Mayee Chen

Curriculum Vitae

Education

09/19 – **Stanford University**, *PhD Candidate in Computer Science*
- Advisor: Christopher Ré

09/15 – **Princeton University**, *B.S.E in Operations Research and Financial Engineering (ORFE),*
06/19 *certificate in Applications of Computing*, GPA: 3.962/4
- Graduated Summa Cum Laude
- Senior Thesis: *A Quantum Version of the Multiplicative Weights Algorithm* (recipient of the Ahmet S. Çakmak Thesis Prize)
- Thesis advisor: Elad Hazan

Research Interests

I'm interested in exploring fundamental questions behind tools in modern machine learning and using them to develop new, theoretically grounded methods. My current interests revolve around how to encode and evaluate sources of supervision and side information throughout the ML pipeline (e.g. weakly/semi/self-supervised) through both information-theoretic and geometric lenses. In particular, my work in graduate school so far has applied this interest to latent variable graphical models, distribution shift, and representations learned via contrastive losses.

Publications and Preprints

- **Shoring Up the Foundations: Fusing Model Embeddings and Weak Supervision**
Mayee F. Chen*, Daniel Y. Fu*, Dyah Adila, Michael Zhang, Frederic Sala, Christopher Ré.
Uncertainty in Artificial Intelligence (UAI), 2022. **Oral Presentation.**
- **Perfectly Balanced: Improving Transfer and Robustness of Supervised Contrastive Learning**
Mayee F. Chen*, Daniel Y. Fu*, Avanika Narayan, Michael Zhang, Zhao Song, Kayvon Fatahalian, Christopher Ré.
International Conference on Machine Learning (ICML), 2022.
- **TABi: Type-Aware Bi-Encoders for Open-Domain Entity Retrieval**
Megan Leszczynski, Daniel Y. Fu, Mayee F. Chen, Christopher Ré.
Findings of ACL, 2022.
- **The Details Matter: Preventing Class Collapse in Supervised Contrastive Learning**
Mayee F. Chen*, Daniel Y. Fu*, Michael Zhang, Kayvon Fatahalian, Christopher Ré.
AAAI Workshop on Artificial Intelligence with Biased or Scarce Data, 2022. **Best Paper Award.**
- **An Adversarial Model of Network Disruption: Maximizing Disagreement and Polarization in Social Networks.**
Mayee F. Chen and Miklos Z. Racz.
IEEE Transactions on Network Science and Engineering (TNSE), 2021.
- **Mandoline: Model Evaluation under Distribution Shift**
Mayee F. Chen*, Karan Goel*, Nimit Sohoni*, Fait Poms, Kayvon Fatahalian, and Christopher Ré.
International Conference on Machine Learning (ICML), 2021.
- **Comparing the Value of Labeled and Unlabeled Data in Method-of-Moments Latent Variable Estimation**
Mayee F. Chen*, Benjamin Cohen-Wang*, Steve Mussmann, Frederic Sala, and Christopher Ré.
AISTATS, 2021.
- **Fast and Three-rious: Speeding Up Weak Supervision with Triplet Methods**
Daniel Y. Fu*, Mayee F. Chen*, Frederic Sala, Sarah M. Hooper, Kayvon Fatahalian, and Christopher Ré.
International Conference on Machine Learning (ICML), 2020.
- **Effect of Rotational Grazing on Plant and Animal Production**
Mayee F. Chen and Junping Shi.
Journal of Mathematical Biosciences and Engineering, vol. 15, no. 2. 2018.
- **Efficient GCD Computation for Big Integers on Xeon Phi Coprocessor**
Jie Chen, William Watson, and Mayee F. Chen.
IEEE Conference on Networking, Architecture, and Storage (NAS). 2014.

Awards and Honors

2021	NSF GRFP Honorable Mention
2019	Ahmet S. Çakmak Prize, *Princeton University*, for innovative senior thesis research.
2018	Phi Beta Kappa, *Princeton University*, one of 28 early inductees.
2017	Tau Beta Pi Engineering Honor Society, *Princeton University*
2017	Shapiro Prize for Academic Excellence, *Princeton University*, awarded to top 2-3% of the class.

Work Experience

2016 – 19   **Grader for Computer Science Department**, *Princeton University*
- Algorithms and Data Structures (lead grader), Functional Programming, Reasoning about Computation, Introduction to Machine Learning, and Economics and Computing

06/18–08/18   **Quantitative Trading Intern**, *IMC Trading*, Chicago, IL, Fixed Income, Currencies, and Commodities Desk

05/17–08/17   **Software Engineering Intern**, *Google*, Mountain View, CA, Advertiser Platform Team
Worked on AdWords Next Overviews, frontpage data analytics for ads campaigns

05/16–08/16   **Engineering Practicum Intern**, *Google*, Mountain View, CA, Cloud/Cluster/Kernel team
Worked on an infrastructure tool for pushing configuration and data updates to services within Google

Talks

2022	Snorkel AI Machine Learning Whiteboard Talk: Liger: Fusing weak supervision with foundation model embeddings
2021	MedAI Talk Series: Correcting distribution shift in the ML model evaluation process
2021	DAWN Research Workshop: Mandoline: Model Evaluation under Distribution Shift
2020	Google x Stanford Summit: Labeled vs Unlabeled Data in Latent Variable Graphical Models

Coursework

Relevant graduate courses:
- Information Theoretic Lower Bounds in Data Science, Principles of Data-Intensive Systems, Convex Optimization II, Randomized Algorithms

Relevant undergraduate courses:
- *ORFE Courses:* Probability Theory (graduate-level course), Optimization, High Frequency Trading, Decision Modeling for Business Analytics, Monte Carlo Simulation, Strategy and Information, Financial Mathematics, Analysis of Big Data, Probability and Stochastics, Microeconomic Theory, Statistics
- *Computer Science Courses:* Optimization for Machine Learning (graduate-level seminar), Computer Networks, Operating Systems, Economics and Computing, Introduction to Machine Learning, Information Security, Human-Computer Interfaces, Neural Networks, Functional Programming, Reasoning About Computation, Programming Systems, Algorithms and Data Structures

Leadership and Activities

Reviewer for NeurIPS and ICML (2021, 2022). Subreviewer for UAI and KDD (2020).

At Stanford University:
- CS PhD Admissions Committee (2020, 2021)
- CS Student Applicant Support Program Volunteer (2020, 2021)
- Graduate WiCS Mentor (2021)
- XTRM Kpop Cover Group: dance captain (2019–2021), Alliance Dance Team (2019–2020)

At Princeton University:
- Triple 8 Dance Company: choreographer, publicity chair (2015–19)
- Kokopops Dance Group: dance captain (2017–19)
- Freshmen Advisee Interactor for School of Engineering (2017–19)

Skills

Advanced: Python, C, Java   Intermediate: Go, OCaml, R, Dart   Basic: Matlab, Julia