CHAO CHENG

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EDUCATION & TRAINING

Department of Biostatistics, Yale School of Public Health, New Haven Sep. 2019 - Present
Postgraduate Associate

· Conducting research in statistical genetics under the supervision of Prof. Donna Spiegelman.

Department of Mathematical Sciences, Tsinghua University, Beijing Aug. 2017 - Jul. 2019
Master of Applied Statistics (Graduation with distinction; top 1/19)

· Major GPA: 3.84/4.0; Cumulative GPA: 3.72/4.0.
· Core Courses: Advanced Probability Theory (based on measure theory); Advanced Statistics; Advanced Statistical Computing; Algorithm Analysis and Design; Applied Stochastic Processes; Financial Mathematics.

School of Business and Management, Donghua University, Shanghai Sep. 2013 - Jun. 2017
Bachelor of Economics in Finance (Graduation with distinction; top 5%)

· Major GPA: 3.86/5.0; Cumulative GPA: 3.74/5.0.
· Core Courses: Calculus; Linear Algebra; Probability Theory and Statistics; Time Series Analysis; Econometrics.

PUBLICATIONS & MANUSCRIPTS

* The manuscripts are available at https://chaochengstat.github.io.

1 Testing for Gene-Environment Interactions in the Presence of Mismeasured Environmental Exposures (with Molin Wang, Zuoheng Wang and Donna Spiegelman; manuscript completed)

2 **Cheng, C**., Wang, M. Statistical Methods for Analysis of Combined Biomarker Data from Multiple Nested Case-Control Studies. (*manuscript*, preprint available)

3 **Cheng, C**., Rosner, B., Wang, M., (2019+), Statistical Methods for Analysis of Combined Categorical Biomarker Data from Multiple Studies. (under revision at *Annals of Applied Statistics*)

4 **Cheng, C**., Wang, R., Zhang, H., (2019+), Surrogate Residuals for Discrete Choice Models. (Accepted by *Journal of Computational and Graphical Statistics*)

6 **Cheng, C**., Wang, M., Chen, K. Forecasting Realized Volatility in Presence of Structure Break: A New Forecast Combination Approach. (working paper)

5 Sloan, A., **Cheng, C**., Rosner B., Ziegler, R., Smith-Warner, S., Wang M. A Repeated Measures Approach to Pooled and Calibrated Biomarker Data. (To be submitted)

7 Wang, M., Chen, K., Luo, Q., **Cheng, C**., (2018). Multi-Step Inflation Prediction with Functional Coefficient Autoregressive Model. *Sustainability*, 10(6), p.1691.

8 Shen, M., **Cheng, C**., Huang, C., (2017). The Application of Non-manual Data in Targeted Poverty Alleviation. *The World of Survey and Research*, 12, 43-48. (written in Chinese)

RESEARCH EXPERIENCE

A Reverse Test for Gene-environment (GxE) Interaction effect Sep. 2019 - Present
Research Assistant; Advisor: Prof. Donna Spiegelman at Yale and Prof. Molin Wang at Harvard

· Proposed a reverse test based on the linear discriminant analysis to detect the GxE interaction.
· Comparing with the standard logistic approach, the proposed reverse test can gain more statistical power and spend less computing time.

· Completed one manuscript.

Calibration Methods for Pooling Biomarker Data Jul. 2018 - Present
Research Assistant; Advisor: Prof. Molin Wang, Harvard University

· Proposed calibration approaches to evaluate the biomarker-disease association where the data were combined from multiple studies and the biomarker measurement errors existed in both the local and reference laboratories.
· Completed two manuscripts, where one is under revision at *Annals of Applied Statistics*.

Surrogate Residuals for Discrete Choice Models Apr. 2018 - Feb. 2019
Research Assistant; Advisor: Prof. Heping Zhang, Yale University

· Defined the surrogate residuals for Discrete Choice Models based on the surrogate approach.
· Comprehensively analyzed the theoretical and graphical properties of the proposed surrogate residuals.
· Completed a paper on *Journal of Computational and Graphical Statistics*.

Forecast Realized Volatility Series in Presence of Structure Breaks Nov. 2017 - Nov. 2018
Research Assistant; Advisor: Prof. Man Wang, Donghua University

· Proposed a Forecast Combination Model based on an exponential weighting scheme to predict realized volatility series.
· Through theoretical derivation and simulation experiments, verified that the proposed approach can outperform existing weighting schemes in the presence of structure break, especially for time series with multiple breaks.
· Completed one working paper to report our findings.

Inflation Prediction with Functional-coefficient Autoregressive Model Sep. 2017 - Nov. 2017
Research Assistant; Advisor: Prof. Man Wang, Donghua University

· Based on simulation studies and real data analysis, evaluated the efficiency of Functional-coefficient Autoregressive Model (FAR) in the application on inflation series prediction.
· Coauthored a journal paper published in *Sustainability*.

AWARDS & HONORS

Excellent Master's Thesis Award (top 1/19)	2019
Excellent Undergraduate Thesis Award (top 4/139)	2017
National Encouragement Scholarship (national, top 5%)	2016
Tianji Scholarship (top 5%)	2016

ACTIVITIES

Central Public Secondary Boarding School, Kathmandu, Nepal Jan. 2018 - Feb. 2018
Volunteer Teacher

· Taught the students world history and geology, and basic arithmetic and geometry knowledge.

Academic Division, Student Union, Donghua University Sep. 2013 - Jun. 2015

· Participated in the organization and preparation of academic lectures and reports.
· Organized the 2nd Shanghai Undergraduate Business English Contest; in charge of contacting the contestants.

SKILLS AND INTERESTS

Programming	R, Visual Basic, SAS, Matlab, Python
Software	LaTeX, Microsoft Office, SPSS, Stata, Photoshop
Language	Chinese (native), English (fluent)
Interests	Running, Swimming, Hiking