

PENGGUN YANG

Center for Statistical Science \diamond Tsinghua University
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EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN May 2016 – Aug. 2018
Ph.D. in Electrical and Computer Engineering Advisor: Yihong Wu
Dissertation: “Polynomial methods in statistical inference: theory and practice.”

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN Aug. 2013 – May 2016
M.S. in Electrical and Computer Engineering Advisor: Yihong Wu
Thesis: “Optimal entropy estimation on large alphabet: fundamental limits and fast algorithms”

TSINGHUA UNIVERSITY Sept. 2009 – June 2013
B.E. in Electronic Engineering Advisor: Zhisheng Niu

WORK EXPERIENCE

TSINGHUA UNIVERSITY From Mar. 2021
Assistant Professor, Center for Statistical Science

PRINCETON UNIVERSITY Oct. 2018 – Oct. 2020
Postdoc Research Associate, Department of Electrical Engineering

AWARDS AND HONORS

Thomas M. Cover Dissertation Award, 2020
IEEE Information Theory Society

Shun Lien Chuang Memorial Award for Excellence in Graduate Education, 2018
University of Illinois at Urbana-Champaign

Jack Keil Wolf ISIT Student Paper Award, 2015
IEEE International Symposium on Information Theory (ISIT)

Star of Tomorrow Internship Award of Excellence, 2013
Microsoft Research Asia (MSRA)

MONOGRAPHS

$(\alpha\text{-}\beta)$ denotes alphabetical ordering.

1. Y. Wu, **P. Yang**, $(\alpha\text{-}\beta)$
“Polynomial methods in statistical inference: theory and practice,”
Foundations and Trends (FnT) in Communications and Information Theory 17 (4), 402-586, 2020.

JOURNAL PUBLICATIONS

1. Y. Chen, J. Wang, H. Tang, **P. Yang**, L. Tassiulas,
“Sampling for Remote Estimation of an Ornstein-Uhlenbeck Process through Channel with Un-
known Delay Statistics,”
Journal of Communications and Networks, 2023.

2. X. Li, A. Abuduweili, H. Shi, **P. Yang**, H. Xiong, C. Xu, D. Dou,
“Semi-supervised Transfer Learning with Hierarchical Self-regularization,”
Pattern Recognition, Volume 144, 109831, 2023.
3. L. Su, J. Xu, **P. Yang**, (α - β)
“A Non-parametric View of FedAvg and FedProx: Beyond Stationary Points,”
Journal of Machine Learning Research, Volume 24, Issue 203, pp. 1-48, 2023.
4. H. Tang, Y. Chen, J. Wang, **P. Yang**, L. Tassioulas,
“Age Optimal Sampling Under Unknown Delay Statistics,”
IEEE Transactions on Information Theory, Volume 69, Issue 2, pp. 1295-1314, 2023.
5. N. Doss, Y. Wu, **P. Yang**, and H. H. Zhou, (α - β)
“Optimal estimation of high-dimensional Gaussian location mixtures,”
Annals of Statistics, Volume 51, Issue 1, pp. 62-95, 2023.
6. Y. Wu, **P. Yang**, (α - β)
“Optimal estimation of Gaussian mixtures via denoised method of moments,”
Annals of Statistics, Volume 48, Number 4, pp. 1981-2007, 2020.
7. D. Tao, **P. Yang**, H. Feng,
“Utilization of text mining as a big data analysis tool for food science and nutrition,”
Comprehensive Reviews in Food Science and Food Safety, Volume 19, Number 2, pp. 875-894,
2020.
8. Y. Wu, **P. Yang**, (α - β)
“Chebyshev polynomials, moment matching, and optimal estimation of the unseen,”
Annals of Statistics, Volume 47, Number 2, pp. 857-883, 2019.
9. Y. Wu, **P. Yang**, (α - β)
“Sample complexity of the distinct elements problem,”
Mathematical Statistics and Learning, Volume 1, Issue 1, pp. 37-72, 2018.
10. Y. Wu, **P. Yang**, (α - β)
“Minimax rates of entropy estimation on large alphabets via best polynomial approximation,”
IEEE Transactions on Information Theory, Volume 62, Issue 6, pp. 3702–3720, 2016.

CONFERENCE PUBLICATIONS

1. Z. Tong, S. Cheung, Z. Ren, **P. Yang**, Q. Shao,
“Modeling of Multi-Level Spin-Orbit Torque-MRAM: Scalability, Stochasticity, and Variations,”
IEEE International Magnetic Conference, 2023.
2. Y. Ma, Y. Wu, **P. Yang**, (α - β)
“On the best approximation by finite Gaussian mixtures,”
IEEE International Symposium on Information Theory (ISIT), 2023.
3. L. Su, J. Xu, **P. Yang**, (α - β)
“Global Convergence of Federated Learning for Mixed Regression,”
Advances in Neural Information Processing Systems (NeurIPS), 2022.
4. T. Wang, X. Li, **P. Yang**, G. Hu, X. Zeng, S. Huang, C. Xu, M. Xu,
“Boosting active learning via improving test performance,”
Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI), 2022.
5. C. Fang, J. Lee, **P. Yang**, T. Zhang, (α - β)
“Modeling from Features: a Mean-field Framework for Over-parameterized Deep Neural Net-

works,”

Conference on Learning Theory (COLT), 2021.

6. L. Su, **P. Yang**, (α - β)
“On learning over-parameterized neural networks: a functional approximation perspective,”
Advances in Neural Information Processing Systems (NeurIPS), 2019.
7. Y. Wu, **P. Yang**, (α - β)
“Optimal entropy estimation on large alphabets via best polynomial approximation,”
IEEE International Symposium on Information Theory (ISIT), 2015.

Jack Keil Wolf ISIT Student Paper Award

8. T. Zhao, **P. Yang**, H. Pan, R. Deng, S. Zhou, Z. Niu,
“Software defined radio implementation of signaling splitting in hyper-cellular network,”
Second workshop on Software radio implementation forum (SRIF), ACM SIGCOMM, 2013.
9. J. Cao, R. Xia, **P. Yang**, C. Guo, G. Lu, L. Yuan, Y. Zheng, H. Wu, Y. Xiong, D. Maltz,
“Per-packet load-balanced, low-latency routing for clos-based data center networks,”
Minth ACM conference on Emerging networking experiments and technologies (CoNEXT), 2013

MANUSCRIPTS

1. **P. Yang**, J. Zhang, (α - β)
“Two Phases of Scaling Laws for Nearest Neighbor Classifiers,”
arXiv:2308.08247, submitted.
2. L. Su, J. Xu, M. Xiang, **P. Yang**, (α - β)
“Federated Learning in the Presence of Adversarial Client Unavailability,”
arXiv:2305.19971, submitted.
3. X. Li, **P. Yang**, T. Wang, X. Zhan, M. Xu, D. Dou, C. Xu,
“Deep active learning with noise stability,”
arXiv:2205.13340, submitted.

PROFESSIONAL SERVICE

Program Committee, *Conference On Learning Theory (COLT)*, since 2022.

Managing director, *Machine Learning Branch of the Chinese Association for Applied Statistics*, since 2023.