun Lee

M.S. Electrical & Computer Engineering, University of Michigan 2018 –

B.S. (Hon.) Mathematics, Calvin University 2012 – 2016

Employment

Research Assistant 2016 –
University of Michigan, Department of Biostatistics

Image-on-scalar regression via neural networks

Neural network-guided ICA with application to neuroimaging

Online PCA for predicting population stratification in the UK Biobank data

Multi-omic analysis of the Multi-Ethnic Study of Atherosclerosis data

Research Assistant 2013 – 2016
Calvin University, Department of Mathematics

Algebraic classification of highly connected $2n$-manifolds

Analytic functions of a generalized complex variable

Teaching Assistant (Calculus I,II,&III) 2013 – 2014
Calvin University, Department of Mathematics

Teaching Assistant (Information technology) 2012 – 2013
Calvin University, Department of Computer Science

IT Technician 2012 – 2013
Calvin University, Center of Information Technology

Publications

In preparation

1. E. C. Hector, X. Yin, **D. Zhang**, M. Laakso, M. Boehnke, J. Kang, and T. Yu. A dmGWAS approach to understanding genetic regulators ofmetabolic networks. *In preparation*.

Preprints

1. **D. Zhang**, L. Li, C. Sripada, and J. Kang. Image-on-scalar regression via deep neural networks. *arXiv preprint arXiv:2006.09911*, 2020.

Journal Articles

2. **D. Zhang**, R. Dey, and S. Lee. Fast and robust ancestry prediction using principal component analysis. *Bioinformatics*, 36(11):3439–3446, 2020.

3. S. Auyeung, J. Ruiter, and **D. Zhang**. An algebraic characterization of highly connected 2n-manifolds. *Rose-Hulman Undergraduate Mathematics Journal*, 17(2):5, 2016.

4. C. Blom, T. DeVries, A. Hayes, and **D. Zhang**. Analytic extension and conformal mapping in the dual and the double planes. *Rose-Hulman Undergraduate Mathematics Journal*, 14(2):9, 2013.

Presentations

Invited

1. Fast and robust ancestry prediction with FRAPOSA. Tools and Technology Seminar (2020), Department of Internal Medicine and Bioinformatics, University of Michigan.

Contributed

1. Neural networks-guided ICA with application to neuroimaging. Spring meeting (2020), Eastern North American Region, International Biometric Society.

2. Fast and robust ancestry inference using principal component analysis. Annual Meeting (2018), American Society of Human Genetics.

Awards

University of Michigan

Rackham Conference Travel Grant 2018, 2020

Calvin University

William Rinck Memorial Prize (for the best graduating mathematics major) 2016

W. L. Putnam Mathematical Competition (ranked 266/3088 internationally) 2013

William Rinck Memorial Scholarship (for oustanding mathematics majors) 2013 – 2016

Trustee Scholarship (full tuition coverage) 2012 – 2016

Visiting

Budapest Semester in Mathematics Aug – Dec 2014
Eötvös University & Hungarian Academy of Sciences, Budapest

Courses: group theory, set theory, non-Euclidean geometries, conjectures & proofs, Hungarian language

Programming

Proficient: Python, R, Bash, LaTeX

Competent: C++

Rudimentary: Matlab, Mathematica, Java