

YANG LIU
CURRICULUM VITAE

I. Personal Information

Contact Information

Address: 3304R Benjamin Bldg
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Academic Appointments

08/2022–present Associate Professor
Measurement, Statistics, and Evaluation
Department of Human Development and Quantitative Methodology
University of Maryland, College Park, MD

08/2017–07/2022 Assistant Professor
Measurement, Statistics, and Evaluation
Department of Human Development and Quantitative Methodology
University of Maryland, College Park, MD

07/2015–06/2017 Assistant Professor
School of Social Sciences, Humanities and Arts
University of California, Merced, CA

Educational Background

05/2015 Ph.D. in Quantitative Psychology
The University of North Carolina, Chapel Hill, NC
Dissertation: *Generalized Fiducial Inference for Graded Response Models*

05/2014 M.S. in Statistics
The University of North Carolina, Chapel Hill, NC

12/2011 M.A. in Quantitative Psychology
The University of North Carolina, Chapel Hill, NC

07/2009 B.S. in Psychology
Peking University, Beijing, China

Professional Certifications, Licenses, and Memberships

Period	Society
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| 1. | 2022–present | Society of Multivariate Experimental Psychology |
| 2. | 2015–present | National Council on Measurement in Education |
| 3. | 2011–present | Psychometric Society |

II. Research, Scholarly, and Creative Activities

Note: A # (hash tag) is used to identify co-authors mentored as graduate students.

Chapters

Books

1. **Liu, Y.**, Magnus, B., Quinn, H., & Thissen, D. (2018). Multidimensional item response theory. In Hughes, D., Irwing, P., and Booth, T. (Eds.), *Handbook of Psychometric Testing* (pp. 445–493). Chichester, West Sussex: Wiley-Blackwell.
<https://doi.org/10.1002/9781118489772.ch16>

Encyclopedia

1. **Liu, Y.** & Sweet T. M. (2023). Statistical inference: Bayesian approaches. In Tierney, R., Rizvi, F., and Ercikan, K. (Eds.), *International Encyclopedia of Education, 4th Edition*. Oxford: Elsevier Ltd.
2. Yang, J. S., #Morell, M., & **Liu, Y.** (2018). Constructed-response items. In Frey, B., (Ed.), *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (pp. 381-383). Los Angeles, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781506326139.n145>

Refereed Journals

Refereed Journal Articles

Methodological Articles

1. #Xu, S. & **Liu, Y.** (2022). Characterizing Sampling Variability for Item Response Theory Scale Scores in a Fixed-Parameter Calibrated Projection Design. *Applied Psychological Measurement, 46*(6), 509-528. <https://doi.org/10.1177/01466216221108136>
2. #Wang, W., **Liu, Y.**, Liu, H. (2022). Testing Differential Item Functioning Without Predefined Anchor Items Using Robust Regression. *Journal of Educational and Behavioral Statistics, 47*(6), 666-692. <https://doi.org/10.1177/01466216221108136>
3. **Liu, Y.** & #Wang, W. (2022). Semiparametric factor analysis for item-level response time data. *Psychometrika, 87*(2), 666-692. <https://doi.org/10.1007/s11336-021-09832-8>
4. Magnus, B. E., & **Liu, Y.** (2022). Symptom presence and symptom severity as unique indicators of psychopathology: An application of multidimensional zero-inflated and hurdle

graded response models. *Educational and Psychological Measurement*, 82(5), 938-966.
<https://doi.org/10.1177/00131644211061820>

5. **Liu, Y.** (2021). Riemannian Newton and trust-region algorithms for analytic rotation in exploratory factor analysis. *British Journal of Mathematical and Statistical Psychology*, 74(1), 139-163. <https://doi.org/10.1111/bmsp.12211>
6. **Liu, Y.** (2020). A Riemannian optimization algorithm for joint maximum likelihood estimation of high-dimensional exploratory item factor analysis. *Psychometrika*, 85(2), 439-468. <https://doi.org/10.1007/s11336-020-09711-8>
7. Wang, X., & **Liu, Y.** (2020). Detecting compromised items using information from secure items. *Journal of Educational and Behavioral Statistics*, 45(6), 667-689.
<https://doi.org/10.3102/1076998620912549>
8. Zhang, S., Chen, Y., & **Liu, Y.** (2020). An improved stochastic EM algorithm for large-scale full-information item factor analysis. *British Journal of Mathematical and Statistical Psychology*, 73(1), 44–71. <https://doi.org/10.1111/bmsp.12153>
9. Haberman, S., **Liu, Y.**, & Lee, Y.-H. (2019). Distractor analysis for multiple-choice tests: An empirical study with international language assessment data. *ETS Research Report Series*, 19(39), 1-16. <https://doi.org/10.1002/ets2.12275>
10. **Liu, Y.**, Hannig, J., & Pal Majumder, A. (2019). Second-order probability matching priors for the person parameter in unidimensional item response theory models. *Psychometrika*, 84(3), 529–553. <https://doi.org/10.1007/s11336-019-09675-4>
11. Wang, X., **Liu, Y.**, Robin, F., & Guo, H. (2019). A comparison of methods for detecting examinee preknowledge of items. *International Journal of Testing*, 19(3), 207–226.
<https://doi.org/10.1080/15305058.2019.1610886>
12. **Liu, Y.**, Yang, J. S., & Maydeu-Olivares, A. (2019). Restricted recalibrations of item response theory models. *Psychometrika*, 84(2), 529–553. <https://doi.org/10.1007/s11336-019-09667-4>
13. Magnus, B. & **Liu, Y.** (2018). A zero-inflated Box-Cox normal unipolar item response model for measuring constructs of psychopathology. *Applied Psychological Measurement*, 42(7), 571–589. <https://doi.org/10.1177/0146621618758291>
14. Chen, Y., **Liu, Y.**, & Xu, S. (2018). Mutual information reliability for latent class analysis. *Applied Psychological Measurement*, 42(6), 460–477.
<https://doi.org/10.1177/0146621617748324>

15. **Liu, Y.** & Yang, J. S. (2018). Bootstrap-calibrated interval estimates for latent variable scores in item response theory. *Psychometrika*, 83(2), 333-354.
<https://doi.org/10.1007/s11336-017-9582-9>
16. **Liu, Y.** & Yang, J. S. (2018). Interval estimation of scale scores in item response theory. *Journal of Educational and Behavioral Statistics*, 43(3), 259–285.
<https://doi.org/10.3102/1076998617732764>
17. Chalmers, R. P., Pek, J., & **Liu, Y.** (2017). Profile-likelihood confidence intervals in item response theory models. *Multivariate Behavioral Research*, 52(5), 533–550.
<https://doi.org/10.1080/00273171.2017.1329082>
18. Wang, X., **Liu, Y.**, and Hambleton, R. K. (2017). Detecting candidate preknowledge of items using a predictive checking method. *Applied Psychological Measurement*, 41(4), 243-263.
<https://doi.org/10.1177/0146621616687285>
19. **Liu, Y.** & Hannig, J. (2017). Generalized fiducial inference for logistic graded response models. *Psychometrika*, 82(4), 1097–1125. <https://doi.org/10.1007/s11336-017-9554-0>
20. **Liu, Y.** & Hannig, J. (2016). Generalized fiducial inference for binary logistic item response models. *Psychometrika*, 81(2), 290–324. <https://doi.org/10.1007/s11336-015-9492-7>
21. **Liu, Y.**, Magnus, B. E., & Thissen, D. (2016). Modeling and testing differential item functioning in unidimensional binary item response models with a single continuous covariate: A functional data analysis approach. *Psychometrika*, 81(2), 371–398.
<https://doi.org/10.1007/s11336-015-9473-x>
22. Maydeu-Olivares, A. & **Liu, Y.** (2015). Item diagnostics in multivariate discrete data. *Psychological Methods*, 20(2), 276–292. <https://doi.org/10.1037/a0039015>
23. **Liu, Y.** & Thissen, D. (2014). Comparing score tests and other local dependence diagnostics for the graded response model. *British Journal of Mathematical and Statistical Psychology*, 67(3), 496–513. <https://doi.org/10.1111/bmsp.12030>
24. **Liu, Y.** & Maydeu-Olivares, A. (2014). Identifying the source of misfit in item response theory models. *Multivariate Behavioral Research*, 49(4), 354–371.
<https://doi.org/10.1080/00273171.2014.910744>
25. **Liu, Y.** & Maydeu-Olivares, A. (2013). Local dependence diagnostics in IRT modeling of binary data. *Educational and Psychological Measurement*, 73(2), 254–274.
<https://doi.org/10.1177/0013164412453841>

26. **Liu, Y.** & Thissen, D. (2012). Identifying local dependence with a score test statistic based on the bifactor logistic model. *Applied Psychological Measurement, 36*(8), 670–688. <https://doi.org/10.1177/0146621612458174>

Substantive Articles

1. Sun, R., Rieble, C., **Liu, Y.**, & Sauter, D (2022). Connected Despite Lockdown: The Role of Social Interactions and Social Media Use in Wellbeing. *Collabra: Psychology, 8*(1), 37061. <https://doi.org/10.1525/collabra.37061>
2. Mereish, E. H., Miranda, R., **Liu, Y.**, & Hawthorne, D. (2021). A daily diary study of minority stress and negative and positive affect among racially diverse sexual minority adolescents. *Journal of Counseling Psychology, 68*(6), 670-681. <https://doi.org/10.1037/cou0000556>
3. Tulskey, D. S., Kisala, P. A., Boulton, A. J., Jette, A. M., Thissen, D., Ni, P., DeWalt, D. A., Huang, I.-C., **Liu, Y.**, Mulcahey, M. J., Slavin, M., Magnus, B., Crump, H., Hanks, R., Charlifue, S., & Reeve, B. B. (2019). Determining a transitional scoring link between PROMIS pediatric and adult physical health measures. *Quality of Life Research, 28*(5), 1217–1229. <https://doi.org/10.1007/s11136-018-2073-3>
4. Troost, J. P., Gipson, D. S., Carlozzi, N. E., Reeve, B. B., Nachman, P. H., Gbadegesin, R., Wang, J., Modersitzki, F., Massengill, S., Mahan, J. D., **Liu, Y.**, Trachtman, H., Herreshoff, E. G., DeWalt, D. A., & Selewski, D. T. (2019). Using PROMIS to create clinically meaningful profiles of nephrotic syndrome patients. *Health Psychology, 38*(5), 410-421. <https://doi.org/10.1037/hea0000679>
5. Magnus, B. E., **Liu, Y.**, He, J., Quinn, H., Thissen, D., Gross, H. E., DeWalt, D. A., & Reeve, B. B. (2016). Mode effects between computer self-administration and telephone interviewer-administration of the PROMIS pediatric measures, self- and proxy-report. *Quality of Life Research, 25*(7), 1655–1665. <https://doi.org/10.1007/s11136-015-1221-2>
6. Reeve, B. B., Thissen, D., DeWalt, D. A., Huang, I.-C., **Liu, Y.**, Magnus, B., Quinn, H., Gross, H. E., Kisala, P. A., Ni, P., Haley, S., Mulcahey, M., Charlifue, S., Hanks, R. A., Slavin, M., Jette, A., & Tulskey, D. S. (2016). Linkage between the PROMIS pediatric and adult emotional distress measures. *Quality of Life Research, 25*(4), 823–833. <https://doi.org/10.1007/s11136-015-1143-z>
7. Thissen, D., **Liu, Y.**, Magnus, B., Quinn, H., Gipson, D. S., Dampier, C., Huang, I.-C., Hinds, P. S., Selewski, D. T., Reeve, B. B., Gross, H. E., & DeWalt, D. A. (2015). Estimating minimally important difference (MID) in PROMIS pediatric measures using the scale-judgment method. *Quality of Life Research, 25*(1), 13–23. [10.1007/s11136-015-1058-8](https://doi.org/10.1007/s11136-015-1058-8)

8. Selewski, D. T., Troost, J. P., Massengill, S. F., Gbadegesin, R. A., Greenbaum, L. A., Shatat, I. F., Cai, Y., Kapur, G., Hebert, D., Somers, M. J., Trachtman, H., Pais, P., Seifert, M. E., Goebel, J., Sethna, C. B., Mahan, J. D., Gross, H. E., Herreshoff, E., **Liu, Y.**, Song, P. X., Reeve, B. B., DeWalt, D. A., & Gipson, D. S. (2015). The impact of disease duration on quality of life in children with nephrotic syndrome: a midwest pediatric nephrology consortium study. *Pediatric Nephrology*, *30*(9), 1467–1476.
<https://doi.org/10.1007/s00467-015-3074-x>
9. Varni, J. W., Thissen, D., Stucky, B. D., **Liu, Y.**, Magnus, B., He, J., DeWitt, E. M., Irwin, D. E., Lai, J.-S., Amtmann, D., & DeWalt, D. A. (2015). Item-level informant discrepancies between children and their parents on the PROMIS pediatric scales. *Quality of Life Research*, *24*(8), 1921–1937. <https://doi.org/10.1007/s11136-014-0914-2>
10. Quinn, H., Thissen, D., **Liu, Y.**, Magnus, B., Lai, J.-S., Amtmann, D., Varni, J. W., Gross, H. E., & DeWalt, D. A. (2014). Using item response theory to enrich and expand the PROMIS pediatric self report banks. *Health and Quality of Life Outcomes*, *12*(160), 1-10.
<https://doi.org/10.1186/s12955-014-0160-x>
11. Selewski, D. T., Massengill, S. F., Troost, J. P., Wickman, L., Messer, K. L., Herreshoff, E., Bowers, C., Ferris, M. E., Mahan, J. D., Greenbaum, L. A., MacHardy, J., Kapur, G., Chand, D. H., Goebel, J., Barletta, G. M., Geary, D., Kershaw, D. B., Pan, C. G., Gbadegesin, R., Hidalgo, G., Lane, J. C., Leiser, J. D., Song, P. X., Thissen, D., **Liu, Y.**, Gross, H. E., DeWalt, D. A., & Gipson, D. S. (2014). Gaining the patient reported outcomes measurement information system (PROMIS) perspective in chronic kidney disease: A midwest pediatric nephrology consortium study. *Pediatric Nephrology*, *29*(12), 2347–2356.
<https://doi.org/10.1007/s00467-014-2858-8>
12. Varni, J. W., Magnus, B., Stucky, B. D., **Liu, Y.**, Quinn, H., Thissen, D., Gross, H. E., Huang, I.-C., & DeWalt, D. A. (2014). Psychometric properties of the PROMIS pediatric scales: precision, stability, and comparison of different scoring and administration options. *Quality of Life Research*, *23*(4), 1233–1243. <https://doi.org/10.1007/s11136-013-0544-0>
13. Varni, J. W., Thissen, D., Stucky, B. D., **Liu, Y.**, Magnus, B., Quinn, H., Irwin, D. E., DeWitt, E. M., Lai, J.-S., Amtmann, D., Gross, H. E., & DeWalt, D. A. (2014). PROMIS parent proxy report scales for children ages 5–7 years: an item response theory analysis of differential item functioning across age groups. *Quality of Life Research*, *23*(1), 349–361.
<https://doi.org/10.1007/s11136-013-0439-0>
14. Gipson, D., Selewski, D., Massengill, S., Wickman, L., Messer, K., Herreshoff, E., Bowers, C., Ferris, M., Mahan, J., Greenbaum, L., MacHardy, J., Kapur, G., Chand, D., Goebel, J., Barletta, G., Geary, D., Kershaw, D., Pan, C., Gbadegesin, R., Hidalgo, G., Lane, J., Leiser, J., Plattner, B., Song, P., Thissen, D., **Liu, Y.**, Gross, H. E., & DeWalt, D. A. (2013). Gaining the

PROMIS perspective from children with nephrotic syndrome: a midwest pediatric nephrology consortium study. *Health and Quality of Life Outcomes*, 11(1), 11–30.
<https://doi.org/10.1186/1477-7525-11-30>

15. Hinds, P. S., Nuss, S. L., Ruccione, K. S., Withycombe, J. S., Jacobs, S., DeLuca, H., Faulkner, C., **Liu, Y.**, Cheng, Y. I., Gross, H. E., Wang, J., and DeWalt, D. A. (2013). PROMIS pediatric measures in pediatric oncology: Valid and clinically feasible indicators of patient-reported outcomes. *Pediatric Blood and Cancer*, 60(3), 402–408. <https://doi.org/10.1002/pbc.24233>
16. Varni, J. W., Thissen, D., Stucky, B. D., **Liu, Y.**, Gorder, H., Irwin, D. E., DeWitt, E. M., Lai, J.-S., Amtmann, D., and DeWalt, D. A. (2012). PROMIS parent proxy report scales: an item response theory analysis of the parent proxy report item banks. *Quality of Life Research*, 21(7), 1223–1240. <https://doi.org/10.1007/s11136-011-0025-2>
17. Hu, Y., Gan, Y., and **Liu, Y.** (2012). How Chinese people infer helpers' ambiguous intentions: Helper effort and interpersonal relationships. *International Journal of Psychology*, 47(5), 393–404. <https://doi.org/10.1080/00207594.2011.645481>
18. Li, T. and **Liu, Y.** (2012). Calibrating group attachment scale: An application of item factor analysis. *Acta Scientiarum Naturalium Universitatis Pekinensis*, 48(2), 331–342.
19. Thissen, D., Varni, J. W., Stucky, B. D., **Liu, Y.**, Irwin, D. E., and DeWalt, D. A. (2011). Using the PedsQL 3.0 asthma module to obtain scores comparable with those of the PROMIS pediatric asthma impact scale (PAIS). *Quality of Life Research*, 20(9), 1497–1505.
<https://doi.org/10.1007/s11136-011-9874-y>

Published Conference Proceedings

Refereed Conference Proceedings

1. #Tian, C. & **Liu, Y.** (2020). A rotation criterion that encourages a hierarchical factor structure. In Wiberg, M., Molenaar, D., González, J., Böckenholt, U., and Kim, J.-S. (Eds.), *Proceedings of the 85th Annual (Virtual) Meeting of the Psychometric Society*. New York, NY: Springer.
2. Thissen, D., **Liu, Y.**, Magnus, B., and Quinn, H. (2015). Extending the use of multidimensional IRT calibration as projection: Many-to-one linking and linear computation of projected scores. In van der Ark, L. A., Bolt, D. M., Wang, W. C., Douglas, J. A., and Chow, S. M. (Eds.), *Quantitative Psychology Research. Springer Proceedings in Mathematics & Statistics, Vol. 140*. New York, NY: Springer. https://doi.org/10.1007/978-3-319-19977-1_1

Conferences, Workshops, and Talks

Keynotes

1. **Liu, Y.** (2016, July). *Generalized fiducial inference for graded response models*. Keynote speaker at the International Meeting of the Psychometric Society, Asheville, NC, USA.

Invited Talks

1. **Liu, Y.**, Yang, J. S., & Maydeu-Olivares, A. (2018, July). *Restricted recalibration of item response models*. Invited talk at Measured Progress Inc., NH, USA.
2. **Liu, Y.** (2017, November). *Restricted re-calibrations of item response theory models*. Invited talk at the Ohio State University, Columbus, OH, USA.
3. **Liu, Y.** (2017, June). *Prediction regions for latent variable scores in item response theory*. Invited talk at University of California, Davis, CA, USA.
4. **Liu, Y.**, Magnus, B. E., & Thissen, D. (2017, February). *Modeling and Testing Differential Item Functioning: A Functional Data Analysis Approach*. Invited talk at Vanderbilt University, Nashville, TN, USA.

Refereed Presentations

1. **Liu, Y.**, Hannig, J., & Murph, A. C. (2022, October). *A Differential Geometric Perspective on Bayesian and Fiducial Inference*. Presentation at the Annual Meeting of Society of Multivariate Experimental Psychology.
2. **Liu, Y.** & #Wang, W. (2022, April). *R Package spfa for Flexible Item Response and Response Time Modeling*. Presentation at the Annual Meeting of National Council on Measurement in Education.
3. **Liu, Y.** & Hannig, J. (2021, July). *Generalized fiducial inference: A new definition and applications to covariance structure analysis*. Presentation at the Virtual International Meeting of the Psychometric Society.
4. **Liu, Y.** & #Wang, W. (2021, June). *Flexible modeling of item responses and response time using splines: An analysis of the 2015 PISA mathematics data*. Presentation at the Annual Meeting of National Council on Measurement in Education.
5. **Liu, Y.** & #Strazzeri, M. (2020, July). *Semiparametric factor analysis for response time*. Presentation at the NCME Webinar: Recent Advances in Research on Response Times.
6. **Liu, Y.** & #Strazzeri, M. (2020, July). *Semiparametric factor analysis for continuous data*.

Presentation at the Virtual International Meeting of the Psychometric Society.

7. #Tian, C. & **Liu, Y.** (2020, July). *A rotation criterion that encourages a hierarchical factor structure*. Presentation at the Virtual International Meeting of the Psychometric Society.
8. #Wang, W., **Liu, Y.**, Liu, H., & Yuan, K.-H. (2020, July). *Differential item functioning detection without predefined anchor items*. Presentation at the Virtual International Meeting of the Psychometric Society.
9. #Man, K., Harring, J. R., & **Liu, Y.** (2019, October). *Methods of integrating multi-modal data for assessing aberrant test-taking behaviors*. Presentation at the Annual Meeting of the Society of Multivariate Experimental Psychology, Baltimore, MD, USA.
10. #Morell, M., Yang, J. S., & **Liu, Y.** (2019, October). *Latent variable regression discontinuity design with cluster level treatment assignment*. Presentation at the Annual Meeting of the Society of Multivariate Experimental Psychology, Baltimore, MD, USA.
11. #Morell, M., S., Y. J., **Liu, Y.**, Gladstone, J., Ponnock, A., Turci, L., Muenks, K., and Wigfield, A. (2019, April). *Validation of grit scales across multiple samples: Restricted recalibration and multiple group analysis*. Presentation at the Annual Meeting of American Educational Research Association, Toronto, Ontario, Canada.
12. #Xu, S. & **Liu, Y.** (2019, April). *Standard error adjustment for projected IRT scores in a fixed-item-parameter linking design*. Presentation at the Annual Meeting of National Council on Measurement in Education, Toronto, Ontario, Canada.
13. **Liu, Y.**, Hannig, J., & Pal Majumder, A. (2018, July). *Second-order probability matching priors for the person parameter in unidimensional item response theory models*. Presentation at the International Meeting of the Psychometric Society, New York City, NY, USA.
14. **Liu, Y.**, Yang, J. S., & Maydeu-Olivares, A. (2017, July). *Goodness of fit assessment under restricted re-calibration of item response models*. Presentation at the International Meeting of the Psychometric Society, Zürich, Switzerland.
15. #Xu, S., **Liu, Y.**, & Chen, Y. (2017, May). *A pseudo-reliability coefficient for latent class models*. Presentation at the Modern Modeling Methods Conference, Storrs, CT, USA.
16. **Liu, Y.** & Yang, J. S. (2017, April). *Bootstrap-calibrated prediction regions for scale scores in multidimensional item response theory*. Presentation at the International Meeting of the Psychometric Society, San Antonio, TX, USA.

17. #Castaneda, R., **Liu, Y.**, #Zelinsky, N., Scott, J., Flinspach, S., and Vevea, J. L. (2016, May). *Modeling and linking speeded tests: An application with the vase vocabulary tests*. Presentation at the Modern Modeling Methods Conference, Storrs, CT, USA.
18. **Liu, Y.** & Yang, J. S. (2016, July). *Bootstrap-calibrated interval estimates for scale scores in item response theory*. Presentation at the International Meeting of the Psychometric Society, Asheville, NC, USA.
19. **Liu, Y.** & Yang, J. S. (2016, April). *Interval estimation of scale scores in item response theory*. Presentation at the Annual Meeting of National Council on Measurement in Education, Washington, DC, USA.
20. Magnus, B., **Liu, Y.**, & Willoughby, M. (2016, April). *Using response times to enhance the measurement of executive functioning*. Presentation at the Annual Meeting of National Council on Measurement in Education, Washington, DC, USA.
21. Wang, X., Robin, F., **Liu, Y.**, Guo, H., & Dorans, N. J. (2016, April). *Detecting examinee preknowledge of items: A comparison of methods*. Presentation at the Annual Meeting of National Council on Measurement in Education, Washington, DC, USA.
22. Wang, X., **Liu, Y.**, & Hambleton, R. K. (2015, July). *Detecting candidate preknowledge of items using a predictive checking method*. Presentation at the International Meeting of the Psychometric Society, Beijing, China.
23. **Liu, Y.** & Hannig, J. (2015, July). *Generalized fiducial inference and its application in the graded response model*. Presentation at the International Meeting of the Psychometric Society, Beijing, China.
24. **Liu, Y.**, Magnus, B., and Thissen, D. (2015, April). *Semiparametric modeling and testing of differential item functioning (DIF)*. Presentation at the Annual Meeting of National Council on Measurement in Education, Chicago, IL, USA,
25. Thissen, D., **Liu, Y.**, Magnus, B., & Quinn, H. (2014, July). *Extending the use of multidimensional IRT calibration as projection: Many-to-one linking and linear computation of projected scores*. Presentation at the International Meeting of the Psychometric Society, Madison, WI, USA.
26. **Liu, Y.**, Magnus, B., & Thissen, D. (2014, July). *Modeling differential item functioning in unidimensional binary item response models with a single continuous covariate: A functional data analysis approach*. Presentation at the International Meeting of the Psychometric Society, Madison, WI, USA.

27. **Liu, Y.** & Hannig, J. (2014, July). *Generalized fiducial inference and its application in item response theory*. Presentation at the International Meeting of the Psychometric Society, Madison, WI, USA.
28. **Liu, Y.** & Hannig, J. (2013, October). *Generalized fiducial inference for binary logistic item response models: Theory and application*. Presentation at the Annual Meeting of the Society of Multivariate Experimental Psychology, St. Petersburg, FL, USA.
29. **Liu, Y.** & Maydeu-Olivares, A. (2013, October). *Identifying the source of misfit in item response theory models*. Presentation at the Annual Meeting of the Society of Multivariate Experimental Psychology, St. Petersburg, FL, USA.
30. **Liu, Y.** & Maydeu-Olivares, A. (2013, July). *Identifying the source of misfit in item response theory models*. Presentation at the International Meeting of the Psychometric Society, Arnhem, the Netherlands.
31. Magnus, B. & **Liu, Y.** (2013, May). *The influence of parceling on the implied factor structure of multi- dimensional data*. Presentation at the Modern Modeling Methods Conference, Storrs, CT, USA.
32. **Liu, Y.** & Maydeu-Olivares, A. (2012, July). *The use of quadratic form statistics of residuals to identify IRT model misfit in marginal subtables*. Presentation at the International Meeting of the Psychometric Society, Lincoln, NE, USA.
33. **Liu, Y.** & Thissen, D. (2011, July). *Identifying local dependence with a score test statistic based on the bifactor two-parameter logistic model*. Presentation at the International Meeting of the Psychometric Society, Hong Kong, China.

Refereed Abstracts

1. #Man, K., Harring, J. R., & **Liu, Y.** (2020). Abstract: Methods of integrating multi-modal data for assessing aberrant test-taking behaviors. *Multivariate Behavioral Research*, 55(1), 155–156. <https://doi.org/10.1080/00273171.2019.1699010>
2. #Morell, M., Yang, J. S., & **Liu, Y.** (2020). Abstract: Latent variable regression discontinuity design with cluster level treatment assignment. *Multivariate Behavioral Research*, 55(1), 146. <https://doi.org/10.1080/00273171.2019.1696170>
3. **Liu, Y.** & Hannig, J. (2014). Abstract: Generalized fiducial inference for binary logistic item response models. *Multivariate Behavioral Research*, 49(3), 290. <https://doi.org/10.1080/00273171.2014.912920>

Symposia

1. **Liu, Y.** & Yang, J. S. (2018, July). Multi-stage estimation and inference in measurement modeling. International Meeting of the Psychometric Society, New York City, NY, USA.

Professional and Extension Publications

Pre-print/Working Paper

1. **Liu, Y.** & Pek, J. (2023). Summed versus factor scores: Considering uncertainties when using scores. Submitted
2. **Liu, Y.** & Wang, W. (2023). What Can We Learn from a Semiparametric Factor Analysis of Item Responses and Response Time? An Illustration with the PISA 2015 Data. Submitted.
3. **Liu, Y.** & Hannig, J. (2023). A Geometric Perspective on Bayesian and Generalized Fiducial Inference. <https://arxiv.org/abs/2210.05462>
4. #Morell, M., **Liu, Y.**, & Yang, J. (2020). A regression discontinuity design with latent variables. 1st Revision.

Book Reviews, Notes, and Other Contributions

Book Reviews

1. **Liu, Y.**, Yang, J., & Kim, S. (2023) Book Review: Item Response Theory. *Psychometrika*. Accepted.
2. Depaoli, S., & **Liu, Y.** (2018). Book Review: Bayesian Psychometric Modeling. *Psychometrika*, 83(2), 511–514. <https://doi.org/10.1007/s11336-017-9567-8>

Completed Creative Works and Scholarship

Software and Applications

1. `spfa` [Computer software]. (2021). Retrieved from <https://github.com/wwang1370/spfa>
2. `fidgrm` [Computer software]. (2015). Retrieved from <http://terpconnect.umd.edu/~yliu87/>

Websites

1. Personal Website: <http://www.terpconnect.umd.edu/~yliu87/>

Sponsored Research and Programs

Grants

Awarded

1. National Institutes of Health

Duration: 09/2022-8/2027
Role: Co-Investigator
Funding: \$3,697,805 (7% credit)
Award Number: 7R01AA029989-02
Title: Long-Term and Daily Associations Among Intersectional Minority Stress, Structural Oppression, and Alcohol Use and Misuse Among Sexual Minority Adolescents of Color
PI: Ethan Mereish (UMD)

2. Institute of Educational Sciences

Duration: 06/2022-5/2025
Role: Co-Principal Investigator
Funding: \$883,198 (34% credit)
Award Number: R305D220030
Title: Multilevel Regression Discontinuity Designs with Latent Variables
PI: Ji Seung Yang (UMD)

3. National Science Foundation

Duration: 01/2019-12/2022
Role: Principal Investigator
Funding: \$185,314 (100% credit)
Award Number: 1826535
Title: Semiparametric Factor Analysis for Item Responses and Response Times

4. National Science Foundation

Duration: 08/2019-07/2023
Role: Co-Investigator
Funding: \$996,074 (9% credit)
Award Number: 1937745
Title: Quantitative Research Methods for STEM Education Scholars Program
PI: Laura Stapleton (UMD)

5. College of Education, UMD: Support Program for Advancing Research and Collaboration

Duration: 10/2017-10/2018
Role: Principal Investigator
Funding: \$15,000 (100% credit)
Title: Uncertainty Quantification in Two-stage Estimation of Latent Variable Models

Pending

1. National Institutes of Health

Duration: 04/2023-03/2028

Role: Co-Investigator
Title: A Longitudinal Study on the Relation between Minority Stress and Alcohol Use
PI: Ethan Mereish (American University)

Research Fellowships, Prizes and Awards

	Year	Award	Institute
1.	2020	Excellence in Scholarship Award	College of Education, UMD
2.	2016	Dissertation Prize	Psychometric Society
3.	2016	Outstanding Quantitative Dissertation Award	American Educational Research Association, Division D
4.	2016	Dean's Distinguished Dissertation Award	Graduate School, UNC-CH
5.	2015	Lyle V. Jones Award	Department of Psychology, UNC-CH
6.	2014	Gulliksen Psychometric Research Fellowship	Educational Testing Service

III. Teaching, Mentoring, and Advising

Courses Taught

University of Maryland

1. EDMS 651: General Linear Models II (Fall 2022, Spring 2023; approximately 15 students/class)
2. EDMS 724: Modern Measurement Theory (Spring 2020, Spring 2021; approximately 12 students/class)
3. EDMS 646: General Linear Models I (Fall 2017, Spring 2018, Fall 2018, Spring 2020; approximately 30 students/class)
4. EDMS 738R: Seminar in Special Problems in Measurement—Diagnostics for IRT models (Fall 2019; approximately 8 students/class)
5. EDMS 623: Applied Measurement: Issues and Practices (Fall 2018; approximately 20 students/class)
6. EDMS 787: Bayesian Inference and Analysis (Spring 2018, Spring 2019; approximately 15 students/class)

University of California, Merced

1. PSY 10: Analysis of Psychological Data (Spring 2016, Fall 2016, Spring 2017; approximately 150 students/class)

2. PSY 212: Item Response Theory (Fall 2015, Spring 2017; approximately 10 students/class)

Advising: Research or Clinical

Doctoral

Completed Dissertation Co-Chaired

	Name	Program	Chair	Year
1.	Weimeng Wang	EDMS	Jeff Haring	2022
2.	Monica Morell	EDMS	Ji Seung Yang	2016
3.	Ruben Castaneda	Psych (UCM)	Jack Vevea	2015

Completed Doctoral Dissertations Advised as Member

	Name	Program	Period
2.	Semi Yeom	LLSI	2020-2023
1.	Chengbin Yin	EDMS	2021-2022
2.	Hongyang Zhao	EDHD	2020-2021
3.	Xin Qiao	EDMS	2020-2021
4.	Ana-Sophia Ross	School Psych	2019-2020
5.	Kaiwen Man	EDMS	2018-2020
6.	Kristen Frese	School Psych	2019-2020
7.	Manqian Liao	EDMS	2019-2020
8.	Qiwen Zheng	EDMS	2018-2019
9.	Dandan Liao	EDMS	2017-2018

Current Advisees (Post-Candidacy)

	Name	Program	Starting Year
1.	Chen Tian	EDMS	2018
2.	Shuangshuang Xu	EDMS	2017

Current Advisees (Pre-Candidacy)

	Name	Program	Starting Year
1.	Youjin Sung	EDMS	2022

Current Service on Dissertations Committee as Member

	Name	Program	Proposing Year
1.	Jinwang Zou	EDMS	2020

Master's

Current Advisees

	Name	Program	Starting Year
1.	Alina Maki	EDMS	2023

2. Bekzod Akramov EDMS 2021

Non-Degree

EDMS Certificate Program

	Name	Program	Period
1.	Qianyu Zhu	School Psych	2020–present
2.	Erin Hogan	LLSI	2019–2021
3.	Yixun Li	EDHD	2018–2020
4.	Jason Struck	SLA	2018–2019

Mentorship

Junior Faculty

NSF Quantitative Research Methods for STEM Education Scholars Program

	Name	Starting Year	Institute
1.	Inah Ko	2021	University of Michigan
2.	Rob Moore	2021	University of Florida
3.	Hengtao Tang	2020	University of South Carolina
4.	Tiffany Roman	2020	Kennesaw State University

IV. Service and Outreach

Editorships, Editorial Boards and Reviewing Activities

Editorships

1. Associate Editor, *Journal of Educational Measurement* (2022–present)
2. Associate Editor, *Psychometrika* (2020–present)

Editorial Boards

1. *Journal of Educational and Behavioral Statistics* (2021–present)

Reviewing Activities for Journals and Presses

	Period	Journal
1.	2022–present	<i>Journal of Computational and Graphical Statistics</i>
2.	2020–present	<i>Prevention Science</i>
3.	2019–present	<i>Journal of Gerontology: Psychological Sciences</i>
4.	2019–present	<i>Methodology</i>
5.	2018–present	<i>Computational Statistics and Data Analysis</i>
6.	2018–present	<i>Frontiers in Psychology</i>
7.	2017–present	<i>Psychological Methods</i>
8.	2017–present	<i>PLOS ONE</i>
9.	2016–present	<i>British Journal of Mathematical and Statistical Psychology</i>
10.	2015–present	<i>Psychometrika</i>

11. 2015–present *Journal of Educational and Behavioral Statistics*
12. 2014–present *Multivariate Behavioral Research*
13. 2014–present *Applied Psychological Measurement*
14. 2013–present *Educational and Psychological Measurement*

Reviewing Activities for Conferences

Year	Conference
1. 2021	International Meeting of the Psychometric Society

Reviewing Activities for Agencies & Foundations

Year	Agency	Program
1. 2021	National Science Foundation	Methodology, Measurement, and Statistics
2. 2020	National Science Foundation	Education and Human Resources

Committees, Professional & Campus Service

Campus Service–Department

Period	Role	Committee
1. 2022–present	Member	HDQM Award Committee
2. 2021–present	Chair	EDMS Graduate Admission Committee
3. 2021–present	Chair	EDMS MSMS Speaker Series
4. 2020–2021	Member	HDQM Graduate Committee
5. 2020–2021	Member	EDMS MSMS Speaker Series
6. 2020–2021	Member	EDMS Graduate Admission Committee
7. 2019–2020	Member	EDHD Search Committee
8. 2019–2020	Chair	EDMS Exam Committee
9. 2018–2019	Member	EDMS Search Committee
10. 2018–2019	Member	HDQM Merit Pay/Annual Review Committee
11. 2018–2019	Member	EDMS Graduate Admission Committee
12. 2017–2019	Member	EDMS Exam Committee
13. 2016–2017	Member	Search Committee, SSHA, UCM

Campus Service–College

Period	Role	Committee
1. 2019–2020	Member	College Senate Steering Committee
2. 2018–2020	Member	College Senate

Leadership Roles in Meetings and Conferences

1. Program Committee for 2021 International Meeting of the Psychometric Society

External Service and Consulting

Consultancies

1. Statistical Consultant. National Assessment Center of Education Quality, Beijing Normal University, Beijing, China. (July 2019).

Service Awards and Honors

Year	Award	Institute
1. 2020	Outstanding Reviewer for <i>Journal of the Educational and Behavioral Statistics</i>	American Educational Research Association