

YUNXIAO CHEN: CURRICULUM VITAE

Address

Columbia House, Room 5.16
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Education

05/2016 Columbia University, New York, NY, USA Ph.D. in Statistics
Advisors: Zhiliang Ying and Jingchen Liu
07/2011 Fudan University, Shanghai, China B.S. in Mathematics

Employment History

09/03/2018 - : Assistant Professor (tenure-track), Department of Statistics, London School of Economics and Political Science, London, UK
07/13/2021 - : Affiliated member, Data Science Institute, London School of Economics and Political Science, London, UK
10/01/2018 - : Adjunct Professor, Department of Psychology, Emory University, Atlanta, GA, USA
08/24/2016 - 08/24/2018: Assistant Professor (tenure-track), Department of Psychology, Emory University, Atlanta, GA, USA
08/24/2016 - 08/24/2018: Assistant Professor, Institute for Quantitative Theory and Methods, Emory University, Atlanta, GA, USA
06/01/2014 - 07/25/2014: Intern (supervised by Dr. Matthias von Davier), Educational Testing Service, Princeton, NJ, USA

Primary Research Interests

Statistical analysis and computational algorithms for large-scale item response data
Statistical modeling and computational algorithms for dynamic behavioral data
Sequential design of dynamic systems, with applications to educational assessment and learning

Awards/Honors

2022 Psychometrics Society Early Career Award

2020 AERA Outstanding Reviewer Award

NCME Brenda H. Lloyd Dissertation Award, National Council on Measurement in Education, 2018

Pearson Travel Award of 80th Annual Meeting of the Psychometric Society, July, 2015

Minghui Yu Teaching Assistant Award, Department of Statistics, Columbia University, 2014

Funding

IEA (International Association for the Evaluation of Educational Achievement) Research and Development Funds, 2022-2023

National Academy of Education/Spencer Postdoctoral Fellowship, 2018-2020

Published Articles

1. **Chen, Y.**, Liu, J., and Ying, Z. (2015). Online Item Calibration for Q -matrix in CD-CAT. *Applied Psychological Measurement*, 39, 5-15.
2. **Chen, Y.**, Xu, G., Liu, J., and Ying, Z. (2015). Statistical Analysis of Q -matrix Based Diagnostic Classification Models. *Journal of the American Statistical Association*, 110, 850-866.
3. Sun, J., **Chen, Y.**, Liu, J., Ying, Z. and Tao, X. (2016). Latent Variable Selection for Multidimensional Item Response Theory Models via L_1 Regularization. *Psychometrika*, 81, 921-939.
4. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2016). Regularized Latent Class Analysis with Application in Cognitive Diagnosis. *Psychometrika*, 82, 660-692.
5. **Chen, Y.**, Li, X., Liu, J., Xu, G. and Ying, Z. (2017). Exploratory Item Classification via Spectral Graph Clustering. *Applied Psychological Measurement*. 41, 579-599.
6. **Chen, Y.**, Li, X., Liu, J, and Ying, Z. (2018). Recommendation System for Adaptive Learning. *Applied Psychological Measurement*. 42, 24-41.
7. **Chen, Y.** and Chang, H-H. (2017). Psychometrics Help Learning: From Assessment to Learning (preface of special issue “Psychometrics Help Learning”). *Applied Psychological*

Measurement. 42, 3-4.

8. Xu, H., Fang, G., **Chen, Y.**, Liu, J., Ying, Z. (2018). Latent Class Analysis of Recurrent Events in Problem-Solving Items. *Applied Psychological Measurement.* 42, 478-498.
9. **Chen, Y.**, Li, X., Liu, J., and Ying, Z. (2018). Robust Measurement via A Fused Latent and Graphical Item Response Theory Model. *Psychometrika.* 38, 538-562.
10. **Chen, Y.**, Liu, Y., Xu, S. (2018). Mutual Information Reliability for Latent Class Analysis. *Applied Psychological Measurement.* 46, 460-477.
11. **Chen, Y.**, Li, X., and Zhang, S. (2019). Joint Maximum Likelihood Estimation for High-dimensional Exploratory Item Response Analysis. *Psychometrika.* 84, 124-146.
12. Tang, X., **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2019). A Reinforcement Learning Approach to Personalized Learning Recommendation System. *British Journal of Mathematical and Statistical Psychology.* 72, 108-135.
13. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2019). Statistical Analysis of Complex Problem-solving Process Data: From Prediction Perspective. *Frontiers in Psychology.* 10, 1-10.
14. **Chen, Y.** and Li, X. (2019). Exploratory Data Analysis for Cognitive Diagnosis: Stochastic Co-Blockmodel and Spectral Co-Clustering. In von Davier, M. and Lee, Y.-S., editors, *Handbook of Diagnostic Classification Models.* Springer, New York, NY.
15. Ayzenberg, S., **Chen, Y.**, Yousif, S.R. Lourenco, S.F. (2019) Skeletal Representations in Human Vision: Evidence for a Pruned Medial Axis of Shape. *Journal of Vision.* 19, 1-21.
16. Zhang, S., **Chen, Y.** and Liu, Y. (2020). An Improved Stochastic EM Algorithm for Large-Scale Full-information Item Factor Analysis. *British Journal of Mathematical and Statistical Psychology.* 73, 44-71.
17. **Chen, Y.** and Zhang, S. (2020). A Latent Gaussian Process Model for Analyzing Intensive Longitudinal Data. *British Journal of Mathematical and Statistical Psychology.* 73, 237-260.
18. Zhang, H., **Chen, Y.** and Li, X. (2020). A Note on Exploratory Item Factor Analysis by Singular Value Decomposition. *Psychometrika.* 85, 358-372.
19. **Chen, Y.**, Li, X., and Zhang, S. (2020). Structured Latent Factor Analysis for Large-scale Data: Identifiability, Estimability, and Their Implications. *Journal of the American Statistical Association.* 115, 1756-1770.

20. Li, X., **Chen, Y.**, Chen, X., Liu, J. and Ying, Z. (2021). Optimal Stopping and Worker Selection in Crowdsourcing: An Adaptive Sequential Probability Ratio Test Framework. *Statistica Sinica*. 31, 519-546.
21. **Chen, Y.**, Zhang, H., and Moustaki, I. (2020). A Note on Likelihood Ratio Tests for Models with Latent Variables. *Psychometrika*. 85, 996-1012.
22. **Chen, Y.** (2020). A Continuous-Time Dynamic Choice Measurement Model for Problem-Solving Process Data. *Psychometrika*. 85, 1052 - 1075.
23. **Chen, Y.**, Ying, Z. and Zhang, H. (2021). Unfolding-Model-Based Visualization: Theory, Method and Applications. *Journal of Machine Learning Research*. 22, 1-51.
24. **Chen, Y.** and Zhang, S. (2021). Estimation Methods for Item Factor Analysis: An Overview. In Zhao, Y. and Chen, D., editor, *Modern Statistical Methods for Health Research*. Springer, New York, NY.
25. Ravipati, K., **Chen, Y.**, and Manns, J. R. (2022) Reassessing Diabetes and APOE Genotype as Potential Interacting Risk Factors for Alzheimer’s Disease. *American Journal of Alzheimer’s Disease and Other Dementias*. doi:10.1177/15333175211070912
26. **Chen, Y.**, Lu, Y., and Moustaki, I. (2022). Detection of Two-way Outliers in Multivariate Data and Application to Cheating Detection in Educational Tests. *Annals of Applied Statistics*, 16, 1718-1746.
27. **Chen, Y.**, Lee, Y-H, and Li, X. (2022). Item Quality Control in Educational Testing: Change Point Model, Compound Risk, and Sequential Detection. *Journal of Educational and Behavioral Statistics*. 47, 322–352.
28. **Chen, Y.** and Li, X. (2022). Determining the Number of Factors in High-dimensional Generalised Latent Factor Models. *Biometrika*. 109, 769–782.

Papers Accepted

1. Chen, X., **Chen, Y.** and Li, X. (2022+). Asymptotically Optimal Sequential Design for Rank Aggregation. *Mathematics of Operations Research*. To appear.
2. **Chen, Y.** and Li, X. (2022+). Compound Online Changepoint Detection in Parallel Data Streams. *Statistica Sinica*. To appear.

3. **Chen, Y.**, Moustaki, I. and Zhang, S. (2022+). On the Estimation of Structural Equation Models with Latent Variables. In Hoyle, R., editor, *Handbook of Structural Equation Modeling*. Guilford Press, New York, NY. To appear.
4. Zhang, S. and **Chen, Y.** (2022+). Computation for Latent Variable Model Estimation: A Unified Stochastic Proximal Framework. *Psychometrika*. To appear.

Papers Submitted

1. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2019). Item Response Theory – A Statistical Framework for Psychological Measurement: Past Developments and Future Directions. Submitted to *Statistical Science*. Minor revision. Revision submitted.
2. **Chen, Y.**, Li, C. and Xu, G. (2021). A Note on Statistical Inference for Noisy Incomplete 1-Bit Matrix. Submitted to *Journal of Machine Learning Research*. Under revision.
3. **Chen, Y.**, Li, C. and Xu, G. (2021). DIF Statistical Inference and Detection without Knowing Anchoring Items. Submitted to *Psychometrika*. Under revision.
4. Lu, Z., **Chen, Y.** and Li, X. (2022). Optimal Parallel Sequential Change Detection under Generalized Performance Measures. Submitted to *IEEE Transactions on Signal Processing*. Revision submitted.
5. Liu, X., Wallin, G., **Chen, Y.** and Moustaki, I. (2022). Rotation to Sparse Loadings using L^p Losses and Related Inference Problems. Submitted to *Psychometrika*. Under revision.
6. **Chen, Y.**, von Davier, M., Weng, H. and Xie, Z. (2022). Variable Selection in Latent Regression IRT Models via Knockoffs: An Application to International Large-scale Assessment in Education. Submitted to *Journal of the Royal Statistical Society, Series A (Social Statistics)*. Under review.

Statistical Software

1. R package: lvmcomp (<https://cran.r-project.org/web/packages/lvmcomp/index.html>)
2. R package: mirtjml (<https://cran.r-project.org/web/packages/mirtjml/index.html>)
3. R package: mirtsvd (<https://cran.r-project.org/web/packages/mirtsvd/index.html>)

Talks and Conference Presentations

- 04/2014 Contributed talk, Minghui Yu Memorial Conference, Columbia University, New York, NY, USA
- 07/2014 Contributed talk, 79th Annual Meeting of the Psychometric Society, Madison, WI, USA
- 04/2015 Contributed talk, Minghui Yu Memorial Conference, Columbia University, New York, NY, USA
- 07/2015 Contributed talk, 80th Annual Meeting of the Psychometric Society, Beijing, China
- 03/2016 Invited talk, Conference on Statistical Network and High-Dimensional Data Analysis, Shanghai, China
- 07/2016 Invited talk, 81st Annual Meeting of the Psychometric Society, Asheville, NC, USA
- 08/2016 Invited talk, Fourth Conference on the Statistical Methods in Psychometrics, Columbia University, New York, NY, USA
- 10/2016 Contributed talk, Georgia Statistics Day Conference, Atlanta, GA, USA
- 12/2016 Invited talk, Fudan-Guanghua International Forum for Young Scholars, Shanghai, China
- 01/2017 Invited talk, Quantitative Brown Bag Series, School of Psychology, Georgia Tech, Atlanta, GA, USA
- 01/2017 Invited talk, Department of Mathematics and Statistics, Georgia State University, Atlanta, GA, USA
- 03/2017 Invited talk, Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, China
- 04/2017 Invited talk, Statistics Seminar, Georgia Tech ISyE, Atlanta, GA, USA
- 04/2017 Invited talk, Biostatistics Workshop - Statistical Inference for Biomedical Big Data, University of Florida, Gainesville, FL, USA
- 04/2017 Contributed talk, 2017 Annual Meeting of the National Council on Measurement in Education (NCME), San Antonio, TX, USA
- 07/2017 Invited talk, 82nd Annual Meeting of the Psychometric Society, Zurich, Switzerland
- 08/2017 Invited talk, 9th Annual Psychology Research Festival, Department of Psychology, Emory University, Atlanta, GA, USA
- 09/2017 Invited colloquium talk, Department of Applied and Computational Mathematics and Statistics, University of Notre Dame, South Bend, IN, USA
- 10/2017 Invited talk, Quantitative Brown Bag Series, School of Psychology, Georgia Tech, Atlanta, GA, USA

- 04/2018 Invited talk, 2018 Annual Meeting of the National Council on Measurement in Education (NCME), New York, NY, USA
- 05/2018 Invited talk, The 6th Workshop on Biostatistics and Bioinformatics, Georgia State University, Atlanta, GA, USA
- 07/2018 Contributed talk, 83th Annual Meeting of the Psychometric Society, New York, NY, USA
- 12/2018 Invited talk, 2018 International Conference on Data Science, Fudan University, Shanghai, China
- 01/2019 Invited seminar talk, the Social and Economic Data Science (SEDS) Seminar, London School of Economics, London, UK
- 05/2019 Invited seminar talk, Bristol Statistics Seminar, University of Bristol, Bristol, UK
- 05/2019 Invited talk, SEDS Annual Summit, London School of Economics, London, UK
- 06/2019 Invited talk, the international workshop on “Machine Learning and Data Science”, Columbia University, New York, NY, USA
- 07/2019 Invited talk, 84th Annual Meeting of the Psychometric Society, Santiago, Chile
- 12/2019 Invited talk, 2019 International Conference on Data Science, Fudan University, Shanghai, China
- 12/2019 Invited talk, LSE-SWUFE Joint Statistical Workshop, Southwestern University of Finance and Economics, Chengdu, China
- 12/2019 Invited talk, 11th ICSA International Conference, Zhejiang University, Hangzhou, China
- 02/2020 Invited seminar talk, Southampton Statistical Sciences Research Institute (S3RI) seminar series, University of Southampton, Southampton, UK
- 02/2020 Invited seminar talk, Queen Mary University of London, London, UK
- 10/2020 Invited talk for LSESU Data Science Society, LSE, London, UK
- 10/2020 Invited talk in the Graham Dunn (Virtual) Seminar, the University of Manchester, Manchester, UK
- 12/2020 Invited talk, ICSA 2020 Applied Statistics Symposium (Virtual), Houston, TX, USA
- 07/2021 Invited talk, Forum of Educational Statistics and Measurement, the Chinese Society of Education (Virtual), Beijing, China
- 09/2021 Invited talk, Royal Statistical Society International Conference, Manchester, UK

- 12/2021 Invited talk, Statistics seminar series (Virtual), Department of Mathematical Sciences, Durham University, UK
- 12/2021 Invited talk, SIG seminar series (Virtual), Educational Testing Service, Princeton, NJ, USA
- 03/2022 Invited talk, University of Illinois at Urbana-Champaign Quantitative Brownbag Seminar Series (Virtual), University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, USA
- 07/2022 Keynote talk, 2022 Annual Meeting of the Psychometric Society (IMPS), Bologna, Italy

Teaching

- 2022 Spring Applied Statistics Project (ST312), LSE
- 2022 Spring Statistical Models and Data Analysis (ST201), LSE
- 2022 Spring Multivariate Methods (ST405), LSE
- 2021 Fall Statistical Modelling and Data Analysis (ST505), LSE
- 2021 Spring Statistical Models and Data Analysis (ST201), LSE
- 2021 Spring Multivariate Methods (ST405), LSE
- 2020-2021 Capstone Project (ST498), LSE
- 2020 Fall Statistical Modelling and Data Analysis (ST505), LSE
- 2020 Spring Multivariate Methods (ST405), LSE
- 2019-2020 Capstone Project (ST498), LSE
- 2019 Fall Statistical Modelling and Data Analysis (ST505), LSE
- 2019 Summer Statistical Methods for Multivariate Data in Social Science Research (ME303), LSE
- 2019 Spring Multivariate Methods (ST405), LSE
- 2018 Spring Generalized Linear Models (QTM385), Emory University
- 2018 Spring Advanced Statistical Methods (PSYCH770), Emory University
- 2017 Fall Statistical Learning (QTM385), Emory University
- 2017 Spring Generalized Linear Models (QTM385), Emory University
- 2017 Spring Advanced Statistical Methods (PSYCH770), Emory University
- 2016 Fall Statistical Learning (QTM385), Emory University
- 2013 Summer Introduction to Statistics (S1111), Columbia University

Ph.D. Students

Sze Ming Lee	Department of Statistics, LSE	Current (co-advising with Prof. Fiona Steele)
Motonori Oka	Department of Statistics, LSE	Current (co-advising with Prof. Iriini Moustaki)
Xinyi Liu	Department of Statistics, LSE	Current (co-advising with Prof. Iriini Moustaki)
Sahoko Ishida	Department of Statistics, LSE	Current (co-advising with Dr. Wicher P Bergsma)
Giuseppe Alfonzetti	Department of Statistical Sciences, University of Padua	Current (co-advising with Dr. Ruggero Bellio, and Prof. Iriini Moustaki)
Yan Lu	Department of Statistics, LSE	Graduated (co-advising with Prof. Iriini Moustaki)

Postdoctoral researchers

Dr. Gabriel Wallin Department of Statistics, LSE Current

Editorial Work

Associate editor of British Journal of Mathematical and Statistical Psychology [2022 -]

Associate editor of Psychometrika [2019 -]

Editorial board member of Journal of Educational and Behavioural Statistics [2021 -]

Editorial board member of Applied Psychological Measurement [2017 -]

Guest Editor of Applied Psychological Measurement special issue “Psychometrics Help Learning”

Grant proposal reviewer for the United States National Science Foundation

Grant proposal reviewer for the Research Grants Council of Hong Kong

Screening reviewer and reviewer of Statistica Sinica

Reviewer of Journal of the American Statistical Association

Reviewer of Biometrika

Reviewer of Psychometrika

Reviewer of British Journal of Mathematical and Statistical Psychology

Reviewer of Journal of Educational and Behavioral Statistics

Reviewer of Psychological Methods

Reviewer of Structural Equation Modeling

Reviewer of Stat

Reviewer of Large-scale Assessments in Education

Reviewer of PLOS ONE

Reviewer of BioData Mining

Reviewer of Journal of Intelligence

Reviewer of Multivariate Behavioral Research
Reviewer of Journal of Machine Learning Research
Reviewer of Statistics and Probability Letters
Reviewer of Assessment in Education: Principles, Policy & Practice
Reviewer of Educational Assessment
Reviewer of Journal of Computational and Graphical Statistics
Reviewer of Journal of Statistical Computation and Simulation
Reviewer of Behavior Research Methods
Reviewer of Journal of Business & Economic Statistics
Reviewer of Annals of Statistics
Reviewer of Journal of Mathematical Psychology

Professional Memberships and Service

Member of Psychometric Society
Member of American Statistical Association
Member of Institute of Mathematical Statistics
Member of International Chinese Statistical Association
Member of Eastern North American Region International Biometric Society
Member of National Council on Measurement in Education
Member of IEEE
Liaison Officer of Mental Health Statistics Section, American Statistical Association

Conference and Seminar Organizers

07/2022 Member, Program committee of the 2022 international meeting of psychometric society (IMPS), Bologna, Italy
2018-2021 Co-organizer, Joint Statistics and Econometrics Seminar Series, LSE, London, UK
05/2020 Member, Scientific Program Committee of International Chinese Statistical Association Applied Symposium, Houston, TX, USA
07/2018 Co-organizer, Conference on Statistical Methods for Innovative Testing and Learning, New York, NY, USA

- 06/2018 Co-organizer, Workshop on Statistical Methods for Educational Testing and Learning, Shanghai, China
- 08/2016 Co-organizer, Fourth Conference on the Statistical Methods in Psychometrics, New York, NY, USA
- 07/2016 Member, Organizing Committee of ICOSA Conference on Data Science, Dali, China
- 06/2016 Member, Program Book Committee of International Chinese Statistical Association Applied Symposium, Atlanta, GA, USA
- 11/2015 Co-organizer, International Conference on Applied Probability and Computational Methods in Applied Sciences, Shanghai, China
- 06/2015 Co-organizer, Fifth International Workshop in Sequential Methodologies, New York, NY, USA
- 2014-2015 Co-chair, Student Seminar of Department of Statistics, Columbia University, New York, NY, USA
- 05/2014 Co-organizer, Third Workshop on Statistical Methods in Cognitive Assessments, Shanghai, China
- 05/2013 Co-organizer, Second Workshop on Statistical Methods in Cognitive Assessments, New York, NY, USA

Administrative Experience

- Programme director of MSc Statistics, Department of Statistics, London School of Economics and Political Science, 2021-2022
- Departmental EDI committee member, Department of Statistics, London School of Economics and Political Science, 2020-2022
- BSc MSB and Data Science admissions, Department of Statistics, London School of Economics and Political Science, 2020-2021
- Member of Working Group for Online Teaching and Assessment, Department of Statistics, London School of Economics and Political Science, 2020
- Member of BSc Maths, Stats and Business (MSB) Evaluation Committee, Department of Statistics, London School of Economics and Political Science, 2020
- Member of Working Group for Joint Health Policy and Statistics MSc Programme, Department of Statistics, London School of Economics and Political Science, 2019
- Member of Working Group for PhD Restructuring, Department of Statistics, London School of Economics and Political Science, 2019

Member of Emory College Committee on Academic Standards, Emory University, 2017

Member of Quantitative Training Committee, Department of Psychology, Emory University, 2016-2017

Member of Information Technology and Webpage Committee, Department of Psychology, Emory University, 2016-2017

Member of Emory College Honor Council Committee, Emory University, 2016-2017