Wei Zhang

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### EDUCATION

Purdue University	West Lafayette, IN, U.S.A.
<ul> <li>Ph.D. Candidate in Econometrics. (GPA: 3.95/4.0)</li> <li>Doctoral Student Research Fund, Summer Research Grant, Federick N. Andrews Fellow</li> </ul>	August 2025 (expected) wship
Humboldt University of Berlin	Berlin, Germany
• Master of Science, majoring in Econometrics. (GPA: 1.3, on a scale where 1.0 is the hig	ghest) August 2017
University of International Business and Economics	Beijing, China
• Master of Economics, majoring in International Trade. (GPA: 3.9/4.0)	June 2017
Zhongnan University of Economics and Law	Wuhan, China
• Bachelor of Management, Minor in Finance	June 2014

### Skills and Interests

- Expertise (10+yoe): Econometric Modelling, Time Series Analysis, Business Conditions Monitoring, Forecasting, Monetary Policy Analysis
- Programming Languages (7+yoe): MATLAB, Python(pandas, NumPy, matplotlib, PyMC), R, Stata, SQL.
- Languages: English (fluent), Chinese (native), Japanese (beginner), German (basic)
- Interests: Painting, Piano, Hiking, Yoga

## Selected Research Projects

- [1] Bayesian Dynamic Factor Model for High-dimensional Matrix-valued Time Series *Econometric Modelling, Time Series Analysis, Business Conditions Monitoring* 
  - Introduced a Bayesian Matrix Dynamic Factor Model that efficiently captures dynamic interdependencies in matrix-valued time series in macro-financial data; developed a scalable Gibbs–MH sampling algorithm with Kronecker-structured priors while accommodating time-varying volatility and outliers.

### [2] Measuring Inflation Risk Using Matrix Dynamic Factors: A Granular Approach for the Euro Area

Time Series Analysis, Forecasting, Monetary Policy Analysis

• Developed a matrix factor model that effectively recovers missing observations and entire series in high-dimensional macroeconomic panels from the ECB dataset, yielding improved forecast performance over traditional factor models; constructed an inflation and deflation risk indicator for ten euro area countries, accurately estimating country-level probabilities of tail inflation events.

## [3] Bayesian Model Comparison for Large Bayesian VARs after the COVID-19 Pandemic

- Econometric Modelling, Time Series Analysis, Monte Carlo Simulations
- Developed a variational inference algorithm to dramatically reduce computation time in forecasting with large vector autoregressions on high-dimensional macroeconomic data; combined with importance sampling for efficient model comparison.

# [4] Asymmetric Dynamic Factor Model

- Econometric Modelling, Monte Carlo Simulations, Business Conditions Monitoring
- Proposed an asymmetric dynamic factor model with threshold-dependent factor loadings to capture nonlinear effects of economic conditions; designed an efficient MCMC sampler and uncovered significant asymmetries in macroeconomic responses, with stronger effects during downturns.

## INDUSTRY EXPERIENCE

## European Central Bank

Summer Trainee (MATLAB, R)

• Collaborated with economists to develop a reliable indicator of inflation risks in the euro area, capable of signaling inflation and deflation at least three months in advance; presented the paper "Bayesian Dynamic Factor Models for High-dimensional Matrix-valued Time Series" to policy-makers at an internal seminar.

### Ziroom

#### Pricing Analyst (**Python**, **R**, **SQL**)

• Responsible for development of predictive machine-learning models for housing prices in China; improved the prediction accuracy by 9.5%.

PERSONAL INFORMATION

July 2024–August 2024

February 2019–May 2019

Chinese citizen, US permanent resident