

Dechao Tian

1600 Clifton Rd
Atlanta, GA 30329

(412) 583-6800
dechaotian@gmail.com
<https://tian-dechao.github.io>

Research Interests

- Machine learning application in biomedicine
- Statistical modeling for data science
- Computational biology, systems biology, and genomics

Current Employment

Mathematical Statistician 2019 - Present
Centers for Disease Control and Prevention, US

- Surveillance, Information Management, and Statistics Office: research on anomaly cluster detection using heterogeneous and high dimensional time-to-event data

Education and Training

Postdoctoral Fellow in Computational Biology 2015 - 2019
Carnegie Mellon University, US

Advisor: Dr. Jian Ma

Ph.D. in Statistics and Applied Probability 2010 - 2015
National University of Singapore, Singapore

Advisor: Dr. Kwok Pui Choi

M.S. in Probability and Mathematical Statistics 2009 - 2011
Northeast Normal University, China

Advisor: Dr. Zhidong Bai

B.S. in Mathematics and Applied Mathematics 2005 - 2009
Northeast Normal University, China

Publications

* represents co-first authors

10. **Tian D***, Zhang R*, Zhang Y, Zhu X, and Ma J. MOCHI enables discovery of heterogeneous interactome modules in 3D nucleome. **Genome Research** (2020).

9. **Tian D**, Gu Q and Ma J. Identifying gene regulatory network rewiring using latent differential graphical models, **Nucleic Acids Research** 44, 17 (2016).
8. Koh V, Cheung C, Li X, **Tian D**, Wang J.J, Mitchell P, Cheng C.Y, and Wong T.T. Retinal vein occlusion in a multi-ethnic asian population: the singapore epidemiology of eye disease study, **Ophthalmic Epidemiology** 23, 1 (2016).
7. Chen L, Cheng C.Y, Choi H, Ikram M.K, Sabanayagam C, Tan G.S, **Tian D**, Zhang L, Venkatesan G, Tai E.S, Wang J.J, Mitchell P, Cheung C.M.G, Beuerman R.W, Zhou L, Chan E.C.Y, Wong T.T. Plasma metabonomic profiling of diabetic retinopathy, **Diabetes** 65, 4 (2016).
6. Yam G.H.F, Yusoff N.Z.B.M, Kadaba A, **Tian D**, Myint H.H, Beuerman R.W, Zhou L, Mehta J.S. Ex vivo propagation of human corneal stromal “activated keratocytes” for tissue engineering, **Cell Transplantation** 24, 9 (2015).
5. Chen L, Li J, Guo T, Ghosh S, Koh S.K, **Tian D**, Zhang L, Jia D, Beuerman R.W, Aebersold R, Chan E.C.Y, Zhou L. Global metabonomic and proteomic analysis of human conjunctival epithelial cells (IOBA-NHC) in response to hyperosmotic stress, **Journal of Proteome Research** 14, 9 (2015).
4. Tong L, Zhou X, Jylha A, Aapola U, Liu D.N, Koh S.W, **Tian D**, Quah J, Uusitalo H, Beuerman R.W, Zhou L. Quantitation of 47 human tear proteins using high resolution multiple reaction monitoring (HR-MRM) based-mass spectrometry, **Journal of Proteomics** 115, (2015).
3. Zhang S*, **Tian D***, Tran N.H, Choi K.P, and Zhang L.X. Profiling human cell-type specific transcription factor regulatory networks, **Nucleic Acids Research** 42, 20 (2014).
2. Barathi V.A, Chaurasia S.S, Poidinger M, Koh S.K, **Tian D**, Ho C, Iuvone P.M, Beuerman R.W, Zhou L. Involvement of GABA transporters in atropine-treated myopic retina as revealed by iTRAQ quantitative proteomics, **Journal of Proteome Research** 13, 11 (2014).
1. **Tian D** and Choi K.P. Sharp bounds and normalization of wiener-type indices, **PLOS ONE** 8, 11 (2013).

Manuscripts in Preparation

2. **Tian D**, Zhu X, and Ma J. Diffdomain enables detection of reshaped chromatin domains using random matrix theory.
1. **Tian D** and Ma J. Exploiting the interplay between chromatin interactome and transcriptional regulatory network.

Research Experience

4. **Carnegie Mellon University, US** 2015 - 2019
Postdoctoral Fellow. Advisor: Jian Ma, Ph.D.
 - Develop advanced statistical and machine learning algorithms to study three-dimensional genome organization and its functional association with transcriptional regulation
3. **National University of Singapore, Singapore** 2014 - 2015
Research Assistant. Advisor: Kwok Pui Choi, Ph.D.
 - Develop machine learning algorithms to identify essential genes using regulatory networks
2. **Singapore Eye Research Institute (SERI), Singapore** 2011 - 2015
Research Collaborator with Lei Zhou, Ph.D.
 - Provide statistical analysis and consultation for Proteomics & Microanalysis Laboratory
 - Collaborate with other members from SERI
1. **Center for Quantitative Medicine, Duke-NUS, Singapore** 2012 - 2015
Associate Member

Teaching Experience

2. **Centers for Disease Control and Prevention, US** 2019
Lecture on *Introduction to R*
1. **National University of Singapore, Singapore** 2010 - 2014
Teaching assistant for *Introduction to Statistics, Statistics for Life Science, and Probability*

Presentation

2. **Centers for Disease Control and Prevention, DRIVE: an open source web application using Data Reduction for Interactive Visualization and Analysis of Epidemiologic and Genomic Data**, DataViz day, Atlanta, GA, 2019
1. **The Jackson Laboratory, Regulatory network inference and comparison**, Farmington, CT, 2018

References

Jian Ma, Ph.D.

Associate Professor, Computational Biology

Carnegie Mellon University

Contact Information

School of Computer Science

Carnegie Mellon University

5000 Forbes Avenue

Pittsburgh, PA 15213, USA

Tel:(412) 268-2776

jianma@cs.cmu.edu

Kwok Pui Choi, Ph.D.

Professor, Statistics

National University of Singapore, Singapore

Contact Information

National University of Singapore, 6 Science Drive 2, Singapore 117546

Tel:(+65) 6516-4387

stackp@nus.edu.sg

Louxin Zhang, Ph.D.

Professor, Mathematics

National University of Singapore, Singapore

Contact Information

10 Lower Kent Ridge, Singapore 119076

Tel:(+65) 6516-6579

matzlx@nus.edu.sg

Zhidong Bai, Ph.D.

Professor, Probability

Northeast Normal University, China

Contact Information

School of Mathematics and Statistics

Northeast Normal University

5268 Renmin Street, Changchun, Jilin 130024, China

Tel:(+86) 0431-85098161

baizd@nenu.edu.cn