

PENGGUN YANG

Department of Statistics and Data Science \diamond Tsinghua University
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EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN May 2016 – Sept. 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 – July 2013
B.E. in Electronic Engineering Advisor: Zhisheng Niu

WORK EXPERIENCE

TSINGHUA UNIVERSITY From July 2024
Associate Professor, Department of Statistics and Data Science

TSINGHUA UNIVERSITY Mar. 2021 – June 2024
Assistant Professor, Center for Statistical Science, Department of Industrial Engineering

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

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

TEACHING EXPERIENCE

INSTRUCTOR

1. Introduction to Stochastic Processes, Spring 2026
2. Applied Stochastic Processes, Fall 2021, 2022, 2024
3. High Dimensional Probability, Spring 2022, 2023, 2024, Fall 2025
4. High Dimensional Statistics, Spring 2025
5. Advanced Probability (I), Fall 2023

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. L. Su, M. Xiang, J. Xu, **P. Yang** $(\alpha\text{-}\beta)$
“Federated Learning under Adversarial Silence Attacks,”
INFORMS Journal on Computing, 2026.
2. D. Huang, X. Song, **P. Yang** $(\alpha\text{-}\beta)$
“Information-Theoretic Thresholds for the Alignments of Partially Correlated Graphs,”
IEEE Transactions on Information Theory, 2025.
3. M. Wang, **P. Yang**, L. Su
“On the Convergence Rates of Federated Q-Learning across Heterogeneous Environments,”
Transactions on Machine Learning Research, 2025.
4. Y. Ma, Y. Wu, **P. Yang**, $(\alpha\text{-}\beta)$
“On the Best Approximation by Finite Gaussian Mixtures,”
IEEE Transactions on Information Theory, 2025.
5. L. Su, J. Xu, **P. Yang**, $(\alpha\text{-}\beta)$
“Global Convergence of Federated Learning for Mixed Regression,”
IEEE Transactions on Information Theory, 2024.
6. Y. Chen, J. Wang, H. Tang, **P. Yang**, L. Tassiulas,
“Sampling for Remote Estimation of an Ornstein-Uhlenbeck Process through Channel with Unknown Delay Statistics,”
Journal of Communications and Networks, 2023.
7. 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.
8. L. Su, J. Xu, **P. Yang**, $(\alpha\text{-}\beta)$
“A Non-parametric View of FedAvg and FedProx: Beyond Stationary Points,”
Journal of Machine Learning Research, Volume 24, Issue 203, pp. 1-48, 2023.
9. H. Tang, Y. Chen, J. Wang, **P. Yang**, L. Tassiulas,
“Age Optimal Sampling Under Unknown Delay Statistics,”
IEEE Transactions on Information Theory, Volume 69, Issue 2, pp. 1295-1314, 2023.
10. N. Doss, Y. Wu, **P. Yang**, and H. H. Zhou, $(\alpha\text{-}\beta)$
“Optimal estimation of high-dimensional Gaussian location mixtures,”
Annals of Statistics, Volume 51, Issue 1, pp. 62-95, 2023.
Selected paper by the Annals of Statistics editorial board
11. Y. Wu, **P. Yang**, $(\alpha\text{-}\beta)$
“Optimal estimation of Gaussian mixtures via denoised method of moments,”
Annals of Statistics, Volume 48, Number 4, pp. 1981-2007, 2020.
12. 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.

13. 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.
14. 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.
15. 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. D. Huang, C. Tian, **P. Yang**, (α - β)
“Attributed Network Alignment: Statistical Limits and Efficient Algorithm,”
International Conference on Machine Learning (ICML), 2026.
2. J. Sun, **P. Yang**, (α - β)
“Hallucination Detection from Structural Reasoning Model,”
International Conference on Machine Learning (ICML), 2026.
3. Y. Lyu, **P. Yang**, (α - β)
“Identifiability and Estimation in High-Dimensional Nonparametric Latent Structure Models,”
Conference on Learning Theory (COLT), 2025.
4. **P. Yang**, J. Zhang, (α - β)
“Fast and Multiphase Rates for Nearest Neighbor Classifiers,”
Conference on Learning Theory (COLT), 2025.
5. D. Huang, **P. Yang** (α - β)
“Sample Complexity of Correlation Detection in the Gaussian Wigner Model,”
International Conference on Machine Learning (ICML), 2025.
6. D. Huang, X. Song, **P. Yang** (α - β)
“Information-Theoretic Thresholds for the Alignments of Partially Correlated Graphs,”
Conference on Learning Theory (COLT), 2024.
7. X. Li, **P. Yang**, T. Wang, X. Zhan, M. Xu, D. Dou, C. Xu,
“Deep active learning with noise stability,”
AAAI Conference on Artificial Intelligence (AAAI), 2024.
8. 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.
9. Y. Ma, Y. Wu, **P. Yang**, (α - β)
“On the best approximation by finite Gaussian mixtures,”
IEEE International Symposium on Information Theory (ISIT), 2023.
10. L. Su, J. Xu, **P. Yang**, (α - β)
“Global Convergence of Federated Learning for Mixed Regression,”
Advances in Neural Information Processing Systems (NeurIPS), 2022.

11. T. Wang, X. Li, **P. Yang**, G. Hu, X. Zeng, S. Huang, C. Xu, M. Xu,
“Boosting active learning via improving test performance,”
AAAI Conference on Artificial Intelligence (AAAI), 2022.
12. C. Fang, J. Lee, **P. Yang**, T. Zhang, (α - β)
“Modeling from Features: a Mean-field Framework for Over-parameterized Deep Neural Networks,”
Conference on Learning Theory (COLT), 2021.
13. L. Su, **P. Yang**, (α - β)
“On learning over-parameterized neural networks: a functional approximation perspective,”
Advances in Neural Information Processing Systems (NeurIPS), 2019.
14. 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

15. T. Zhao, **P. Yang**, H. Pan, R. Deng, S. Zhou, Z. Niu,
“Software defined radio implementation of signaling splitting in hyper-cellular network,”
ACM SIGCOMM Second workshop on Software radio implementation forum (SRIF), 2013.
16. 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,”
ACM Conference on Emerging Networking Experiments and Technologies (CoNEXT), 2013

STUDENT ADVISING

Ph.D.: Yun Ma (2021), Yichen Lyu (2022), Canrui Zhang (2022), Dong Huang (2023), Jianbo Sun (2024), Puhui Tan (2025), Songtai He (2026)

Master Thesis: Jiashen Yu (2026), Deli Zhang (2026)

Undergraduate Thesis: Yichen Lyu (2022), Silu Li (2022), Dong Huang (2023), Haiyue Peng (2023), Jianbo Sun (2024), Xianwen Song (2024), Yuqing He (2025), Songtai He (2026), Siqi Wang (2026)