Xu, Jianyu

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EDUCATION

2019.9-current   **PhD student** in **Computer Science, University of California at Santa Barbara**
Advisor: Prof. Yu-Xiang Wang, and Prof. Zheng Zhang
GPA: **3.94**/4.0

2015.8-2019.7   **B.S.** in **Measurement and Control Technology and Instrument**, **Tsinghua University, China**
Advisor: Prof. Guoqi Li
GPA: **3.74**/4.0   Rank: 4/59

RESEARCH   INTERESTS

Currently I am working on *Dynamic Pricing* problems. My interest lies on a broad field of **theoretical and algorithmic** problems, including:

- Statistical Machine Learning, Bandits, Online Learning
- Graph Theory, Computational Complexity, and Combinatorics
- Tensor Network and Calculus

AWARDS AND HONORS

2019.06   Excellent Undergraduate Student Award, Tsinghua University (ranked Top 5%)

2018.09   Recommendation, by Department of PI, for **Special Scholarship** of Tsinghua University
Only One undergraduate student in each department can be recommended

2018.01   Member, 11th Group of *Tsinghua Spark Program*
Top 50/3300+ promising undergraduate students in scientific research

2016 & 2017   (Twice) Comprehensive Excellence Award, Tsinghua University (ranked Top 5%)

2013 & 2014   (Twice) **Silver Medal** of 29th and 30th Chinese Mathematical Olympiad (CMO)

2013 & 2014   (Twice) **First Prize** of National Senior High School Mathematical Contest
Provincial Champion (1st) out of 20,000+ preliminary and 1500+ qualified participants**.**

PUBLICATIONS AND WORKING PAPERS

My Google Scholar: https://scholar.google.com/citations?user=3ubVhAMAAAAJ&hl=en&oi=ao

- **Jianyu Xu**, Dan Qiao, and Yu-Xiang Wang, "Doubly Fair Dynamic Pricing." arXiv preprint arXiv: 2209.11837.
- Dheeraj Baby*, **Jianyu Xu***, and Yu-Xiang Wang, "Non-stationary Contextual Pricing with Safety Constraints." Accepted by *Transactions on Machine Learning Research*, 2022. (available soon)
- **Xu, Jianyu**, and Yu-Xiang Wang, "Towards Agnostic Feature-based Dynamic Pricing: Linear Policies vs Linear Valuation with Unknown Noise." in *AISTATS 2022. (Plenary Oral Presentation, <3%)*
- **Xu, Jianyu**, and Yu-Xiang Wang, "Logarithmic Regret in Feature-based Dynamic Pricing." in *NeurIPS 2021. (Spotlight Presentation, <3%)*

- Liang, Ling, **Jianyu Xu**, Lei Deng, Mingyu Yan, Xing Hu, Zheng Zhang, Guoqi Li, and Yuan Xie. "Fast Search of the Optimal Contraction Sequence in Tensor Networks." *IEEE Journal of Selected Topics in Signal Processing* 15, no. 3 (2021): 574-586. *(Cover Paper)*
- **Xu, Jianyu**, Hanwen Zhang, Lei Deng, and Guoqi Li. "*NP*-hardness of tensor network contraction ordering." (*working paper*).
- **Xu, Jianyu**, Ling Liang, Lei Deng, Changyun Wen, Yuan Xie, and Guoqi Li. "Towards a polynomial algorithm for optimal contraction sequence of tensor networks from trees." *Physical Review E* 100, no. 4 (2019): 043309.
- **Xu, Jianyu**, Guoqi Li, Changyun Wen, Kun Wu, and Lei Deng. "Towards a unified framework of matrix derivatives." *IEEE Access* 6 (2018): 47922-47934.

INTERNSHIP

2022.06 – 2022.09   Applied Scientist Intern at Amazon, Seattle

In Retail Pricing Science & Research Team,
Supervised by Dr. Pau Pereira, hosted by Dr. Tara Mardan

- Conduct research on applying multi-armed bandit algorithms for Amazon retail pricing.

- Develop methods to generate simulated real-world demand-to-price data for algorithm comparisons.

2021.07 – 2021.10   Research Intern at AntGroup, Beijing & Hangzhou

Supervised by Dr.Wenpeng Zhang

- Help developing algorithms on attracting new/sleeping/lost customers with personalized-value coupons.

- Conduct research on "Contextual Bandits with Knapsacks" for budget-constraint coupon pricing.

RESEARCH   EXPERIENCE

2019.11 – current   Decision Making and Dynamic Pricing

Advised by Prof. Yu-Xiang Wang, Dept. Computer Science, UCSB

- Develop algorithms for online dynamic pricing under different assumptions.

- Prove regret upper & lower bounds for these algorithms.

2018.1 – 2019.8   *NP*-Hardness of Tensor Network Contraction Ordering

Advised by Prof. Guoqi Li, Department of Precision Instrument, Tsinghua University
    and Prof. Yuan Xie, Scalable Energy-Efficient Architecture Lab, UCSB   *(2018.7-2018.9)*
- Given the existing problem setting to be NP-hard, propose an easier version of the problem setting.
- Prove the easiness: by pointing out a case which is polynomial in the new version, but NP-hard in the old.
- Prove the hardness: even the easier version is also NP-hard.

2017.2– 2018.2   Computation on Matrix Function Derivatives

Advised by Prof. Guoqi Li, Department of Precision Instrument, Tsinghua University
- Conclude 2 main approaches of calculating matrix-to-scalar function derivatives in chain rule.
- Proved their equivalence under certain conditions.

TEACHING ASSISTANTSHIP

2020 Spring	CS 165A, *Artificial Intelligence,* Dept. CS, UCSB
2020 Winter	CS 165A, *Artificial Intelligence,* Dept. CS, UCSB
2019 Fall	CS 8, *Introduction to Computer Science,* Dept. CS, UCSB

PROFESSIONAL SKILLS

Programming languages: Python, MATLAB
Spoken languages: Chinese, English
Engineering software: AutoCAD, Solidworks, LabView, etc.