Ou Zhang

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SUMMARY

15+ years of empirical experiences in research design, assessment development, validity and reliability research, statistical modeling, behavior measurement, and factor analysis.

10+ years of strong statistical analysis and research experience in psychometric measurement, behavior assessment, survey design, statistical analytics, modeling, data science, project management, and program evaluation. Proficient with R, SAS, Python, SQL, SPSS and related software packages.

Strong interpersonal skills with the ability to work effectively in a team environment and to build cross-functional relationships. Excellent communication and presentation skills to develop and present recommendations and high-stake outcomes to the clients and stake-holders. Lead and manage a cross-functional team of 5 research scientists and statistical analysts, servicing clients and stakeholders from various backgrounds.

TECHNICAL SKILLS

- Assessment Development: test construction, behavior assessment, survey design
- Statistics and Modeling: generalized linear models, structural equation modeling, principal component analysis, ANOVA, factor analysis, multivariate analysis, hierarchical linear modeling, latent semantic analysis (LSA)
- Data science: machine learning, decision trees, NLP
- Psychometrics: classical testing theory, item response theory, scaling, computer adaptive testing, standard setting
- Programming Dev & App in R: data science (Tidyverse), package development, data visualization (ggplot2, ggvis), GUI (shiny), and R Markdown
- Programming Dev in SAS: standardized macro system, pipeline development
- Other Programming Tool: Python, C, Javascript, VBA
- Version Control: git, **github**, SAS Enterprise Guide
- Statistical Package: SPSS, Mplus, LISREL, HLM
- Basic Database software: SQL, ACCESS

EDUCATION

Ph.D., Educational Statistics, Psychometrics, and Methodology, 2012
University of Florida
M.Ed., Statistics, Research, Measurement, and Evaluation, 2007
Boston College
B.S., Computer Science, 2001
Chengdu University of Technology

PROFESSIONAL
EXPERIENCE

Research Scientist,   **March 2017 to Present**
Psychometrics Service, Pearson

- Lead research projects to evaluate the effectiveness of assessment products on student learning
- Identify best practices of online testing platform implementation based on research
- Transfer research results into actionable insights for product, sales, and marketing
- Standardize quantitative analytics models to create greater efficiencies
- Develop and maintain statistical methodologies for the psychometrics framework, in particular latent attributes reflecting manifest variables
- Present and demonstrate statistical analysis results, onsite and virtual, to the clients and technical advisory committee on a regular basis at quarterly client meetings
- Lead and facilitate high-stake statistical outcome discussions at state-wide standardized assessment standard setting meetings
- Organize and supervise a cross-functional group for technical support on a timely basis
- Develop and implement reproducible report system for multiple projects by using parameterized rmarkdown and shiny dashboard platform

Psychometrician II, Team leader,   **August 2012 to February 2017**
Clinical Assessment Department, Pearson

- Designed and developed automated scoring and text mining algorithm and implemented into scoring module of digital assessment platform - **Q-interactive**
- Technical and statistical lead for the innovative voice recognition & automated scoring project and won the "Best Clinical Application" Award at 2015 Pearson Technology Hackathon Competition (**Presentation** & **Demo**)
- Developed statistical model and scopes to examine the validity and reliability of the psychological/behavior measurement products
- Evaluated and interpreted the statistical and research results for the newly developed digital assessment platform transition
- Authored technical documentations and statistical reports for the Pearson measurement projects
- Motored and supervised psychometric teams including guiding psychometricians and statistical analysts in completing assignments and building up necessary statistical analysis and modeling techniques

Statistical Consultant,   **November 2008 to July 2012**
Assessment and Program Evaluation Services, University of Florida

- Worked closely with project operators in the construction of evaluation plans and monitored evaluation process
- Assist in establishing, monitoring, evaluating, developing and implementing strategies for all aspects of project evaluation
- Designed and developed online survey instruments through **qualtrics** for NSF program evaluation
- Compiled, cleaned, and analyzed quantitative/qualitative survey data for further analysis
- Perform Portfolio Management campaign tracking and analysis
- Developed & wrote summary reports of data analysis for multiple stakeholder audiences and program staff

Selected Publications and Conference Presentations

Zhang, O., Zhou, X., (2020, April). *Comparing norming methods performance under violation of the assumptions* Paper accepted and will be presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA.

Zhang, O., Bilir, K., (2019, April). *Parameter Recovery Accuracy for Rasch Model: Comparing PROC IRT, WINSTEPS, 'ltm', and 'mirt'* Paper accepted and will be presented at the annual meeting of the National Council on Measurement in Education, Toronto, Ontario, Canada.

Zhang, O., Wang, X., (2017, April). *How much can we gain from collateral information for subscore reporting?* Paper accepted and presented at the annual meeting of the National Council on Measurement in Education, San Antonio, TX.

Chen, H., **Zhang, O.,** (2015, April). Factor invariance between genders on the Wechsler Intelligence Scale for Children Fifth Edition. *Personality and Individual Differences 86 (2015)*, 11-15. DOI: 10.1016/j.paid.2015.05.020.

Zhang, O., Miller, J., (2015, April). *Cross-Cultural Measurement Equivalence of the WISC5.* Paper accepted and presented at the annual convention of the American Psychological Association, Toronto, Ontario.

Zhang, O., (2013, April). *Observed Score and True Score Equating for Multidimensional Item Response Theory under Nonequivalent Anchor Test Design.* Paper accepted and presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA.

Zhang, O., DePascale, C., & Miller, D. (2011, April). *How Subgroup Characteristics Effect Equating Methods' Academic Growth Detection?* Paper presented at the annual meeting of the National Council of Educational Measurement annual meeting, New Orleans, LA.

Zhang, O., & Miller, D. (2011, April). *A Model Evaluation When Association Exists Between Testlets under Small Testlet Size Situations.* Paper presented at the annual meeting of the National Council of Educational Measurement annual meeting, New Orleans, LA.

MacInnes, J., Miller, D.,**Zhang, O.** (2011, April). *Detecting Differential Item Functioning in Polytomously Scored Items: A Multilevel Approach to the Generalized Mantel-Haenszel.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Zhang, O., Shen, L., Cannady, M. (2010, April). *Polytomous IRT or Testlet Model: An Evaluation of Scoring Models under Small Testlet Size Situation.* Paper presented at The 15th International Objective Measurement Workshop (IOMW), Boulder, CO.

Zhang, O., & Leite, W.,(2009, April). *Evaluating the Effect of Reliability Changes Across Time on the Trait-State-Occasion Model.* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Underhill, J.L., Leite, W., **Zhang, O.** (2009, April). *Effect of Misspecification of Growth Trajectory on Class Identification in Growth Mixture Models.* Paper presented at the annual meeting of the American Educational Research Association,San Diego, CA.

TECHNICAL REPORT	**Zhang, O.,** (2018). Polynomial regression model evaluation and selection for psychological test norming Psychometrics Service, Pearson, Inc.
	Zhang, O., (2018). The art of readable code: simple and practical techniques for writing better code. Psychometrics Service, Pearson, Inc.
	Daniel, M., **Zhang, O.,** (2014). Equivalence of Q-interactive and Paper Admission of Cognitive Tasks: WISC-V. NCS Pearson, Inc.
	Zhang, O., & MacInnes, J., (2011). Using R to control HLM 6.0 in Simulation Study. Educational Research, Evaluation, Methodology Program at the University of Florida

AD HOC REVIEWER

- Annual meetings of the National Council on Measurement in Education
- Annual meetings of the american psychological association (APA)
- Annual meetings of the American Educational Research Association

PROFESSIONAL AFFILIATIONS

- American Statistical Association (ASA)
- American psychological association (APA)
- American Educational Research Association (AERA)
- National Council on Measurement in Education (NCME)
- Psychometric Society
- International Association for Computerized Adaptive Testing (IACAT)