

YUNXIAO CHEN: CURRICULUM VITAE

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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
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

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

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

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.

Papers Accepted

1. **Chen, Y.** and Li, X. (2018). 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. To appear.
2. Tang, X., **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2018). A Reinforcement Learning Approach to Personalized Learning Recommendation System. *British Journal of Mathematical and Statistical Psychology*. To appear.
3. Zhang, S., **Chen, Y.** and Liu, Y. (2018). An Improved Stochastic EM Algorithm for Large-Scale Full-information Item Factor Analysis. *British Journal of Mathematical and Statistical Psychology*. To appear.
4. **Chen, Y.**, Li, X., and Zhang, S. (2018). Joint Maximum Likelihood Estimation for High-dimensional Exploratory Item Response Analysis. *Psychometrika*. To appear.

Papers Submitted

1. Li, X., **Chen, Y.**, Chen, X., Liu, J. and Ying, Z. (2017). Optimal Stopping and Worker Selection in Crowdsourcing: An Adaptive Sequential Probability Ratio Test Framework. Submitted to *Statistica Sinica*. Under revision.
2. Ayzenberg, S., **Chen, Y.**, Yousif, S.R. Lourenco, S.F. (2017) Skeletal Representations in Human Vision: Evidence for a Pruned Medial Axis of Shape. Submitted to *Journal of Vision*. Under revision.
3. **Chen, Y.** and Zhang, S. (2017). A Latent Gaussian Process Model for Analyzing Intensive Longitudinal Data. Submitted to *British Journal of Mathematical and Statistical Psychology*. Under revision.
4. **Chen, Y.**, Li, X., and Zhang, S. (2018). Structured Latent Factor Analysis for Large-scale Data: Identifiability, Estimability, and Their Implications. Submitted to *Journal of the American Statistical Association*. Under revision.
5. **Chen, Y.**, Watts, A.L., Li, X., and Lilienfeld, S.O. (2018). Exploring the Hierarchical Structure of Psychological Constructs: A Divisive Hierarchical Spectral Cluster Analysis Approach. Submitted to *Psychometrika*. Under review.

6. Chen, X., **Chen, Y.** and Li, X. (2018). Asymptotically Optimal Sequential Design for Rank Aggregation. Submit to *Mathematics of Operations Research*. Under review.
7. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2018). Statistical Analysis of Complex Problem-solving Process Data: From Prediction Perspective. Submitted to *Frontiers in Psychology*. Revised and resubmitted.
8. **Chen, Y.**, Li, X., and Zhang, S. (2018). A Note on Classical Test Theory as a First-Order Item Response Theory: New Insights from Prediction Perspective. Submitted to *Psychometrika*. Under review.
9. **Chen, Y.**, Ying, Z. and Zhang, H. (2018). Model-Based Multidimensional Unfolding: Method, Theory and Applications. Submitted to *Journal of Machine Learning Research*. Under review.

Papers in Preparation

1. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2018). A Fused Latent and Graphical Model for Multivariate Binary Data. Technical Report.
2. **Chen, Y.**, Li, X., Liu, J. and Ying, Z. (2018). Factor Analysis of Multitype Recurrent Events with Applications to Modern Educational Assessment. Technical Report. In preparation to submit to *Journal of the American Statistical Association*.
3. **Chen, Y.**, Huang, D. (2018). When Multiple Imputation Meets Structural Equation Analysis: A Stochastic EM Approach and Applications. Work in progress.
4. **Chen, Y.** (2018). Predictive Event History Analysis of Complex Problem-Solving Processes. Work in progress.
5. **Chen, Y.** and Li, X. (2018). Asymptotically Optimal Design in Adaptive Mastery Testing: Item Selection and Stopping. Work in progress.

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>)

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

Teaching

- 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

- Yan Lu Department of Statistics, LSE Current (co-advising with Irimi Moustaki)

Editorial Work

- Editorial board member of Applied Psychological Measurement
- Guest Editor of Applied Psychological Measurement special issue “Psychometrics Help Learning”
- Grant proposal reviewer for the United States National Science Foundation
- Screening reviewer and reviewer of Statistica Sinica
- Reviewer of Journal of the American Statistical Association
- 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 Stat

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

Liaison Officer of Mental Health Statistics Section, American Statistical Association

Conference and Seminar Organizers

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

2018-2019 Co-organizer, Joint Statistics and Econometrics Seminar Series, London School of Economics and Political Science, London, UK

Administrative Experience

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

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

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

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

Member of Working Group on Data Science in the UG Curriculum, 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