

# Chengchun Shi

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CONTACT INFORMATION	Assistant Professor of Data Science Department of Statistics London School of Economics and Political Science Columbia House 69 Aldwych, London	7555-508251 <a href="mailto:c.shi7@lse.ac.uk">c.shi7@lse.ac.uk</a> <a href="https://callmespring.github.io">callmespring.github.io</a>
EDUCATION	<b>North Carolina State University</b> , Raleigh, NC, USA  Ph.D., Statistics (supervised by Dr. Wenbin Lu and Dr. Rui Song)  <b>Zhejiang University</b> , Hangzhou, Zhejiang Province, China  B.S., Statistics	May 2019    July 2014
POSITION & EMPLOYMENT	<b>London School of Economics and Political Science</b> , Department of Statistics, London, UK  Assistant professor of data science	Sep 2019 – present
AWARDS & HONORS	<ul style="list-style-type: none"><li>• Finalist in Reinforcement Learning Competition Track (RL Track) in KDD Cup (2020) (Ranked 7 out of more than 1000 teams),</li><li>• Institute of Mathematical Statistics (IMS) Hannan Graduate Student Travel Award,</li><li>• Institute of Mathematical Statistics (IMS) Travel Award,</li><li>• Paige Plagge Award, NCSU</li><li>• Mu Sigma Rho, National Statistics Honor Society, NCSU</li><li>• Outstanding Undergraduates of Zhejiang Province,</li><li>• Meritorious Winner in 2013 Mathematical Contest in Modelling,</li><li>• National scholarship, China, (2%)</li></ul>	2020 2018 2017 2017 2015–Present 2014 2013 2012
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Statistical methods in reinforcement learning</li><li>• Statistical analysis of complex data</li></ul>	
PUBLICATIONS & ACCEPTED MANUSCRIPTS	<ul style="list-style-type: none"><li>• <b>Shi, C.</b>, Lu, W. and Song, R. (2020) Breaking the Curse of Nonregularity with Subagging Inference of the Mean Outcome under Optimal Treatment Regimes, <i>Journal of Machine Learning Research</i>, <i>accepted</i>.</li><li>• <b>Shi, C.</b>, Wan, R., Song, R., Lu, W. and Leng, L. (2020). Does the Markov decision process fit the data: testing for the Markov property in sequential decision making, <i>ICML</i>, <i>accepted</i>.</li><li>• <b>Shi, C.</b>, Song, R., Lu, W. and Li, R. (2020). Statistical inference for high-dimensional models via recursive online-score estimation, <i>Journal of the American Statistical Association</i>, <i>accepted</i>.</li><li>• <b>Shi, C.</b>, Song, R. and Lu, W. (2020). Concordance and value information criteria for optimal treatment decision, <i>Annals of Statistics</i>, <i>accepted</i>.</li><li>• <b>Shi, C.</b>, Lu, W. and Song, R. (2020). A sparse random projection-based test for overall qualitative treatment effects, <i>Journal of the American Statistical Association</i>, <i>accepted</i>.</li><li>• <b>Shi, C.</b>, Song, R., Chen, Z. and Li, R. (2019). Linear hypothesis testing for high dimensional generalized linear models. <i>Annals of Statistics</i>, <b>46</b>, 2671-2703.</li><li>• <b>Shi, C.</b>, Lu, W., and Song, R. (2019). On testing conditional qualitative treatment effects. <i>Annals of Statistics</i>, <b>47</b>, 2348-2377.</li><li>• <b>Shi, C.</b>, Lu, W. and Song, R. (2019). Determining the number of latent factors in multi-relational learning, <i>Journal of Machine Learning Research</i>, <b>20</b>, 1-38.</li><li>• <b>Shi, C.</b>, Lu, W., and Song, R. (2018). A massive data framework for M-estimators with cubic-rate. <i>Journal of the American Statistical Association</i>, <b>113</b>, 1698-1709.</li></ul>	

	<ul style="list-style-type: none"> <li>• <b>Shi, C.</b>, Song, R., Lu, W., and Fu, B. (2018). Maximin projection learning for optimal treatment decision with heterogeneous individualized treatment effects. <i>Journal of the Royal Statistical Society, Series B</i>, <b>80</b>, 681-702.</li> <li>• <b>Shi, C.</b>, Fan, A., Song, R., and Lu, W. (2018). High-dimensional A-learning for optimal dynamic treatment regimes. <i>Annals of Statistics</i>, <b>46</b>, 925-957.</li> <li>• <b>Shi, C.</b>, Song, R. and Lu, W. (2018). Discussion of “Optimal treatment allocations in space and time for on-line control of an emerging infectious disease”. <i>Journal of the Royal Statistical Society, Series C</i>, <b>67</b>, 743-789.</li> <li>• <b>Shi, C.</b>, Song, R. and Lu, W. (2017). Discussion of “Random projection ensemble classification”. <i>Journal of the Royal Statistical Society, Series B</i>, <b>79</b>, 959-1035.</li> <li>• <b>Shi, C.</b>, Song, R. and Lu, W. (2016). Robust learning for optimal treatment decision with NP-dimensionality. <i>Electronical Journal of Statistics</i>, <b>10</b>, 2894-2921.</li> <li>• Zhang, P., Qiu, Z. and <b>Shi, C.</b> (2016). simplexreg: An R Package for Regression Analysis of Proportional Data Using Simplex Distribution. <i>Journal of Statistical Software</i>, <b>71</b>, 1-21.</li> </ul>		
MANUSCRIPTS UNDER REVIEW	<ul style="list-style-type: none"> <li>• Deep jump Q-evaluation for off-policy evaluation in continuous action space.</li> <li>• Statistical inference of the value function for reinforcement learning in infinite horizon settings.</li> <li>• Testing individual mediation effects using the logic of Boolean matrices.</li> <li>• Testing directed acyclic graph using structural, supervised and generative adversarial learning.</li> <li>• A reinforcement learning framework for time-dependent causal effects evaluation.</li> <li>• A multi-agent reinforcement learning framework for treatment effects evaluation.</li> <li>• Double generative adversarial networks for conditional independence testing.</li> </ul>		
TEACHING	<ul style="list-style-type: none"> <li>• Graduate Courses <ul style="list-style-type: none"> <li>• ST445 Managing and Visualizing Data 2019,2020 MT</li> </ul> </li> <li>• Undergraduate Courses <ul style="list-style-type: none"> <li>• ST202/206 Probability, Distribution Theory and Inference 2020</li> </ul> </li> </ul>		
STUDENT ADVISING	<ul style="list-style-type: none"> <li>• Master Students <ul style="list-style-type: none"> <li>• Georgia Stimpson graduated 2020</li> <li>• Wen Yun Ong, Wingchi Yip, Warunya Mahaisawariya graduated 2020</li> </ul> </li> </ul>		
GRANT	<ul style="list-style-type: none"> <li>• Eden Catalyst Fund, LSE Eden Center for Education Enhancement £2,071 <ul style="list-style-type: none"> <li>• Title: Module-Level Grade Inflation Analysis at LSE.</li> </ul> </li> </ul>		
DEPARTMENT SERVICES	<ul style="list-style-type: none"> <li>• Graduate admissions committee, Dept. of Statistics, LSE 2021</li> <li>• Graduate admissions committee, Dept. of Statistics, LSE 2020</li> <li>• Seminar Committee (co-chair), Dept. of Statistics, LSE 2020 LT &amp; ST</li> <li>• PhD Search Committee, Dept. of Statistics, LSE 2020</li> </ul>		
PROFESSIONAL ACTIVITIES	<ul style="list-style-type: none"> <li>• Review service: Annals of Statistics; Journal of the American Statistical Association; Journal of Royal Statistical Society, Series B; Biometrika; Journal of Machine Learning Research; Annals of Applied Statistics; Biometrics; Statistics Surveys; Statistics Methods in Medical Research; Biostatistics; Journal of Biopharmaceutical Statistics; POLS ONE.</li> </ul>		
TALKS			

- September 2020, Stat seminar at Fudan University, Shanghai, China, “On Statistical Learning for Individualized Decision Making with Complex Data”.
- August 2020, JSM Meeting, Online, “Does the Markov Decision Process Fit the Data: Testing for the Markov Property in Sequential Decision Making”.
- February, 2020, Stat seminar at Cambridge, Cambridge, UK, “On Statistical Learning for Individualized Decision Making with Complex Data”.
- January, 2020, Stat seminar at Shanghai University of Finance and Economics, Shanghai, China, “On Testing Conditional/Overall Qualitative Treatment Effects”.
- October, 2019, Stat seminar at NCSU, Raleigh, NC, USA, “On Testing Conditional/Overall Qualitative Treatment Effects”.
- October, 2019, Stat seminar at York University, York, UK, “On Statistical Learning for Individualized Decision Making with Complex Data”.
- August, 2019, Stat seminar at Shanghai University of International Business and Economics, Shanghai, China, “On Statistical Learning for Individualized Decision Making with Complex Data”.
- August 2019, JSM Meeting (invited), Denver, CO, USA, “A Sparse Random Projection-based Test for Overall Qualitative Treatment Effects”.
- June 2019, ICSA Meeting (invited), Raleigh, NC, USA, “A Sparse Random Projection-based Test for Overall Qualitative Treatment Effects”.
- September 2018, Biostat seminar at NCSU, Raleigh, NC, USA, “On Statistical Learning for Individualized Treatment Regime”.
- August 2017, JSM Meeting, Baltimore, MD, USA, “On Testing Conditional Qualitative Treatment Effects”.
- August 2016, JSM Meeting, Chicago, IL, USA, “Minimax-Angle Learning for Optimal Treatment Decision with Heterogeneous Data”.
- March 2016, ENAR Meeting, Austin, TX, USA, “High Dimensional A-learning for Optimal Treatment Regime”.

#### SOFTWARE

#### PYTHON MODULES

#### R PACKAGES

- TestMDP: Testing for the Markov property in sequential decision making. Available on GitHub: <https://github.com/RunzheStat/TestMDP>
- arleGP: Approximated Restricted Likelihood Estimator for Gaussian Process
- JQL: Jump Q-Learning for Individualized Interval-Valued Dose Rule (version 3.6.9) Available on CRAN: <https://cran.r-project.org/web/packages/JQL/index.html>
- BayesSAE: Bayesian Analysis of Small Area Estimation (version 1.0-2). Available on CRAN: <https://cran.r-project.org/web/packages/BayesSAE/index.html>
- simplexreg: Regression Analysis of Proportional Data Using Simplex Distributions (version 1.3). Available on CRAN: <https://cran.r-project.org/web/packages/simplexreg/index.html>
- ITRSelect: Variable Selection for Optimal Individualized Dynamic Treatment Regime (version 1.0-1). Available on CRAN: <https://cran.r-project.org/web/packages/ITRSelect/index.html>
- ITRLearn: Statistical Learning for Individualized Treatment Regime (version 1.0). Available on CRAN: <https://cran.r-project.org/web/packages/ITRLearn/index.html>