

Yupeng Chen

yupengc@stanford.edu | (424) 535-8335 | yupeng-l-chen.github.io

SUMMARY

Fourth-year Ph.D. candidate in Management Science and Engineering at Stanford, working across stochastic modeling and applied statistics: queueing and scheduling, Markov models and discrete-event microsimulation, economic evaluation and cost-effectiveness analysis, causal inference, and time-series and machine learning on high-frequency data.

EDUCATION

Stanford University

Ph.D., Management Science and Engineering

M.S., Management Science and Engineering

- GPA: 4.00/4.00; advanced to doctoral candidacy May 2025
- Marvin A. Karasek Stanford Interdisciplinary Graduate Fellow (2025–2028)

Stanford, CA

Sep 2023 – Jun 2028

Conferred Jun 15, 2025

University of California, Los Angeles

B.S., Mathematics of Computation and Cognitive Science; Minor in Statistics

- *Summa cum laude*; GPA: 3.97/4.00; GRE: 333/340 (Quantitative 170/170); Dean's Honor List, 2018–2022

Los Angeles, CA

Sep 2018 – Mar 2022

Relevant coursework: Queueing and Scheduling in Processing Networks, Stochastic Modeling, Stochastic Processes, Mathematical Statistics, Linear Models, Regression and Data Mining, Applied Causal Inference with Machine Learning, Topics in Market Design, Game Theory, Linear Programming, Convex Optimization, Transformers and Large Language Models

SELECTED RESEARCH

Queueing-Informed Adaptive Alarm Policies for High-Frequency Sensor Streams

Oct 2024 – Present

Advisor: Prof. David Scheinker

Lucile Packard Children's Hospital Stanford

- Transformed 3.78M sensor readings from 93 patients into 72,748 clinically meaningful episodes, consolidating escalating threshold crossings into single events to eliminate redundant alerts.
- Benchmarked 22 pre-specified alerting policies through discrete-event simulation over 200 paired replications under common random numbers, selecting the final configuration by nested subject-grouped cross-validation.
- Trained a supervised machine learning classifier as an alternative to the rule-based policy and validated it out of sample on an independent 7.48M-reading cohort, where a 7.1 point sensitivity advantage in development narrowed to 2.6.

Queueing Microsimulation of Housing Allocation for Homeless Adults

2026 – Present

Advisor: Prof. Margaret Brandeau

Stanford University

- Developed an open-cohort discrete-event microsimulation of 8,907 homeless adults queueing for 3,424 housing units, modeling endogenous supply where each opening is generated by a tenancy ending.
- Benchmarked 13 allocation policies across 25 paired replications under common random numbers, isolating targeting effects from service discipline by breaking ties in queue order.
- Quantified the value of information in intake covariates, showing a single observable field recovered 52% of the mortality reduction and 85% of the quality-adjusted life-year gain achievable under perfect risk information.

Causal Estimation of Payer Effects on Scheduling

Jun 2022 – Present

Advisors: Dr. Srikanth Kadiyala and Dr. Fabian Duarte

UCLA Center for Health Policy Research

- Estimated linear probability models across 48M U.S. birth records from 2011 to 2024 to identify how payer status shifts the timing of care delivery.
- Applied omitted-variable-bias benchmarking and weekday-weekend falsification tests to isolate scheduled daytime procedures as the mechanism behind a 3.8 percentage point gap in early-morning deliveries. Under

Within-Subject Signal Extraction from Multimodal Wearable Streams

Jan 2024 – Present

Advisors: Dr. Dessi Zaharieva and Prof. David Scheinker

Lucile Packard Children's Hospital Stanford

- Engineered a multimodal ETL pipeline reconciling asynchronous Garmin activity and Dexcom glucose streams sampled at different frequencies into a unified dataset of 59 patients and 1,418 patient-days.
- Applied inverse-variance-weighted within-subject estimation to recover individual response heterogeneity invisible in the pooled analysis, translating results into three per-patient flagging metrics for a clinical review queue.

ADDITIONAL PROJECTS

- **Sequential anomaly detection in wearable biomarkers.** X-bar statistical process control against subject-specific baselines across a 4,795-subject panel, flagging physiological change 23 to 73 hours before symptom onset.
- **Coordination under uncertainty.** Bayesian delegation for inverse intent inference in a multi-agent Markov decision process, with bounded real-time dynamic programming for approximate policy optimization.
- **Agent-level market microsimulation (CalSIM).** Calibrated to observed aggregates, with parallel scenario sweeps executed via MPI on high-performance computing infrastructure.
- **Single-trial EEG decoding.** Support vector machine and convolutional neural network classifiers trained on event-related potential and spectral features in a low signal-to-noise regime.
- **Concrete slump prediction.** Convolutional neural network over aggregate gradation curves, benchmarked against locally connected and fully connected architectures with SHAP feature attribution.
- **Telepsychiatry pilot.** Propensity-score matching with random-forest-constructed synthetic controls over high-dimensional utilization data for a health-plan depression and anxiety program.

PUBLICATIONS

1. **Chen, Y.**, Gupta, N., Scheinker, D. (2026). Queueing-informed adaptive alarm policies for continuous glucose monitoring in diabetes management. *INFORMS Healthcare 2026*.
2. **Chen, Y.**, Brandeau, M. (2026). A queueing microsimulation of coordinated entry prioritization for supportive housing allocation. *INFORMS Healthcare 2026*.
3. **Chen, Y.**, Zou, J., Laforcade, P.-A., Scheinker, D., Zaharieva, D. (2026). Multimodal prioritization using wearable activity data in type 1 diabetes. *INFORMS Healthcare 2026*.
4. **Chen, Y.**, Amick, A., Owens, D.K., Salomon, J.A., Brandeau, M.L., Bennett, C.M. (2026). Cost-effectiveness of geographically targeted HIV testing in emergency departments. *SAEM Annual Meeting*.
5. Dupenloup, P., **Chen, Y.**, Prahallad, P., Johari, R., Addala, A., et al. (2026). Cost-effectiveness of continuous glucose monitoring with remote patient monitoring. *Diabetes Care*, 49(5), 889–897.
6. Qian, G.L., **Chen, Y.**, Rawson, R.A., Humphreys, K., Brandeau, M.L. (2026). Cost-effectiveness of contingency management for methamphetamine use disorder: A model-based analysis. *Addiction*, 121(8), 2127–2140.
7. Snir, S., **Chen, Y.**, Yechezkel, M., Patalon, T., et al. (2024). Changes in behavior and biomarkers during the diagnostic decision period. *The Lancet Regional Health – Europe*, 42, 100934.
8. Kadiyala, S., Duarte, F., **Chen, Y.** (2026). Insurance status and the hour of delivery: Evidence from U.S. natality data, 2011–2024. *Health Affairs Scholar* (under review).

SKILLS

Programming: Python (NumPy, pandas, SciPy, scikit-learn, statsmodels, PyTorch), R, C++ , SQL, MATLAB; Git, Unix/Linux, MPI, Jupyter, $\LaTeX$

Probability and Statistics: Stochastic processes, martingales, Markov chains, mathematical statistics, Bayesian inference, causal and quasi-experimental inference, multiple-hypothesis testing and false discovery control

Modeling and Machine Learning: Monte Carlo and discrete-event simulation, variance reduction (common random numbers), queueing theory, time-series analysis, numerical linear algebra, Markov decision processes, nested cross-validation, bootstrap, gradient boosting, random forests, convolutional neural networks