Addison Hu

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Education

August 2018 – December 2023 **Carnegie Mellon University**, *Pittsburgh, PA*.
- PhD, Department of Statistics and Machine Learning Department (joint)
- Thesis: Estimation of BV^k functions from scattered data.

July 2022 – December 2023 **University of California, Berkeley**, *Berkeley, CA*.
- Visiting Researcher, Department of Statistics

August 2013 – May 2017 **Yale University**, *New Haven, CT*.
- BSc, Statistics; Distinction in Major; magna cum laude
- Thesis: Minimax estimation of bandable precision matrices.

Work Experience

September 2024 – present **Senior Scientist, Performance Prediction**, *Latitude AI*, Palo Alto, CA.
- Responsible for end-to-end framework integrating on-road and simulation-based data to evaluate the performance of the AV software. This framework accelerates the development process and has been used to land new features across Perception, Prediction, and Motion Planning.
- Data-driven human-alignment of comfort and safety metrics. This work continually re-calibrates company metrics using machine learned models to be more consistent with demonstrated human preferences for ride behavior.
- Consults across company on statistical inference and uncertainty quantification, in particular for safety-critical rare event estimation problems.

January 2024 – August 2024 **Visiting Scientist, Learned Autonomy Behavior**, *Latitude AI*, Palo Alto, CA.
- In this postdoc-style role, I created a methodology for predicting safety and comfort metrics for new software releases by leveraging fleet and simulation-based data, with additional work on variance reduction and confidence set calibration.

August 2018 – Decemeber 2023 **Graduate Student Researcher**, *Carnegie Mellon University & UC Berkeley*.
- *Foundational work in Stat/ML theory:* my main thesis work explored the fundamental limits of estimation in bounded variation and bounded gradient variation function spaces, with estimators to achieve those limits.
- *Computational methodology:* motivated by the COVID pandemic, I developed forecast methodology for COVID and influenza, as part of CMU's Delphi group. Our 2021–2022 flu season forecasts had the highest performance amongst those submitted to the CDC.
- *Atmospheric science:* I devised a spatio-temporal method for estimating subsurface ocean thermal response to tropical cyclones. This method has been used and extended by atmospheric scientists.

July 2017 – August 2018 **Data Scientist (L3, L4), Search Core Relevance**, *Facebook*, Seattle, WA.
- Worked with a machine learning engineering team, with a particular focus on surfacing posts previously seen by a user in high-intent searches ("needle searches").
- Designed and implemented a framework for measuring success over high-intent searches, including: analyses for identifying share of searches that were potential "needle searches"; failure modality identification for users with high-intent searches; smoke tests for the content retrieval and ranking systems through simulated searches.
- Mentored other data scientists and participated in statistics reading groups. Promoted within the first year with a rating of GE.

Papers

2025 **Jeremy Goldwasser, Addison J Hu, Alyssa Bilinski, Daniel J McDonald, Ryan J Tibshirani**, *Estimating time-varying epidemic severity rates with adaptive deconvolution*, Submitted.

2024 **Jeremy Goldwasser, Addison J Hu, Alyssa Bilinski, Daniel J McDonald, Ryan J Tibshirani**, *Challenges in estimating time-varying epidemic severity rates from aggregate data*, Submitted.

2024 **Sarabeth Mathis, et al**, *Evaluation of FluSight influenza forecasting in the 2021-22 and 2022-23 seasons with a new target laboratory-confirmed influenza hospitalizations*, Nature Communications.

2022 **Addison J Hu, Alden Green, and Ryan J Tibshirani**, *The Voronoigram: Minimax estimation of bounded variation functions from scattered data*, Submitted.

2021 **Veeranjaneyulu Sadhanala, Yu-Xiang Wang, Addison J Hu, and Ryan J Tibshirani**, *Multivariate trend filtering for lattice data*, Annals of Statistics.

2021 **Daniel J McDonald, Jacob Bien, Alden Green, Addison J Hu, [nine more authors]**, *Can auxiliary indicators improve COVID-19 forecasting and hotspot prediction?*, Proceedings of the National Academy of Sciences.

2021 **Alex Reinhart, et al**, *An open repository of real-time COVID-19 indicators*, Proceedings of the National Academy of Sciences.

2021 **Estee Y Cramer, et al**, *Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the US*, Proceedings of the National Academy of Sciences.

2020 **Addison J Hu, Mikael Kuusela, Ann B Lee, Donata Giglio, and Kimberly M Wood**, *Spatio-temporal methods for estimating subsurface ocean thermal response to tropical cyclones*, Advances in Statistical Climatology, Meteorology and Oceanography.

2017 **Addison J Hu and Sahand N Negahban**, *Minimax estimation of bandable precision matrices*, Advances in Neural Information Processing Systems.

Awards

Spring 2020 **NSF Graduate Research Fellowship Program**.
- My graduate study was funded by a grant from the NSF to study multivariate extensions of trend filtering for scattered data. The research conducted under this grant culminated in my dissertation.

Service

2021 – 2023 **Referee**, *Annals of Statistics, Journal of Machine Learning Research, Journal of Computational and Graphical Statistics*.

2019, 2020, 2021 **Reviewer**, *Neural Information Processing Systems*.
- Top reviewer: 2019, 2020.

2020 – 2023 **Wellness Committee**, *CMU Department of Statistics*, Pittsburgh, PA.
- Organized discussions, events, and other opportunities to promote holistic student wellness.

Technical Skills

Python, PyTorch, C++, R, LaTeX, SQL