

# Yizhou (Kyle) Kuang



Cornell University

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## Fields

Econometrics: Partial Identification, Time Series, Bayesian Inference, Statistical Decision, Machine Learning  
Macroeconomics: Monetary Policy, DSGE Models, Information Economics

## Education

Ph.D., Economics, Cornell University, 2023 (expected)  
Committee: Francesca Molinari (Chair), Yongmiao Hong, José Luis Montiel Olea, Kristoffer Nimark  
MSc., University of Wisconsin-Madison, 2017  
BSc., Economics, Southwest Jiaotong University, China, 2015

## Fellowships & Awards

Sage Fellowship, Cornell University, 2017–2022  
The Louis Walinsky Fund in Economics in Honor of Professor Herbert Joseph Davenport Outstanding Teaching Award, 2020  
Academic Excellence Scholarship, University of Wisconsin Madison, 2017  
Outstanding Graduates, Southwest Jiaotong University, 2014  
Meritorious Prize, American Mathematical Contest in Modeling, 2013

## Field Graduate-level Courses Taken

Macroeconomics: Macroeconomics I&II, Information Economics  
Econometrics: Econometrics I&II, Time Series, Partial Identification, Causal Inference with ML, Semi/Nonparametric Economics  
Math and Stats: Probability Theory I&II, Empirical Process, Statistical Decision, Applied Functional Analysis  
Computer Science: ML Theory, Applied ML

## Teaching Experience

Teaching Assistant, Cornell University, 2018–2022  
Linear Algebra for Engineers (Undergraduate), Prof. Laurent Saloff-Coste, Fall 2018  
Introduction to Analysis (Undergraduate), Prof. Natalia Goncharuk, Spring 2019  
Econometrics I (Ph.D.), Prof. Yongmiao Hong, Fall 2019  
Econometrics II (Ph.D.), Prof. Jörg Stoye, Spring 2020  
Introductory Macroeconomics, Prof. Thomas Evans, Summer 2020, 2021  
Introductory Microeconomics, Prof. Nicholas Sanders, Fall 2020  
Applied Econometrics (Undergraduate), Prof. Douglas McKee, Spring 2021  
Introductory Macroeconomics, Prof. Jennifer Winnsink, Fall 2022

## Teaching Interest

Intro: Microeconomics, Macroeconomics, Econometrics  
Intermediate: Microeconomics, Macroeconomics, Econometrics  
Advanced & Graduate: Econometrics, Macroeconomics, Bayesian Inference, Statistical Decision, Machine Learning, Partial Identification, Time Series, Information Economics

## Research Experience

- Research Assistant, Professor Francesca Molinari, Cornell University, 2020–2021
- Confidence Intervals for Projections of Partially Identified Parameters (Hiroaki Kaido, Francesca Molinari and Jorg Stoye, *Econometrica* 2019)
  - Estimating the COVID-19 Infection Rate: Anatomy of an Inference Problem (Charles Manski and Francesca Molinari, *Journal of Econometrics* 2020)
  - Job Hunting: A Costly Quest (Domenico Ferraro, Nir Jaimovich, Francesca Molinari and Cristobal Young, working paper)
- Research Assistant, Professor James Walker, University of Wisconsin Madison, 2016–2017
- Efficiency and Mortality of Slave Agriculture in The Antebellum South

## Workshop and Seminar Presentations

Macro Lunch; Work In Progress Seminar; Econometrics workshop, Cornell University, 2019-2022  
 Summer School in Econometrics and Statistics, Xiamen University, 2019

## Job Market Paper

### “Robust Bayesian Estimation and Inference for Dynamic Stochastic General Equilibrium Models”

This paper introduces a new algorithm to conduct robust Bayesian estimation and inference in set-identified DSGE models. The algorithm combines standard Bayesian methods with an equivalence characterization of model solutions. Based on this algorithm, researchers are able to perform the following analysis. (i) Find the complete expected identified set of both the deep parameters and any parameters of interest robust to prior choices. (ii) Derive the robust Bayesian credible region for parameters based on data. I prove the validity of this algorithm and apply this method to the models in Cochrane (2011) and An and Schorfheide (2007) to achieve robust estimations for structural parameters and impulse responses. I then conduct a sensitivity analysis of optimal monetary policy rules with respect to the choice of priors and provide bounds to the optimal Taylor rule parameters.

## Working Papers

### “Centralized or Decentralized? An Empirical Model on Task Assignment of Government in Pandemics” (with Qiwei He)

One of the central questions in pandemic-related discussions is how to best design mitigation policy to reduce the death rate from COVID-19. This paper enters into the debate by comparing social welfare using centralized and decentralized decision-making. Using indirect inference, we first estimate a structural SIR model with a regional spillover effect. We then set up and structurally estimate a dynamic game model where each US state government makes mitigation policy independently. Socially optimal mitigation policy is then solved by minimizing the sum of local governments’ welfare loss using estimated weights on different sectors. Counterfactual analysis of centralized decision-making is conducted to compare the social welfare gain (loss) should the US adopt a mitigation policy at the federal level.

### “Nowcasting with dynamic factors: A LASSO penalized model averaging approach” (with Yongmiao Hong, Yuying Sun)

With the advent of complex information systems to collect data, real-time nowcasting faces various challenges, including a more significant number of predictors, higher order of lags, unbalanced data structure, model uncertainty and complexity in bridging high-frequency information contained. To address these issues, this paper proposes a new real-time nowcasting forecast combination with dynamic factor regressions, which deletes redundant predictors and simultaneously selects optimal weights for candidate models. It is shown that the selected weight achieves asymptotic optimality and consistency, even when all candidate models are misspecified. The proposed estimator is consistent and asymptotically Gaussian if the true model is included in candidate models. Simulation results show that the proposed method yields lower mean square forecast errors than alternative nowcasting methods, including MIDAS in Ghysels et al. (2004), GARS in Giannone et al. (2008), and FADL-MIDAS in Andreou et al. (2013). The proposed method is applied to forecast quarterly GDP with a set of 118 macroeconomic monthly data series, which compares favorably to other competing methods.

## Work in Progress

### “Private and common information acquisition over the business cycle: Evidence from probability forecasts” (with Nathan Mislav, Kristoffer Nimark)

We propose a method to decompose a cross-section of observed belief revisions into private and common components. We define a common signal as the single signal that if observed by all agents can explain the maximum amount of belief revisions across agents. Private signals are defined to

explain the remaining residual belief revision unaccounted for by the common signal. When applied to probability forecasts from the Survey of Professional Forecasters we find that on average, private information accounts for more of the observed belief revisions than common information. However, private information tend to increase uncertainty, i.e. to lead forecasters to assign higher probability to more extreme outcomes. The importance and precision of private and common information are positively correlated over time, though the importance and precision of private information is more volatile and more strongly correlated with business cycle indicators such as... We argue that no existing theoretical model can explain the documented facts. The proposed method is non-parametric and only assumes that agents use Bayes rule to update their beliefs.

**“Vintage Capital and Venture Capital Investment Concentration”** (With Qinshu Xue and Bin Zhao)

This paper studies the geographic concentration of VC investment in the US. We discovered that both VC firms and VC-backed companies are highly clustered in the Bay-Boston-NY area. Using the detailed Uniform Commercial Code (UCC) filings self-reported by lenders to stake a claim to specific pieces of collateral, we track the capital transaction across firms. We propose the vintage capital market density as an essential determinant of VC investment concentration. Since young firms can benefit from cheap vintage capital while old firms can exit with a high scrap value, VC investments are attracted due to a high entry rate and a low exit cost. By modeling a market for the vintage capital, we aim to endogenize the scrap value of firms. Our paper highlights the critical role of the capital market in determining the industry and venture capital agglomeration. Industry policy that helps promote local capital market density would also attract VC investment in places with the greatest economic need.

**Activities and Professional Services**

Student Econometrics Reading Group organizer, Cornell University, 2019 - 2020  
Graduate & Professional Student Assembly (GPSA) representative, Cornell University, 2018 - 2019

**Programming**

MATLAB, Stata, Julia, R, Python, SQL

**Languages**

English, Mandarin

**References**

[Francesca Molinari](#) (Chair)

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Professor; Professor of Statistics and Data Science  
Cornell University

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