Steven W. Nydick, PhD – Curriculum Vitae

Personal Information

Korn Ferry
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Education

2007 – 2013	PhD, University of Minnesota Psychometrics/Quantitative Psychology Advisor: Niels Waller
Dissertation Title	Multidimensional Mastery Testing with CAT
2007 – 2012	MA, University of Minnesota Psychometrics/Quantitative Psychology Advisor: Niels Waller
Master's Thesis Title:	Classifying Examinees using Adaptive Tests
2010 – 2011	MS, University of Minnesota Statistics Advisor: Sanford Weisberg
Project Title:	Clustering Minnesota Physician Clinics
2002 – 2006	BS, Syracuse University Mathematics and Psychology Summa Cum Laude with Honors in Psychology GPA: 3.90
Honors Thesis Title:	Moral Emotion Regulation: The Case of Abortion

Teaching Experience

University of Minnesota

Instructor:	PSY 8814	Analysis of Psychological Data I (F2014)
Instructor:	PSY 3801H:	Honors Intro to Data Analysis (F2011)
Instructor:	PSY 3801:	Introduction to Data Analysis (F2010, Spr2011, Spr2012, Sum2012)
Instructor:	PSY 2801:	Introduction to Data Analysis (Sum2009, F2009, Spr2010)
Lab Instructor:	PSY 8815:	Analysis of Psychological Data II (Spr2009, Spr2013)
Lab Instructor:	PSY 8814:	Analysis of Psychological Data I (F2012)
Lab Instructor:	PSY 5865:	Advanced Psychological Measurement (Spr2010)

Lab Instructor:	PSY 2801:	Introduction to Data Analysis (F2007, Spr2008, F2008)
Teaching Assistant:	PSY 3001H:	Honors Research Methods (F2008)
Teaching Assistant:	PSY 2801:	Introduction to Data Analysis (F2007, Spr2008)

Professional Experience

January 2018 –Present: Data Scientist Developer

1. Basic Information
   - Korn Ferry
     33 South 6th St #4900
     Minneapolis, MN 55402
   - Manager: Sarah Hezlett, PhD
   - Manager: Jeff Jones, PhD
2. Responsibilities:
   - Designs and develops R and Python code to efficiently score personality and performance ratings for production reports that inform hiring and promotion decisions for major corporate clients.
   - Creates dashboards in R shiny to generate tailored and automated business quality plots and reports in Word, Powerpoint, and LaTeX.
   - Develops internal R packages that facilitate systematizing code development, producing flexible graphics, and greatly reducing bugs and other errors.
   - Deploys R applications, R packages, and R/Python scoring services on Amazon Web Services (using both Docker and lambda functions) and in local CRAN repositories.
   - Contributes psychometric and statistical insight to thought leadership studies on disruption in Talent Management.
   - Provides actionable information on why people voluntarily leave organizations by analyzing custom surveys using a variety of machine learning and standard methods, such as logistic regression, Random Forests, and Gradient Boosting in R.
   - Built an R package to simulate responses and estimate parameters for the Multi-Unidimensional Pairwise Preference IRT model, including coding modified Newton-Raphson and MCMC algorithms for parameter estimation. This package was designed for use in productionalized code serving production reports.

November 2016 – January 2018: Senior Psychometrician

November 2013 – November 2016: Psychometrician

1. Basic Information
   - Pearson VUE
     5601 Green Valley Drive
     Bloomington, MN 55437

- Manager: James Ingrisone, PhD
- Manager: Xin Li, PhD

2. Responsibilities:
    - Oversaw all psychometric work for a complex professional client with more than 20 exams, including linear-on-the-fly and fixed-form delivery methods, and has organized the analysis process to better facilitate automation and prevent errors.
    - Designed psychometric tasks, data collection methods, and analytic procedures across more than twenty complex regulatory and professional clients.
    - Guided content experts in determining appropriate exam cut scores via Angoff and Bookmark standard settings.
    - Independently designed and conducted Job Task Analyses. The JTA process includes facilitating a discussion on the content of a field across professionals of wide-ranging backgrounds and experience, constructing and publishing a complicated survey for distribution to thousands of experts, and collecting/analyzing/integrating data from various sources to determine exam content.
    - Conducted and verified item analyses, automatic test assembly, equating, and analytic and demographic reports for regulatory and professional clients, and has completed work almost entirely on time and error free.
    - Wrote code in `R` to efficiently conduct all analyses. The `R` scripts interface with Winsteps and Bilog-MG for item analyses and the lp_solve C routine for automatic test assembly and pool sculpting. Has successfully applied linear programming concepts to more efficiently build tests given particular blueprint and statistical specifications.
    - Designed a comprehensive simulation to transition a program from a linear fixed-form exam to a computer adaptive exam. Completed the simulation, analysis, and writeup in an expedited fashion to meet compressed timelines, and was complimented by the client for the level of detail and recommendations presented therein.
    - Wrote a Python GUI to parse HTML input and create a Pearson-approved Word poolbook for standard settings with various sorting, filtering, and display capabilities. This program saved hours when preparing for standard settings and provided client-requested flexibility in poolbook displays.
    - Automated the creation of client reports using `R` and markdown, knitr, or ReporteRs.
    - Served as a psychometric liaison for determining the reporting capabilities of the BI and has successfully intermediated between the requirements of the psychometric team in terms of data format and structures and the capabilities of the BI tool.
    - Assisted in completing and replicating analyses due to data processing efficiency and expertise.

June 2013 – Present: Research Assistant

1. Basic Information:

- University of Minnesota
  75 East River Parkway
  Minneapolis, MN 55455
- Project Topic: Longitudinal Higher-Order IRT Models
- Contact: Chun Wang, PhD

2. Responsibilities:
   - Edited, modified, and wrote sections of a grant proposal to research longitudinal models in item response theory.
   - Designed and conducted Markov Chain Monte Carlo simulation studies in `R`.
   - Wrote algorithms in and invoked algorithms from the C programming language, which resulted in a reduction of 98.5% of computing/simulation time.

May 2012 – September 2013: Intern in Psychometrics

1. Basic Information:
   - The ARRT
     1255 Northland Drive
     St. Paul, MN 55120
   - Contact: Lauren Wood, PhD
   - Contact: Michael Yoes, PhD
   - Contact: Ben Babcock, PhD
2. Responsibilities:
   - Conducted literature reviews on various psychometric topics, including standard setting, cognitive diagnosis models, and item types.
   - Wrote programs to automate exporting exam data from SQL databases into `R`. These programs also analyzed/plotted examinee and exam characteristics.
   - Designed, conducted, and wrote-up for publication real-data studies on exam quality.

June 2011 – August 2011: Summer Intern in Psychometrics and Statistics

1. Basic Information:
   - ACT, Inc.
     500 ACT Drive
     Iowa City, IA 55243
   - Project Topic: Stopping Rules in Classification CAT
   - Contact: Yuki Nozawa, PhD
   - Contact: Xiaohong Gao, PhD
2. Responsibilities:
   - Designed a comprehensive simulation study on computerized classification testing.
   - Compiled and presented results from the simulation study at the 2012 NCME conference.

- Assisted several interns on learning `R`, adopting clean `R` coding habits, and using `R` for simulations.

Fellowships, Awards, and Funding

Fall 2013: Doctoral Dissertation Fellowship (DDF), University of Minnesota, $22,500 + tuition.

Summer 2013 – Spring 2014: Research Assistantship, University of Minnesota, stipend for 10-20 hours per week.

Spring 2012: CLA Student Travel and Research Award, University of Minnesota, $500.

Summer 2010: CLA Student Travel and Research Award, University of Minnesota, $500.

Summer 2010: Graduate Research Partnership Program (GRPP) Fellowship, University of Minnesota, $4000.

Fall 2007 – Spring 2013: Teaching Assistantship, University of Minnesota, stipend + tuition.

Spring 2006: Archimedes Prize in Mathematics, Syracuse University, awarded to an outstanding Undergraduate Mathematics student at the culmination of each year, $150.

Manuscripts Published and in Press

[1] Wang, C., & Nydick, S. W. (2015). Comparing two algorithms for calibrating the restricted non-compensatory multidimensional IRT model. *Applied Psychological Measurement*, *39*, 119–134.

[2] Nydick, S. W. (2014). The sequential probability ratio test and binary item response models. *Journal of Educational and Behavioral Statistics*, *39*, 203–230.

Manuscripts under Review

[1] Wang, C. & Nydick, S. W. Measuring multidimensional growth–a higher-order IRT perspective.

Manuscripts in Preparation

[1] Jones, J. A., Waller, N. G., & Nydick, S. W. Correlation weights and OLS weights in multiple regression: The empirical sampling behavior of cross-validity coefficients.

Presentations

[1] Jones, J. A., Nydick, S. W., & Wiseman, B. (2019, April). Effective data wrangling and visualization with R. Master tutorial at the annual meeting of the Society of Industrial and Organizational Psychologists, National Harbor, MD.

[2] Jones, J. A., Nydick, S. W., & Wiseman, B. (2019, April). Web Scraping with R. Master tutorial at the annual meeting of the Society of Industrial and Organizational Psychologists, National Harbor, MD.

[3] Nydick, S. W. (2016, April). The expected likelihood ratio in computerized classification testing. Paper presented at the annual meeting of the National Council on Measurement in Education, Washington, DC.

[4] Nydick, S. W. (2014, April). Multidimensional mastery testing with CAT. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[5] Nydick, S. W., Wang, C., & Xiong, X. (2014, April). Measuring multidimensional growth–a higher-order IRT perspective. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

[6] Nydick, S. W., Nozawa, Y., & Zhu, R. (2012, April). Accuracy and efficiency in classifying examinees using computerized adaptive tests: An application to a large scale test. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Vancouver, BC.

[7] Nydick, S. W. & Weiss, D. J. (2010, June). Accepting the null: No change in change CAT. Paper presented at the IACAT conference on CAT, Arnhem, NL.

[8] Nydick, S. W. & Weiss, D. J. (2009). A hybrid simulation procedure, evaluated for the development of CATs. In D. J. Weiss (Ed.) *Proceedings of the 2009 GMAC Conference on Computerized Adaptive Testing.*

Unpublished Manuscripts

[1] Nydick, S. W. (2013). *Intro to R for Psychologists.* Minneapolis, MN: Author.

Software

[1] Nydick, S. W. (2014). An R package for Simulating Computerized Adaptive Tests (R Package Version 0.5-0). Available from http://CRAN.R-project.org/package=catIrt

Research in Progress

Stopping rules and item selection algorithms for classification testing in computerized adaptive tests.

The role of alternate weights in regression models.

Estimation algorithms for item response theory models, including MCMC and Metropolis-Hastings Robbins-Monro.

Calibrating longitudinal higher-order IRT models with Mplus.

Reviewing

2017: Guest Reviewer - Applied Psychological Measurement

2013: Guest Reviewer - Behavioral Research Methods

2009: Guest Reviewer - SAGE Textbook on Statistics

2009: Guest Reviewer - Statistics in Medicine

Professional Services

Summer 2010: Curriculum Planning, Psychology Department, University of Minnesota. Helped build and plan the curriculum of PSY 3801, the redesigned undergraduate course in Data Analysis. Also, designed, organized, and kept the joint item bank across course sections.

- Contact: David Weiss, Professor, University of Minnesota

Summer 2010: Tricam Lab, Psychology Department, University of Minnesota. Translated SPSS, JMP, and Matlab scripts into `R` and consulted on `R` coding.

- Contact: Angus MacDonald III, Associate Professor, University of Minnesota

Spring 2009 – Fall 2009: Core Curriculum Group, Psychology Department, University of Minnesota. Helped organize and structure the content of the undergraduate psychology major.

Professional Organizations

Voting Member: Society for Industrial and Organizational Psychology

Voting Member: American Educational Research Association

Voting Member: International Association for Computerized Adaptive Testing

Voting Member: National Council on Measurement in Education

Voting Member: Psychometric Society

Software Knowledge

Proficient: R, LaTeX, SQL, Python, Git

Experienced: C, C++, HTML/CSS/XML/JavaScript, AWS, Docker, LISREL, MPlus, SPSS, Various IRT Software (WINSTEPS, BILOG, etc.)

Familiar: Matlab, SAS, Stata, MX, C♯

Relevant Coursework

Date Taken	Course Number	Course Description
Spring 2011	Stat 8054	Applied Stat Methods IV: Computing
	Stat 8801	Statistical Consulting
Fall 2010	Stat 8053	Applied Stat Methods III: Multivariate
	Stat 8321	Regression Graphics
Spring 2010	EPSY 5271	Becoming a Teacher of Statistics
	Stat 8052	Applied Stat Methods II: Experimental Design
Fall 2009	Stat 5601	Nonparametric Methods
	Stat 8051	Applied Stat Methods I: Linear Model
Spring 2009	Stat 5102	Theory of Statistics II
Fall 2008	PSY 8960	Seminar in Item Response Theory
	Stat 5101	Theory of Statistics I
Spring 2008	PSY 5865	Advanced Psychological Measurement
	PSY 8960	Multivariate Data Analysis for Social Scientists
Fall 2007	PSY 5862	Psychological Measurement
	PSY 8960	Seminar in Computerized Adaptive Testing

References

References available upon request