

Ying Chen

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Research Interest: Optimization, Machine Learning

EDUCATION

University of California, Berkeley

Aug 2022-Present

- Ph.D. in Industrial Engineering & Operations Research
- Advisor: Javad Lavaei

Tsinghua University

Aug 2018-Jul 2022

- B.S. in Mathematics and Physics (GPA: 3.82/4.0)

RESEARCH EXPERIENCES

Self-supervised Learning for Hidden Markov Models

Jun 2021-Jun 2022

Advisor: Prof. Rong Ge, Department of Computer Science, Duke University

- Derive a simple-structure formula to learn the distribution of hidden state given observation sequence
- Study the identifiability of HMM, and find counter-examples where parameter estimation does not work
- Construct a specific structure to learn the hidden state from observation state

Edge of Stability Phenomenon

Jun 2021-Jun 2022

Advisor: Prof. Rong Ge, Department of Computer Science, Duke University

- Observed the eigenvalue of hessian matrix to increase and oscillate in different optimization structure
- Explore the decomposition of hessian matrix and the singular vector for weight matrix

Clustering with Variance Projection

Sep 2020-Jun 2021

Advisor: Prof. Yannis Yatracos, Yao Mathematics Science Center, Tsinghua University

- Introduced methods of Variance Components Split to image data, comparable with K-Means method
- Improved image classification accuracy slightly in Cats & Dogs dataset using normal projection direction
- Captured details for image segmentation and reproduction successfully, with high SSIM and PSNR

Robust Data-driven Profile-based Pricing Schemes

Sep 2019 -Jan 2020

Advisor: Prof. Chenye Wu, Institute for Interdisciplinary Information Sciences, Tsinghua University

- Applied adversarial learning for electricity market design and analyzed the impact of disguising of power pricing

SKILLS & HONORS

- **Languages:** Chinese (native), English (fluent)
- **Programming Languages:** C/C++, R, Python, MATLAB, Mathematica, Stata
- **Scholarships:** Research and Innovation Scholarship at Tsinghua University, 2021
- **Other interests:** Playing Chinese lute