

Tao Chen

CONTACT INFORMATION	University of Waterloo Hagey Hall of Humanities Waterloo, ON, Canada N2L 3G1	Phone: (519) 888-4567 ext. 32558 E-mail: t66chen@uwaterloo.ca https://uwaterloo.ca/big-data-research-lab/our-people/lab-director
RESEARCH INTERESTS	Mathematical Statistics, Econometric Theory, Machine Learning, Labor Economics, Mental Health and Cognition, Vascular Diseases	
EDUCATION	University of Connecticut, Storrs, CT, USA	
	Ph.D., Economics (with M.A. degree) Major advisor: Dr. Gautam Tripathi	2003.8 - 2011.6
	Ph.D., Mathematics (A.B.D. with M.S. degree) Major advisor: Dr. Richard Bass	2005.8 - present
	Shanghai International Studies University, Shanghai, China	
	B.A., Finance	1997.9 - 2001.7
PROFESSIONAL EXPERIENCE	Academic	
	Sponsored Research Chair, University of Waterloo	2024.12 - 2029.11
	Tenured Professor at University of Waterloo, cross-appointed to Statistics and Actuarial Science, Faculty of Mathematics	2020.9 - present
	Economics, Faculty of Arts	2018.7 - present
	Senior Research Fellow of Labor and Worklife Program, Harvard University	2015.9 - 2021.8
	Assistant Professor of Economics, University of Waterloo	2011.7 - 2018.6
	Others	
	Founding Director of Big Data Research Lab, University of Waterloo	2014.5 - present
	KPMG, Shanghai	2001.7 - 2002.8
BOOK CHAPTERS	Non-parametric and semi-parametric regressions (with A. Almeida and C. Azzoni). In D. Mukherjee (Ed.), <i>Selected Topics in Cross Section and Panel Data Econometrics</i> , Springer, forthcoming.	
	Advancements in financial asset pricing models: a comprehensive review (with Y. Li). In R. Boobalan (Ed.), <i>Encyclopedia of Monetary Policy, Financial Markets and Banking</i> , Elsevier, forthcoming.	
JOURNAL PUBLICATIONS	Determination of goals and strategies for blood pressure control in aortic dissection patients <i>BMJ Open</i> , forthcoming (with J. Lei, Z. Zhang, Y. Li, Z. Wu, H. Pu, Z. Xu, X. Yang, J. Hu, G. Liu, Q. Peng and X. Lu).	
	Where does the heaviness start? <i>REVSTAT – Statistical Journal</i> , forthcoming (with Z. Zhang).	
	Machine Learning-Based Prognostic Model for In-hospital Mortality of Aortic Dissection: Insights from an Intensive Care Medicine Perspective, <i>Digital Health</i> , forthcoming (with J. Lei, Z. Zhang, Y. Li, Z. Wu, H. Pu, Z. Xu, X. Yang, J. Hu, G. Liu, Q. Peng and X. Lu).	

The effectiveness of consumption tax on the reduction of car pollution in China, *Transportation Research Part D: Transport and Environment*, forthcoming (with A. Arcila-Vasquez and X. Lu).

Sex differences in personality disorder and childhood maltreatment of patients with schizophrenia, *Neuropsychiatric Disease and Treatment*, forthcoming (with X. Wang, X. Ni, Y. Wei, L. Xu, X. Tang, H. Liu, Z. Wang, J. Wang, Q. Zhang and T. Zhang).

Advancements and future directions in prevention based on evaluation for individuals with clinical high risk of psychosis: insights from the SHARP study, *Schizophrenia Bulletin*, forthcoming (with T. Zhang, L. Xu, Y. Wei, H. Cui, X. Tang, Y. Hu, Y. Tang, Z. Wang, H. Liu, C. Li, and J. Wang).

Cognitive impairments in drug-naive patients with first-episode negative symptom-dominant psychosis, *JAMA Network*, forthcoming (with T. Zhang, Y. Wei, X. Tang, H. Cui, Y. Hu, L. Xu, H. Liu, Z. Wang, Q. Hu, C. Li and J. Wang).

Cognitive functions following initiation of antipsychotic medication in adolescents and adults at clinical high risk for psychosis: a naturalistic sub group analysis using the MATRICS consensus cognitive battery, *Child and Adolescent Psychiatry and Mental Health*, forthcoming (with T. Zhang, Y. Wei, X. Tang, H. Cui, L. Xu, Y. Hu, Y. Tang, Q. Hu, H. Liu, Z. Wang, C. Li and J. Wang).

Repetitive transcranial magnetic stimulation can improve negative symptoms and/or neurocognitive impairments in the first psychosis episode, *Progress in Neuropsychopharmacology & Biological Psychiatry*, forthcoming (with Q. Hu, X. Jiao, Y. Wei, X. Tang, L. Xu, H. Cui, Y. Hu, Y. Tang, Z. Wang, H. Liu, C. Li, C. An, J. Wang and T. Zhang).

Models of mild cognitive deficits in risk assessment in early psychosis, *Psychological Medicine*, forthcoming (with T. Zhang, H. Cui, X. Tang, L. Xu, Y. Wei, Y. Hu, Y. Tang, Z. Wang, H. Liu, C. Li and J. Wang).

Duration of Untreated Prodromal Psychosis and Cognitive Impairments, *JAMA Network*, forthcoming (with T. Zhang, H. Cui, Y. Wei, X. Tang, L. Xu, Y. Hu, Y. Tang, H. Liu, Z. Wang, C. Li and J. Wang).

Association between serum cytokines and timeframe for conversion from clinical high-risk to psychosis, *Psychiatry and Clinical Neurosciences*, forthcoming (with T. Zhang, Y. Wei, L. Xu, X. Tang, Y. Hu, H. Liu, Z. Wang, C. Li and J. Wang).

Childhood maltreatment and personality disorders in adolescents and adults with psychotic or non-psychotic disorders, *Frontiers in Psychiatry* (with W. Wang, Y. Cui, Q. Hu, Y. Wei, L. Xu, X. Tang, Y. Hu, H. Liu, Z. Wang, R. Wang, C. An, J. Wang and T. Zhang).

Eye movement characteristics for predicting a transition to psychosis: longitudinal changes and implications, *Schizophrenia Bulletin*, forthcoming (with D. Zhang, L. Xu, X. Liu, H. Cui, Y. Wei, W. Zheng, Y. Hong, Z. Qian, Y. Hu, Y. Tang, C. Li, Z. Liu, H. Liu, T. Zhang and J. Wang).

Correlative relationship between body mass index and heart rate variability in psychiatric disorders, *European Archives of Psychiatry and Clinical Neuroscience*, forthcoming (with W. Wang, L. Zhou, Q. Hu, Y. Gao, Y. Wei, X. Tang, Y. Hu, L. Xu, H. Liu, Z. Wang, C. Li, H. Wu, J. Wang and T. Zhang).

Global semantic-guided network for saliency prediction, *Knowledge-Based Systems*, forthcoming (with J. Xie, Z. Liu, G. Li and X. Lu).

Associations between duration of untreated prodromal psychosis and cognitive impairments, *JAMA Network Open*, forthcoming (with T. Zhang, L. Xu, Y. Wei, X. Tang, Y. Hu, H. Cui, Y. Tang, Z. Wang, H. Liu, C. Li and J. Wang).

A deep learning neural network method using linear eigenvalue statistics for schizophrenic EEG data classification, *Mathematics*, forthcoming (with H. Liu, L. Li, Y. Ye, C. Pan, G. Yang, T. Zhang, J. Wang and R. Qiu).

A functional data approach for continuous-time analysis subject to modeling discrepancy under infill asymptotics, *Mathematics*, forthcoming (with Y. Li and R. Tian).

Duration of untreated prodromal psychosis among individuals with clinical high risk for psychosis, *Psychiatry Research*, forthcoming (with T. Zhang, L. Xu, Y. Wei, X. Tang, Y. Hu, H. Cui, Y. Tang, Z. Wang, H. Liu, C. Li and J. Wang).

Cardiovascular variations in patients with major depressive disorder versus bipolar disorder, *Journal of Affective Disorders*, forthcoming (with T. Zhang, Z. Chen, X. Xiao, L. Zhou, Y. Hu, L. Xu, Y. Wei, X. Tang, H. Liu, H. Wu, X. Wu and J. Wang).

Psychiatric emergency department visits during the Coronaviurs Disease-2019 pandemic, *Frontiers in Psychiatry*, forthcoming (with T. Zhang, Z. Chen, X. Xiao, L. Zhou, Y. Hu, L. Xu, Y. Wei, X. Tang, H. Liu, H. Wu, X. Wu and J. Wang).

Heart rate variability in patients with psychiatric disorders from adolescence to adulthood, *General Hospital Psychiatry*, forthcoming (with T. Zhang, L. Zhou, Y. Wei, X. Tang, Y. Gao, Y. Hu, L. Xu, H. Liu, C. Li, Z. Lu, J. Wang).

Association between age and neurocognition in individuals at clinical high risk and first-episode psychosis, *Psychiatry Research*, forthcoming (with T. Zhang, Y. Wei, H. Cui, X. Tang, L. Xu, Y. Hu, Y. Tang, H. Liu, C. Li, J. Wang).

Atypical salient regions enhancement network for visual saliency prediction of individuals with autism spectrum disorder, *Signal Processing: Image Communication*, forthcoming (with H. Duan, Z. Liu, W. Wei, T. Zhang, J. Wang, L. Xu and H. Liu).

Increased anxiety and stress-related visits to the Shanghai psychiatric emergency department during the COVID-19 pandemic in 2020 compared to 2018-2019, *Frontiers in Psychiatry*, forthcoming (with T. Zhang, Z. Chen, X. Xiao, L. Zhou, Y. Hu, L. Xu, Y. Wei, X. Tang, H. Liu, H. Wu, X. Wu and J. Wang).

Serum angioneurin levels following electroconvulsive therapy for mood disorders, *Bipolar Disorders*, forthcoming (with T. Zhang, X. Tang, Y. Wei, L. Xu, Y. Hu, H. Cui, J. Zeng, J. Ye, Y. Xie, Y. Tang, H. Liu, C. Li, X. Liu and J. Wang).

Association of attenuated niacin response with inflammatory imbalance and prediction of conversion to psychosis from clinical high-risk stage, *Journal of Clinical Psychiatry*, forthcoming (with T. Zhang, X. Xiao, H. Wu, J. Zeng, J. Ye, Y. Gao, Y. Hu, L. Xu, Y. Wei, X. Tang, H. Liu, X. Liu, C. Li, L. Zhou, X. Wu and J. Wang).

Prediction of preoperative in-hospital mortality rate in patients with acute aortic dissection by machine learning: a two-center, retrospective cohort study, *BMJ Open*, forthcoming (with Z. Wu, Y. Li, Z. Xu, H. Liu, K. Liu, P. Qiu and X. Lu).

Attenuated niacin response is associated with a sub-type of first episode psychosis characterized as serious negative symptoms, *European Archives of Psychiatry and Clinical Neuroscience*, forthcoming (with T. Zhang, R. Gan, G. Wu, J. Zeng, Y. Hu, L. Xu, Y. Wei, X. Tang, C. Li, H. Liu and J. Wang).

A deep LSTM-CNN based on self-attention mechanism with input data reduction for short-term Load Forecasting, *IET Generation, Transmission & Distribution*, forthcoming (with Y. Yi, H. Liu, J. Zhang and Y. Fan).

Serum complement proteins rather than inflammatory factors is effective in predicting psychosis in individuals in clinical high risk, *Translational Psychiatry*, forthcoming (with T. Zhang, J. Zeng, J. Ye, Y. Gao, Y. Hu, L. Xu, Y. Wei, X. Tang, H. Liu, C. Li, C. Wan and J. Wang).

Changes in Inflammatory Markers in Clinical High Risk of Developing Psychosis, *Neuropsychobiology*, forthcoming (with T. Zhang, J. Zeng, Y. Wei, J. Ye, X. Tang, L. Xu, Y. Hu, H. Liu, C. Li and J. Wang).

Developing and optimizing a machine learning predictive model for postthrombotic syndrome in a longitudinal cohort of patients with proximal deep venous thrombosis, *Journal of Vascular Surgery: Venous and Lymphatic Disorders*, forthcoming (with Z. Wu, Y. Li, Jiahao Lei, H. Liu, P. Qiu and X. Lu).

Changes in inflammatory balance correlates with conversion to psychosis among individuals at clinical high-risk: A prospective cohort study, *Psychiatry Research*, forthcoming (with T. Zhang, J. Zeng, Y. Wei, J. Ye, X. Tang, L. Xu, Y. Hu, H. Cui, Y. Xie, Y. Tang, X. Liu, H. Liu, C. Li and J. Wang).

Portfolio selection – from under-diversification to concentration, *Empirical Economics*, forthcoming (with J. Xu, Y. Li and K. Liu).

Serum levels of tumor necrosis factor- α and vascular endothelial growth factor in the subtypes of clinical high risk individuals: a prospective cohort study, *Neuropsychiatric Disease and Treatment*, 19 (2023), 1711-1723 (with J. Ye, Y. Wei, J. Zeng, Y. Gao, X. Tang, L. Xu, Y. Hu, X. Liu, H. Liu, C. Li, J. Wang and T. Zhang).

Multivariate joint models for the dynamic prediction of psychosis in individuals with clinical high risk, *Asian Journal of Psychiatry*, 2023 (with T. Zhang, X. Tang, Y. Zhang, L. Xu, Y. Wei, Y. Hu, H. Cui, Y. Tang, H. Liu, C. Li, J. Wang), Doi.org/10.1016/j.ajp.2023.103468.

Eye movement indices as predictors of conversion to psychosis in individuals at clinical high risk, *European Archives of Psychiatry and Clinical Neuroscience*, 2022 (with D. Zhang, L. Xu, Y. Xie, X. Tang, Y. Hu, X. Liu, G. Wu, Z. Qian, Y. Tang, H. Liu, T. Zhang and J. Wang), DOI:10.1007/s00406-022-01463-z.

Antipsychotic exposure in clinical high risk of psychosis: empirical insights from a large cohort study, *Journal of Clinical Psychiatry*, 83 (2022), 21m14092 (with J. Zeng, A. Raballo, R. Gan, G. Wu, Y. Wei, L. Xu, X. Tang, Y. Hu, Y. Tang, C. Li, J. Wang and T. Zhang).

Highly accurate heart failure classification using carbon nanotube thin film biosensors and machine learning assisted data analysis, *Biosensors and Bioelectronics: X*, 12 (2022), 100187 (with Z. Guo, R. Tian, W. Xu and D. Yip, M. Radyk, F. Santos, A. Yip and S. Tang).

Electric vehicle range estimation using regression techniques, *The World Electric Vehicle Journal*, 13 (2022), Article 105 (with M. Ahmed, Z. Mao, Y. Zheng and Z. Chen).

Prognostic impact of blood pressure change patterns on patients with aortic dissection after admission, *Frontiers in Cardiovascular Medicine, Section Hypertension*, 9 (2022), 832770 (with Z. Wu, Y. Li, P. Qiu, H. Liu, K. Liu, R. Wang and X. Lu).

Effective differentiation between depressed patients and controls using discriminative eye movement features, *Journal of Affective Disorders*, 307 (2022), 237-243 (with D. Zhang, X. Liu, L. Xu, Y. Li, Y. Xu, M. Xia, Z. Qian, Y. Tang, Z. Liu, H. Liu, T. Zhang, J. Wang).

Gender differences in prodromal psychotic symptom screening in a counseling center population, *Archives of Women's Mental Health*, 25 (2022), 291-299 (with Q. Hu, Z. Chen, Z. Lin, Z. Li, Y. Wei, L. Xu, X. Tang, Y. Hu, J. Wang, T. Zhang and C. Li).

Automatic auditory processing features in distinct subtypes of patients at clinical high risk for psychosis: forecasting remission with mismatch negativity, *Human Brain Mapping*, 43 (2022), 5452-5464 (with G. Wu, X. Tang, R. Gan, J. Zeng, Y. Hu, L. Xu, Y. Wei, Y. Tang, H. Liu, C. Li, J. Wang and T. Zhang).

Replication of the abnormal niacin response in first episode psychosis measured using laser doppler flowmeter, *Asia-Pacific Psychiatry*, 14 (2022), E12516 (with R. Gan, G. Wu, J. Zeng, Y. Hu, L. Xu, Y. Wei, X. Tang, X. Liu, J. Wang and T. Zhang).

Antipsychotic prescription, assumption and conversion to psychosis in clinical high risk individuals: resolving missing clinical links to optimize prevention through precision, *Schizophrenia*, 8 (2022), Article 48 (with T. Zhang, A. Raballo, J. Zeng, R. Gan, G. Wu, Y. Wei, L. Xu, X. Tang, Y. Hu, Y. Tang, C. Li and J. Wang).

Artificial intelligence assisted niacin skin flush screening in early psychosis identification and prediction, *General Psychiatry*, 35 (2022), E100753 (with H. Liu, R. Tian, R. Gan, W. Xu, T. Zhang and J. Wang).

Attenuated niacin-induced skin flush response in individuals with clinical high-risk for psychosis, *General Psychiatry*, 35 (2022), E100748 (with R. Gan, Y. Wei, G. Wu, J. Zeng, Y. Hu, L. Xu, X. Tang, X. Liu, H. Liu, J. Wang and T. Zhang).

Temporal and time-frequency features of auditory oddball response in distinct subtypes of patients at clinical high risk for psychosis, *European Archives of Psychiatry and Clinical Neuroscience*, 272 (2022), 449-459 (with G. Wu, X. Tang, R. Gan, J. Zeng, Y. Hu, L. Xu, Y. Wei, Y. Tang, C. Li, J. Wang and T. Zhang).

Neurocognitive assessments are more important among adolescents than adults for predicting psychosis in clinical high risk, *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 7 (2022), 56-65 (with T. Zhang, H. Cui, Y. Wei, X. Tang, L. Xu, Y. Hu, Y. Tang, C. Li and J. Wang).

A potential objective marker in first-episode schizophrenia based on abnormal niacin response, *Schizophrenia Research*, 243 (2022), 405-412 (with Y. Gu, L. Xu, R. Gan, G. Wu, X. Tang, Y. Wei, H. Cui, L. Hui, Y. Tang, C. Li, C. Wan, J. Wang and T. Zhang).

Imbalance model of heart rate variability and pulse wave velocity in psychotic and non-psychotic disorders, *Schizophrenia Bulletin*, 48 (2022), 154-165 (with T. Zhang, X. Tang, L. Xu, Y. Wei, Y. Hu, H. Cui, Y. Tang, C. Li, L. Zhou and J. Wang).

Inefficient integration during multiple facial processing in pre-morbid and early phases of psychosis, *The World Journal of Biological Psychiatry*, 23 (2021), 361-373 (with T. Zhang, Y. Yang, L. Xu, X. Tang, Y. Hu, X. Xiong, Y. Wei, H. Cui, Y. Tang, H. Liu, Z. Liu, L. Hui, C. Li, X. Guo and J. Wang).

When and why contexts predict unethical behavior: evidence from a laboratory bribery game, *Frontiers in Psychology*, 12 (2021), 675319 (with S. Wang).

Identifying key factors in momentum in basketball games, *Journal of Applied Statistics*, 48 (2021), 3116-3129 (with Q. Fan, K. Liu and L. Le).

数字医疗在精神病学领域中的应用, 《中国神经精神疾病杂志》, 47 (2021), 310-313 (with J. Zeng, H. Liu, J. Wang and T. Zhang).

Pre-screening and treatment of aortic dissection through analyzing data of infinite dimensions, *BioData Mining*, 14 (2021), Article 24 (with P. Qiu, Y. Li, K. Liu, J. Qin, K. Ye and X. Lu).

Semiparametric efficiency for censored linear regression models with heteroskedastic errors, *Econometric Theory*, 34 (2018), 228-245.

Differences across versions of Penn World Table: a functional data analysis approach, *Economics Letters*, 170 (2018), 179-184 (with J. DeJuan and R. Tian).

Testing conditional mean independence under symmetry, *Journal of Business & Economic Statistics*, 36 (2018), 615-627 (with Y. Ji, Y. Zhou and P. Zhu).

A functional data approach to model score difference process in professional basketball games, *Journal of Applied Statistics*, 45 (2018), 112-127 (with Q. Fan).

Single game career high Vs. highest season average of NBA players, *Journal of the Chinese Statistical Association*, 56 (2018), 25-36 (with Y. Li).

A simple consistent test of conditional symmetry in symmetrically trimmed regression models, *Journal of Econometrics*, 198 (2017), 29-40 (with G. Tripathi).

Model-based versus data-driven approach for road safety analysis: do more data help? *Transportation Research Record: Journal of the Transportation Research Board*, 2601 (2016), 33-41 (with L. Thakali and L. Fu).

Models specification tests and the estimation of treatment effects: an application with random and nonrandom administrative records, *Journal of Economic and Social Measurement*, 41 (2016), 1-16 (with K. Couch).

Nonparametric instrumental variable estimation in practice, *Journal of Econometric Methods*, 5 (2016), 153-177 (with P. Shaw and M. Cohen).

Changing tastes: estimating changing attribute prices in hedonic and repeated sales price indices, *Journal of Real Estate Finance and Economics*, 52 (2016), 141-175 (with J. Harding).

An approximation of logarithmic functions in the regression setting, *Statistical Methodology*, 23 (2015), 50-58 (with K. Couch).

Intragenerational mobility and the ratio of permanent to total inequality, *Applied Economics*, 46 (2014), 4399-4408 (with G. Bayaz and K. Couch).

Semiparametric efficiency bound for partially linear single-index regression models, *Journal of Multivariate Analysis*, 130 (2014), 376-386 (with T. Parker).

Permanent and transitory inequality and intra-generational mobility, *Economics Letters*, 120 (2013), 200-202 (with K. Couch).

Testing conditional symmetry without smoothing, *Journal of Nonparametric Statistics*, 25 (2013), 273-313 (with G. Tripathi).

Vibration spectra of finitely ramified, symmetric fractals, *Fractals*, 16 (2008), 243-258 (with N. Bajorin, A. Dagan, C. Emmons, M. Hussein, M. Khalil, P. Mody, B. Steinhurst and A. Teplyaev).

Vibration modes of 3n-gaskets and other fractals, *Journal of Physics A: Mathematical and Theoretical*, 41 (2008), 015101 (with N. Bajorin, A. Dagan, C. Emmons, M. Hussein, M. Khalil, P. Mody, B. Steinhurst and A. Teplyaev).

WORKING PAPERS
AND WORK IN
PROGRESS,
PARTIAL LIST

Addressing domain shift via imbalance-aware domain adaptation in embryo development assessment (with X. Zhang, L. Li, J. Liang and Y. Luo, under review).

Automated method for multi-class segmentation of the knee using hybrid attention (with Y. Xiang, X. Zhang and T. Meng, under review).

MRA-MIIA: aneurysm segmentation in 3D MRA (with L. Li, X. Zhang and L. Gong, under review).

Test of high dimensionality for random and estimated vectors (with W. Xu and Z. Zhang, under review).

Network estimation under shape restrictions (with Z. Zhang and X. Zhang, under review).

Fluid balance and clinical outcomes in patients with aortic dissection: a retrospective study based on ICU data (with J. Lei, Z. Zhang, Y. Li, Z. Wu, H. Pu, Z. Xu, X. Yang, Q. Peng and X. Lu, under review).

Equity premium puzzle – an illusion in the physical world (with J. Xu, under review).

Is the financial market statistically incomplete? An empirical evidence from S&P 500 index and its derivatives (with Y. Li and R. Zeng, under review).

Stock price predictions: conventional vs. advanced models (with Y. Li and R. Zeng, under review).

Deep neural network empowered two-stage regression with a non-linear first stage (with R. Tian and W. Xu, under review).

Stochastic discount factors in incomplete markets (with Y. Li, under review).

A machine learning powered point-of-care biomarker testing system for heart failure classification (with Z. Guo, R. Tian, W. Xu and D. Yip, M. Radyk, F. Santos, A. Yip and S. Tang, under review).

Macroeconomics forecasting using mixed frequency dynamic factor model with random level shift loadings (with J. Xu, Y. Li and D. Luo, under review).

An algorithm based on empirical likelihood to identify outliers (with Z. Zhang, under review).

Sensitivity analysis of regression variables: a machine learning version (with R. Tian and W. Xu, under review).

Think outside the data envelopment – a local extreme value approach of efficiency analysis under heterogeneity (with F. Yang and Z. Zhang, under review).

NBA all time score leader VS. 10-time scoring champion, which record is more unlikely? (with Z. Zhang, under review).

Nonparametric estimation of the effects of clearance rates on crime with shape restrictions when policing is a public good (with P. Curry and A. Sen, under review).

Fault detection in lithium-ion battery pack of electric vehicle using auto-encoder (with M. Ahmed, X. Zhang, Z. Mao and Z. Chen, under review).

What's the optimal wage structure for NBA professional teams in terms of winning percentage? (with Y. Li and Z. Zhang).

Functional dynamic factor models (with J. Xu and R. Tian).

Testing the specification of a linear IV regression model when the instruments are weak (with G. Tripathi and R. Tian).

Use domain semantic information from structured labels for medical imaging segmentation (with P. Liu and X. Zhang).

“War of four kingdoms” – a reinforcement approach (with W. Xu and Q. Zhang).

Pricing of American put options based on self-consistent decision rules (with Y. Li).

High-dimension adjustment in Sieve estimation (with Z. Zhang).

Unveiling the hidden factors: a comprehensive analysis of the relationship between VO_{2max} and body characteristics using semi-/non-parametric estimation (with R. Tian and X. Song).

TEACHING
EXPERIENCE

Courses teaching at the University of Waterloo

2011.7 - Present

ECON 721: First year Ph.D. Econometrics
ECON 673: Machine Learning Applications
ECON 621: Econometrics I
ECON 600: Quantitative Methods
ECON 422: Nonparametric Estimation for Advanced Undergraduate
ECON 421: Econometric Theory
ECON 322: Econometric Analysis I
ECON 321: Introduction to Econometrics
ECON 311: Mathematics for Economists II

Courses taught at the University of Connecticut 2005.8 - 2009.5

As an independent instructor I taught: Empirical Methods in Economics, Principles of Microeconomics, Principles of Macroeconomics, Problem Solving, Calculus for Business and Economics and Calculus Sequence I-III.

SELECTED
PRESENTATIONS

Oct. 2023, “Merge AI and medical studies”, China Europe International Business School, Shanghai, China.

Sept. 2019, “Two applications of big data analysis in medical studies”, Nan Kai University, Tian Jin, China.

Feb. 2019, “Seeing is behaving: using revealed-strategy approach to understand cooperation in social dilemma”, Harvard University, MA, USA.

Sept. 2018, “Seeing is behaving: using revealed-strategy approach to understand cooperation in social dilemma”, at Shanghai Academy of Social Science, Shanghai, China

Sept. 2017, “Think outside the envelop – efficiency bound estimation through Extreme Value Theory” at University of Connecticut, CT, USA.

June 2017, “A cognitive dissonance interpretation of the context effect in ethical decision-making experiments – evidence from a laboratory bribery game” at Shanghai University of Finance and Economics, Shanghai, China.

Feb. 2015, “Overeducation? Student Loans? Wage Bargaining and more?” at Harvard University, MA, USA.

Nov. 2014, “An approximation of logarithmic functions in the regression setting – An application to intergenerational mobility study” at Xiamen University, Fujian, China.

May 2014, “A simple consistent test of conditional symmetry in symmetrically trimmed regression models” at Shanghai University of Finance and Economics, Shanghai, China.

June 2013, “Assessing the inter-generation mobility – a functional data regression approach” at Nagoya University, Nagoya, Japan.

Feb. 2011, “Selecting the optimal sample size in program evaluation studies: a sequential sampling approach” at University of Waterloo, ON, Canada.

REVIEW SERVICES

Econometric Theory, Annals of Applied Statistics, Econometrics Review, Economic Inquiry, Income Distribution, Journal of Business & Economic Statistics, Quantitative Analysis in Sports, Statistical Methodology, NSF-Economics Program.

GRANTS

Brilliant Strategy Investment Consulting, China (PI, 2014 – 2017, CAD 82,194).

Wuhan Research Institute, China (PI, 2014 – 2015, CAD 20,000).

HuangHe Talents - City of Wuhan, China (Co-PI, 2015 – 2017, RMB 1,500,000).

Center for Green Buildings and Cities - Harvard University, USA (Co-PI, 2016 – 2017, USD 100,000).

Social Sciences and Humanities Research Council – Insight Development, Canada (PI, 2016 – 2018, CAD 31,422).

International Research Partnership - University of Waterloo, Canada (PI, 2016 – 2018, CAD 20,000).

UW/SSHRC Robert Harding & Lois Claxton Humanities and Social Sciences Grant, Ontario, Canada (PI, 2016, CAD 5,500).

Wuhan Research Institute, China (PI, 2017, CAD 20,000).

Wuhan Research Institute, China (PI, 2017, CAD 10,000).
International Research Partnership (China) - University of Waterloo, Canada (Co-PI, 2017 – 2018, CAD 20,000).
Zerone Research Lab, Ontario, Canada (PI, 2017 – 2023, CAD 85,000).
PaaS Global Inc., Hong Kong, China (PI, 2018 – 2022, CAD 150,173).
Mitacs - Betterworth Inc., Ontario, Canada (PI, 2019 – 2020, CAD 45,000).
Microsoft's AI Institute funding for AI in Social Good, Ontario, Canada (PI, 2020 – 2021, CAD 25,000).
UW/SSHRC Robert Harding & Lois Claxton Humanities and Social Sciences Grant, Ontario, Canada (PI, 2021 – 2022, CAD 10,000).
Centre for Bioengineering and Biotechnology Seed Fund - University of Waterloo, Canada (Co-PI, 2021 – 2022, CAD 15,000).
Interdisciplinary Trailblazer - University of Waterloo, Canada (Co-PI, 2022 – 2024, CAD 80,000).
Rogers Communications Canada Inc., matched by Ontario Centre for Innovation, Ontario, Canada (Co-PI, 2022 – 2024, CAD 285,000).
University Research Chair in Modeling, sponsored by Medical Image Insights, Shanghai, China (PI, 2024 – 2029, CAD 1,000,000).

DOCTORAL
STUDENTS
SUPERVISION
(AS MAJOR
ADVISOR)

Renfang Tian: Tenure Track Assistant Professor at Western University - King's College, Canada, as her first placement, 2020.
Peng Qiu: Attending Doctor, Department of Vascular Surgery, Shanghai Ninth People's Hospital, Shanghai JiaoTong University School of Medicine; Manager, Research Clinical Trials Office, Vascular Center of Shanghai JiaoTong University, China, as his first placement, 2021.
Yixuan Li: Tenure Track Assistant Professor at MacEwan University, Canada, as her first placement, 2023.
Wenzuo Xu: CTO of BioRhea Tech Ltd., China, as his first placement, 2024.
Zhuojing Zhang, ongoing.
Zetian Zhang, ongoing.
Ruimin (Rachel) Zeng, ongoing (part time).

POSTDOCTORAL
FELLOWS

Meiying Zhong, China Securities Regulatory Commission.
Sining Wang, Case Western Reserve University.
Pramod Kalambate, ongoing.

PREPARED

January 14, 2025.