

RESEARCH INTERESTS

- Develop advanced statistic learning method in data science
- Use knowledge graph representation to disentangle high dimensional data
- Identify low rank matrix in real-world data via subspace learning

EDUCATION

Purdue University, West Lafayette 08/2017-06/2022(expected)

PhD Candidate in Electrical and Computer Engineering

Research Assistant at Center for Computational Biology and Bioinformatics

Advisor: [Prof. Chi Zhang](#) (Purdue ECE & IU School of Medicine).

Co-advisor: [Prof. Mireille Boutin](#) (Purdue ECE), [Prof. Zina Ben Miled](#) (Purdue ECE)

Nankai University

09/2014-07/2017

M.S. in Control Science and Engineering, GPA 85.6/100

China, Tianjin

Thesis: Research of Human-Machine Interaction Method Based on Hand Motions Recognition and Posture of Forearm (Advisor: Feng Duan)

Turku University of Applied Science

08/2013-12/2013

Exchange student in Degree Program of Mechanical and Production Engineering

Finland, Turku

Nankai University

09/2010-07/2014

B.S in Automation, GPA 86.3/100, Rank 6/30

China, Tianjin

Thesis: Design of a Mechanical Structure for an Exoskeleton Walking Support Robot (Advisor: Feng Duan)

JOURNAL PUBLICATIONS & PATENTS

- [Wennan Chang](#), Changlin Wan, Yong Zang, Chi Zhang, Sha Cao. *Supervised clustering of high dimensional data using regularized mixture modeling*. Accepted by **Briefings in Bioinformatics**. [arXiv:2007.09720](#) [[Github](#)]
- N. Alghamdi[^], [W. Chang](#)[^], P. Dang, X. Lu, C. Wan, Z. Huang, J. Wang, M. Fishel, S. Cao, C. Zhang. *scFEA: A graph neural network model to estimate cell-wise metabolic flux using single cell RNA-seq data*. Under review at **Genome Research**. [BioRxiv](#) (2020) [[Github](#)] ([^]equal contribution)
- [Wennan Chang](#), Xinyu Zhou, Yong Zang, Chi Zhang, Sha Cao. *A New Algorithm using Component-wise Adaptive Trimming for Robust Mixture Regression*. Under review. (2020) [arXiv:2005.11599](#)
- [Wennan Chang](#), Changlin Wan, Chun Yu, Weixin Yao, Chi Zhang, Sha Cao. *RobMixReg: an R package for robust, flexible and high dimensional mixture regression*. [BioRxiv](#) (2020) [[Github](#)][[CRAN](#)]
- [W. Chang](#), C. Wan, Y. Zhang, B. Richardson, Y. Sun, X. Zhang, K. Huang, A. Zhang, X. Lu, S. Cao, C. Zhang. *ICTD: Inference of cell types and deconvolution – a next-generation deconvolution method for accurate assess cell population and activities in tumor microenvironment*. [BioRxiv](#) (2019) [[Github](#)]
- C. Wan, [W. Chang](#), Y. Zhang, F. Shah, X. Lu, Y. Zang, A. Zhang, S. Cao, M. L. Fishel, Q. Ma, C. Zhang, *LTMG: a novel statistical modeling of transcriptional expression states in single-cell RNA-seq data*, **Nucleic Acids Research**, Volume 47, Issue 18, 10 October 2019. [[Github](#)]
- Feng Duan, Lili Dai, [Wennan Chang](#), Zengqiang Chen, Chi Zhu, Wei Li. *sEMG-Based Identification of Hand Motion Commands Using Wavelet Neural Network Combined with Discrete Wavelet Transform*, **IEEE Trans. on Industrial Electronics**, vol. 63, no.3, pp.1923-1934, Mar., 2016.
- **Patent:** An Automatic Snapshotting Method by Using Wearable Wristband, Lin Xu, Yang Zhang, [Wennan Chang](#), Gaofeng Li. Number of Patent: ZL 2016 1 0103974.1, Published date: 11.12.2019

CONFERENCE PUBLICATIONS

- Changlin Wan, Wennan Chang, Tong Zhao, Sha Cao, Chi Zhang.
Geometric All-way Boolean Tensor Decomposition.
2020 Conference on Neural Information Processing Systems (**NeurIPS** 2020). [arXiv:2007.15821](#)
- Changlin Wan, Wennan Chang, Tong Zhao, Sha Cao, Chi Zhang.
Denoising individual bias for a fairer binary submatrix detection.
ACM International Conference on Information and Knowledge Management (**CIKM** 2020). [arXiv:2007.15816](#)
- Changlin Wan, Wennan Chang, Tong Zhao, Mengya Li, Sha Cao, Chi Zhang.
MEBF: a fast and efficient Boolean matrix factorization method.
AAAI Conference on Artificial Intelligence (**AAAI** 2020). [arXiv: 1909.03991](#)
- Y. Zhang, C. Wan, P. Wang, W. Chang, Y. Huo, J. Chen, Q. Ma, S. Cao, C. Zhang.
M3S: A comprehensive model selection for multi-modal single-cell RNA sequencing data.
BMC Bioinformatics (2019). **ICIBM** 2019 special issue.
- Wennan Chang, Changlin Wan, Yifan Sun, Yan Han, Siyuan Qi, Xiongbin Lu, Sha Cao, Chi Zhang.
A semi-supervised deconvolution method for quantifying the composition and activity of tumor-infiltrating cell types. **AACR** 2019.
- S. Sheng, P. Song, L. Xie, Z. Luo, W. Chang, S. Jiang, H. Yu, C. Zhu, J. T. C. Tan, F. Duan.
Design of an SSVEP-based BCI system with visual servo module for a service robot to execute multiple tasks.
IEEE International Conference on Robotics and Automation (**ICRA** 2017)
- Z. Liu, W. Chang, S. Sheng, L. Li, Y. G. Soo, C. F. Yeong, M. Odagaki, F. Duan.
A Novel Upper Limb Training System Based on UR5 using sEMG and IMU Sensors.
IEEE International Conference on Robotics and Biomimetics (**ROBIO**), Qingdao, Dec., 2016.
- Wennan Chang, Lili Dai, Shili Sheng, Jeffrey Too Chuan Tan, Chi Zhu, Feng Duan.
A Hierarchical Hand Motions Recognition Method Based on IMU and EMG Sensors.
IEEE International Conference on Robotics and Biomimetics (**ROBIO**), Zhuhai, Dec., 2015.

HONORS AND AWARDS

2016 National University of Singapore Workshop on Contemporary Research in Computer Science and Information Systems, Accepted, Singapore.
2015 China-Japan Sakura Plan Cooperative Research.
2015 The National Undergraduate Intelligent Design Contest, **First prize**. Title: “A novel hand gesture controller using IMU sensor based on Android”.
2013 The National Undergraduate Intelligent Design Contest, **First prize, Group Leader**. Title: “A super-resolution image reconstruction method with POCS algorithms based on Android platform”.
2015 IEEE Student Fellow
2014 Recommended Postgraduate Student Scholarship (3000 RMB)
2010-2014 **Three times** Nankai University Scholarship (12000 RMB in total)

SKILLS

General computation: *Python(Efficient)/R(Efficient)/Linux(Efficient)/Docker(Efficient)/C++/MATLAB*.
Mathematical modeling: *Machine Learning, Deep Learning, Generative Adversarial Networks (GAN)*
Language: *English(Efficient)/Mandarin(Native)*

SERVICES

Reviewer, KDD 2020
Reviewer, IEEE BIBM 2017-2020
Reviewer, ICIBM 2019
Reviewer, Briefings in Bioinformatics 2019