



# Yushun Zhang

School of Data Science

The Chinese University of Hong Kong, Shenzhen, China

Email: yushunzhang@link.cuhk.edu.cn



## EDUCATION BACKGROUND

### • Bachelor of science

Mathematics department, Southern University of Science and Technology (SUSTech)

(2015-2019)

- **GPA:** 3.81/4, Rank No.2 in Statistics major
- **Award:** Magna cum laude of SUSTech (38 out of 800 undergraduate students) Scholarship Award for Excellence, Mathematics department, SUSTech (top 10 students) Outstanding graduation thesis, SUSTech

### • Ph.D Student

School of Data Science, the Chinese University of Hong Kong, Shenzhen

(2019- present)

- **GPA:** 3.88/4, Rank unknown
- Co-supervised by **Prof. Tom Zhi-Quan Luo** and **Prof. Tong Zhang (HKUST)**
- Fortune to collaborate closely with **Prof. Ruoyu Sun (UIUC)**

## RESEARCH INTEREST

- **Deep learning:** Interested in both theory and applications. Wish to use theory to guide better training for neural nets, especially small-sized ones.
- **Optimization:** Interested in stochastic methods and ADMM. Wish to understand currently used methods (SGD, Adam, etc) and motivate new ones.

## PUBLICATIONS (BY TIME)

- **Adam Can Converge with Proper  $\beta_1$  and  $\beta_2$**  (Under Review)
  - Yushun Zhang, Congliang Chen, Naichen Shi, Ruoyu Sun, Zhi-Quan Luo
- **Does Adam Converge and When?** (ICLR BLog Track, 2022)
  - Yushun Zhang, Congliang Chen, Zhi-Quan Luo
- **HyperDQN: A Randomized Exploration Method for Deep Reinforcement Learning** (ICLR, 2022)
  - Ziniu Li, Yingru Li, Yushun Zhang, Tong Zhang, Zhi-Quan Luo
  - This work is also selected as Oral presentation at **NeurIPS workshop, 2021**
- **When Expressivity Meets Trainability: Fewer than n Neurons Can Work** (NeurIPS, 2021)
  - Jiawei Zhang\*, Yushun Zhang\*, Mingyi Hong, Ruoyu Sun, Zhi-Quan Luo
- **Fast QLB algorithm and hypothesis tests in logistic model for ophthalmologic bilateral correlated data** (Journal of Biopharmaceutical Statistics, 2020)
  - Yiqi Lin\*, Yushun Zhang\*, Guoliang Tian, Changxing Ma (this work is done in Sustech)

(\*: Equal contribution, alphabetically ordered.)

## OTHER AWARDS

- **Best Presentation Award (1st place)**, 3rd Tsinghua-Berkeley workshop on Learning Theory (July, 2021)
- **Honorable Mention**, Mathematical Contest In Modeling, (2017)
- **Second Prize**, Asia and Pacific Mathematical Contest in Modeling (2016)

## WORK EXPERIENCE

- **Shenzhen Research Institute of Big Data** (2019-2020)
  - Finish the project of "Concept drift detection via Gaussian Process and Maximum Mean Discrepancy"
  - Joint work with Prof. Tong Zhang and Liusha Yang
- **UC San Diego** (2019 Spring)
  - Exchange undergraduate student at Mathematics department, UC San Diego
  - GPA at UC San Diego: 4/4 (calculated based on three enrolled courses)
- **Teaching Assisant (by time):**
  - DDA 6060: Machine Learning, by Prof. Hongyuan Zha & Prof. Shuang Li (2022 Spring)
  - DDA 4002: Multivariate Statistics, by Prof. Zhaoyuan Li (2021 Autumn)

- DDA 4250: Mathematics for Deep Learning, by Prof. Arnulf Jentzen (2021 Spring)
- MFE 5100: Optimization, by Prof. Zizhuo Wang (2020 Autumn)
- STA 2002: Probability and Statistics, by Prof. Xinyun Chen (2020 Summer)
- CSC 4020: Fundamentals of Machine Learning, by Prof. Hongyuan Zha (2020 Spring)
- MAT 2040: Linear algebra, by Prof. Shenghao Yang (2019 Autumn)
- MAT 7035: Computational Statistics, by Prof. Guoliang Tian (SUSTech) (2018 Autumn)
- MA 204: Mathematical Statistics, by Prof. Guoliang Tian (SUSTech) (2018 Spring)