

Nam Nguyen, PhD

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I am an experienced Applied Econometrician and Data Scientist with cutting-edge training in methodologies such as *State-Space Model*, *Forecasting Techniques*, *Machine Learning*, *Time Series Analysis*, *Quantitative Methods* and *Data Visualization*. Additionally to the macro econometrics techniques that I specialized in, I am also proficient in model testing and validation, the methodologies I used include *Model Selection*, *Model Average*, *K-fold Cross Validation* and *Bootstrapping*. I am experienced in statistical software such as *Python*, *R*, *Matlab*, *SAS* and *Stata*. I am also familiar with database management language such as *SQL* and data visualization tools such as *Tableau*, *R(ggplot2)* and *Python(matplotlib)*.

Areas of Expertise

- Econometrics
- Machine Learning
- Data Analysis
- Structural Modelling
- Quantitative Methods
- Forecasting
- Cross-validation
- Uncertainty Quantification

Data Science Skills

Methodologies and Tools

- Time Series: *ARIMA*, *VAR*, *Stochastic process*, *State-space models*, *Kalman Filter*, *Forecasting*
- Machine Learning: *KNN*, *Neural Networks*, *LDA*, *QDA*, *Random Forest*, *Bagging*, *Boosting*
- Causal Inferences: *A/B Testing*, *Difference in Difference*, *Regression Discontinuity*, *Instrumental Variables*
- Panel Regression: *Fixed Effects*, *Random Effects*, *Quantile Regressions*
- Bayesian Methods: *Gibbs Sampling*, *Metropolis-Hasting Algorithm*
- Resampling Methods: *K-fold Cross-validation*, *Bootstrapping*
- Model Comparison: *Model Selection (Ridge, Lasso, Elastic Net, Markov Chain Monte Carlo Model Comparison MC3)*, *Model Average (Bates and Granger, Bayesian Model Average)*

Computer Programming

- Statistical Tools: *Python (numpy, scikit-learn, tensorflow)*, *R*, *Matlab*, *C++*, *Stata*, *SAS*
- Data Management: *Python (Pandas)*, *MySQL*, *Tableau*
- Bayesian Analysis Tools: *Dynare*, *Winbug*
- Scripting Tools: *Latex*, *RMarkdown*, *MS Office*

Research Projects

1. Identifying Unsustainable Credit Gap (January 2022 - August 2022)

- This project implements model selection and model average to overcome model uncertainty problem and improve performance of total credit gap as a predictor of financial crises. The model uses quarterly panel data of 50 years across 40 countries. The methods used are *Fixed Effect Within Estimator*, *Logistic Regression*, *Model Selection*, *Bayesian Model Average*, *Partial Area Under the ROC Curve (pAUC)*, *Index Synthesizing*, *K-fold Cross-validation*, and *Policy Function Optimization*.

2. Measuring Credit Gap (January 2021 - December 2021)

- This project utilizes the cyclical property of short-run component of a nonstationary series to improve out-of-sample prediction of its future changes. We set up a horse race for forecasting models and implement forecast combination of multiple credit gap measurements to improve predictive performance on future total credit changes. The methods used includes *Trend-Cycle Decomposition*, *Bate-Granger Forecast Combination* and *One-sided Adaptive Model Average*.
- Submitted for review in the *Journal of Business Cycle Research* (January 2023)

3. House Prices and Credit Cycles (June 2019 - Dec 2020)

- This project exploits a model that allows for household credit and house prices to be jointly determined in both short run and long run. The quarterly data used in this paper span across 17 developed countries for 30 years. The methodology used in this project allows for measuring the directions and magnitudes of the effects the two variables have on each other. More importantly, the timing of the effect can also be estimated using a *State-Space*

Framework. The methodologies used are *Vector Autoregression*, *Bayesian Inference (Random-Walk Metropolis-Hasting algorithm)*, *Kalman Filter*, *State-Space models* and *Non-linear Impulse Response Function*.

Professional Experience

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| Mar 2023 - present | Model Risk Management Analyst
Rosemont, Illinois, US | Wintrust Financial Corporation |
| | <ul style="list-style-type: none">• Conducted model validation for models used in the bank to ensure compliance with SR 11-7 regulations. Prepared concise validation reports for upper management review and ensured that any findings were appropriately addressed by the model owners• Spearheaded process improvements within the Model Risk Management (MRM) department by redesigning the template for validation and periodic review reports. Streamlined the documentation process, resulting in increased efficiency, consistency, and clarity in reporting• Developed challenger models utilized during model validation/review for various types of models. Actively automated validation testing processes whenever feasible, optimizing resource allocation | |
| Sep 2017 - Aug 2022 | PhD Candidate & Instructor
Milwaukee, Wisconsin, US | University of Wisconsin - Milwaukee |
| | <ul style="list-style-type: none">• Taught a diverse set of students with a wide range of technical backgrounds• Clearly communicated statistics and economic theory, with the express purpose of applying it to analyze real data | |
| Jan 2017 - Aug 2017 | Research Assistant
Washington, D.C, US | America Institutes for Research |
| | <ul style="list-style-type: none">• Designed and quality controlled standardized tests for public grade school students | |

Education

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| 2022 | Ph.D. Quantitative Economics and Econometrics
Milwaukee, Wisconsin, US | University of Wisconsin - Milwaukee |
| 2016 | M.A. Economics
Chicago, Illinois, US | University of Illinois at Chicago |
| 2013 | B.A. Economics and Business Administration
Cedar Rapids, Iowa, US | Coe College |

Certificates

SQL - HackerRank
Machine Learning with Python - Kaggle

Awards and Honors

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| 2019-2021 | Chancellor's Graduate Student Award in Economics
University of Wisconsin - Milwaukee |
| 2018-2022 | Graduate Teaching Assistantship
University of Wisconsin - Milwaukee |
| 2014-2016 | Graduate Teaching Assistantship
University of Illinois at Chicago |
| 2011, 2013 | Dean's List
Coe College |