

# YUNZHEN FENG

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## EDUCATION

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### New York University (NYU), New York, U.S.

Sep'21 - present

- Ph.D. Student at the Center for Data Science.
- Advisor: Prof. Julia Kempe.

### Peking University (PKU), Beijing, China

Aug'17 - June'21

- B.S. (honor track) in Applied Mathematics, Data Science.
- Advisor: Prof. Bin Dong.

## PUBLICATIONS

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1. Chizhou Liu, **Yunzhen Feng**, Ranran Wang, Bin Dong. Enhancing Certified Robustness of Smoothed Classifiers via Weighted Model Ensembling. *ICML 2021 workshop on Adversarial Machine Learning, 2021*.
2. **Yunzhen Feng\***, Runtian Zhai\*, Di He, Liwei Wang, Bin Dong. Transferred Discrepancy: Quantifying the Difference Between Representations. *arXiv:2007.12446*.
3. **Yunzhen Feng**, Yue M. Lu. A Precise High-dimensional Analysis of Laplacian Semi-Supervised Learning.

## RESEARCH EXPERIENCE

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### Marketplace Investment Team, Uber Technologies

May'22 - present

*Applied Scientist PhD Intern*

- Mentor: Dr. Chen Xu, Dr. Jason Dowlatabadi.
- Team Supervisor: Prof. Stefan Wager, Prof. Peter Frazier.
- Design CausalML model for learning heterogeneous incentive response function across cities with observational data and experimental data.
- Extrapolate results to cities that cannot carry out experiments.

### Math and Data group, Center for Data Science, NYU

Sep'21 - present

*Research Assistant*

- Advisor: Prof. Julia Kempe.
- Understand how overparameterized networks learn different features with inner data structures.
- Create knowledge-condensed core dataset for efficient meta-learning.

### Beijing International Center for Mathematical Research, PKU

Jan'20 - Jul'21

*Research Assistant*

- Advisor: Prof. Bin Dong.
- Proposed an ensembling framework for certified robustness with improved robustness, less training time, and theoretical guarantees.
- Proved the existence of pure Nash Equilibrium in adversarial robustness and combined game-theoretic algorithms with adversarial training.

### School of Engineering and Applied Science, Harvard University

Aug'20 - Dec'20

*Research Assistant*

- Advisor: Prof. Yue M. Lu.
- Investigated how unlabeled data help the classification for Gaussian mixtures and Laplacian regularization using high dimensional statistics.

## Microsoft Research Asia

Jan'20 - June'20

### *Unofficial Research Collaboration*

- Collaborator: Dr. Di He.
- Proposed to measure the difference between two networks' representation via their performances on a set of downstream tasks and investigate the effect of random initialization on the learned features.

## OTHER EXPERIENCE

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### Ubiquant Investment (Beijing) Co., Ltd.

Jul'21 - Sep'21

#### *Quant Researcher*

- Machine learning for finance.
- Retrieved core patterns with designed pretrain tasks and improved IC with diverse ensembling.

## SPECIALIZED SKILLS

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- **Programming:** Python (PyTorch), MATLAB,  $\LaTeX$ .
- **Language:** English (Fluent), Mandarin (Fluent).

## SELECTED HONORS AND AWARDS

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National Science Foundation Research Traineeship (NRT) Future Program	2021
Data Science Fellowship (\$ 190,000), New York University	2021
Outstanding Graduate Student, Peking University	2021
<i>Bronze Medal</i> , S.-T. Yau College Student Mathematics Contests (top 20 in China)	2020
<i>Meritorious Award</i> , Mathematical Contest in Modeling (top 9%)	2019
The Elite Undergraduate Training Program of Applied Mathematics (top 10%)	2018
<i>Gold Medal</i> , China Mathematics Olympiad (top 100 in China)	2016
<i>Ranked First in First Prize</i> , Chinese High School Mathematics League, Beijing (top 1)	2016

## ACTIVITIES AND INTERESTS

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- Successfully climbed the Luodui Mount (6010m) at Tibet, China.
- 3.0 (NTRP standard) Tennis Player.
- Rock-climber and outdoor hiker trained by committees from Chinese Mountaineering Association.
- One-year volunteer at Arthur M. Sackler Museum of Art and Archaeology, Peking University.
- Teaching Assistant for *Outdoor Exploration* course at PKU.