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 Probability and Mathematical Statistics   2005 - 2009
Northeast Normal University, China

Publications

$\star$ 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
Shool of Mathematics and Statistics
Northeast Normal University
5268 Renmin Street, Changchun, Jilin 130024, China
Tel:(+86) 0431-85098161
baizd@nenu.edu.cn