

## **ZHOUSHOU GU**

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### EDUCATION

#### **Peking University**

Beijing, China

B.S. in Physics, B.A. in Economics

Sep 2018 – July 2022

- **Academics:** Overall GPA: 3.87/4.00 with 159 credits, Major GPA: 3.91/4.00
- **Math/Phys courses:** Mathematical Analysis I, II; Linear Algebra; Probability and Statistics; Methods of Mathematical Physics I, II (Complex Analysis, Ordinary Differential Equations and Partial Differential Equations); Computational Physics A (Numerical Analysis); Advanced Quantum Mechanics (PhD), Group Theory (PhD), Quantum Statistical Physics (PhD), Stochastic Analysis (PhD), Function of Real Variables
- **Finance/Economics Courses:** Intermediate Microeconomics/Macroeconomics/Econometrics; Advanced microeconomics I, II (PhD); Advanced macroeconomics I (PhD); Advanced Econometrics I (PhD); Corporate Finance Theory (PhD); Contract Theory (PhD); Financial Market

### RESEARCH INTERESTS

**Corporate Finance, Agency Frictions, Banking, Macro-finance**

### RESEARCH EXPERIENCE

*Field: Finance, Macroeconomics*

**University of Southern California, Marshall School of Business**

CA, USA

Advisor: Prof. [Wenhao Li](#)

Oct 2021 – Present

#### **Banks' Life Cycle Project**

- This project seeks to understand the life cycle of banks, entry and exit, and the macroeconomic implication.
- Read several classical firms' life cycle's literature in a discrete time's setting, including Hopenhayn (1992), Hsieh and Klenow (2014), etc. Replicated the entry and exit problem with heterogeneous firms and rederived main results.
- (Ongoing) Constructing a continuous model to study the life cycle with idiosyncratic/aggregate shock. Specifically, we are going to adopt an approach based on transition probability of modified Kolmogorov Forward Equation and convolution of entrance distribution of TFP to study life cycle's distribution in a stationary/dynamic industry.

#### **Firm Quality Dynamics and the Slippery Slope of Credit Intervention**

June 2021 – Sep 2021

- This project seeks to explore the central banks' direct credit's impact on firms' quality distribution during the Covid-19 crisis.
- Quantitatively analyzed the firm quality dynamics with public liquidity provision during a crisis and also replicated and double-checked the theory and numerical part (using MATLAB and Python).
- Developed a spectrum-based smoothing method to solve the dynamical systems (ordinary differential equation sets with jumps) and numerically implemented it using R; achieved 100 times better convergence, compared to the original algorithm

*Field: Industrial Organization (Digital Economics)*

**Fudan University (Department of Industrial Economics, School of Management)**

Shanghai, China

Independent Research (with Wenyi Yin) supervised by Professor [Zhuoran Lu](#)

Jan 2021 – Present

#### **Data as a Production Factor: Privacy Concern vs Product Quality**

- This project aims at offering evidence for the efficient data transaction market design and optimal privacy policy.
- Developed a benchmark model on firm's production side temporarily without privacy concern
- Explored a more general case including consumers' privacy concern consideration and found an optimal government privacy regulatory level;
- (On-going) Constructing an optimal menu of the firm and take R&D decision into firm's problem; Extending the model from monopolist setting to duopolistic competition which is more realistic.

## SELECTED PROJECTS

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### **Peking University (National School of Development)**

Beijing, China

#### **Term Project, Econometrics:**

Apr 2019 – Jun 2021

#### **Econometric Analysis of US Cancer Death Rate and its Causes (Term Project, Econometrics)**

- Explored several causes of the cancer by OLS regression and verified what is the determinant factor.
- Collected and cleaned state-level panel data from CDC by Python and Stata and performed IV regression to estimate the causal effect of smoking on lung cancer.
- Identified a once overlooked cause of cancer and some possible policies for the government to reduce the cancer's death rate.

*Field: Others (Physics)*

### **Peking University (Department of EECS)**

Beijing, China

Independent Research supervised by Professor [Xuzong Chen](#)

Feb 2020 – Oct 2021

#### **Simulation of Ultracold Atom Gases and Dynamical Phase Transition**

#### **Honor Thesis: Essays on Ultra-cold Atom Physics and Dynamic Phase Transition**

- This project aims at studying the dynamical critical behavior of ultracold atom gases. I developed a dynamical algorithm with MATLAB (based on stiff ODE solver and sampling) to figure out the order parameters and Loschmidt echos' time-dependent curve. Further, the critical behavior very close to non-analytical points is analyzed. Extracted simulation results reveal that there exists a universal critical exponent of the dynamical phase transition.

## SELECTED AWARDS AND HONORS

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|--|------------|
| • Merit Student (Top 5%)   | 2021, 2020 |
| • The First Prize of Peking University Scholarship (Top 2%)                        | 2020       |
| • Selected to Elite Undergraduate Research Training Program for two years (Top 5%) | 2019, 2020 |
| • Gold Medal in the 19th Asian Physics Olympiad (APhO)                             | 2018       |

## SELECTED IN PROGRESS

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- Dynamic Land Provision, Urbanization and Economic Growth.
- Data Transaction: A Comparison of Data Sharing Platforms and Traditional Data Exchanges.
- Talent Allocation and Hierarchical Firm Crosssections.

## ADDITIONAL INFORMATION

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### **Additional Professional and Extracurricular Experiences**

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|---|----------------------|
| • Participant, University of Southern California, Macro-finance Workshop                                | June 2021 – present  |
| • Speaker, Fudan University, Digital and Behavioral Economics Reading Group                             | June 2021 - Sep 2021 |
| • Teaching Assistant for Intermediate Microeconomics, Prof <a href="#">Xin Wang</a> , Peking University | 2021, Fall           |

### **Computer and Language Skills**

- R, STATA, Python, MATLAB, Latex, C/C++
- Chinese (Native), English
- TOEFL: 107, GRE: 156(V)+170(Q)+4.5(AW)