

Cavan Gray

INDUSTRIAL - ORGANIZATIONAL PSYCHOLOGIST

Chicago, Illinois

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Professional Summary

Dr. Gray is published researcher with expertise in statistical and data analysis, measurement, employment selection, R and Python. He has experience leading domestic and international testing programs for multiple clients and guiding them through the legal and ethical landscape of psychometric testing. Dr. Gray has broad knowledge of statistical methodologies including item response theory, classical test theory, and machine learning. He combines these skills with a strong understanding of data management and analytics to efficiently manage complex data sources and create reproducible results. He incorporates the diversity of his skills to identify and recommend solutions that fit organizations' needs and produce actionable insights. He enjoys taking a creative approach to new and challenging problems, sharing research and ideas with all audiences and conveying complex analyses in visually appealing and compelling ways.

Education

University of Georgia

PHD AND MS IN INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY

- Dissertation: Improving Organizational Research: A case for Multidimensional Item Response Theory

Athens, Georgia

Aug. 2012 - May 2017

Western Illinois University

BS (HONS) IN PSYCHOLOGY

- The 2012 Department Scholar of Psychology

Macomb, Illinois

Aug. 2009 - May 2012

Experience

Personnel Research Decisions Institute (PDRI)

RESEARCH SCIENTIST

- Using Python, developed an algorithm to automatically grade short-answer essays using natural language processing and machine learning that out-performed a leading industry competitor and published literature.
- Led the scoring effort of a modular, computer adaptive, forced-choice item response theory personality assessment.
- Led the scoring efforts for a new cognitive ability assessment that included evaluating item performance, factor structure, and calibrating the item scoring using the generalized partial credit model.
- Supported the validation of a selection assessment battery for governmental agency intelligence analysts, including adverse impact analysis and criterion validation. Supervised junior staffs' implementation of the process and selection band strategy.
- Served as several clients' point of contact and technical expert, guiding them in best practices concerning psychometric testing. Worked with clients to thoroughly understand their needs, offer tailored solutions, answer questions and provide prompt technical documentation and reports upon completion of tasks.

Chicago, Illinois

May 2019 - Present

Pearson VUE

PSYCHOMETRICIAN

- Engaged in all activities of Associate Psychometrician with a greater emphasis on research and thought leadership

Chicago, Illinois

Mar. 2019 - May 2019

ASSOCIATE PSYCHOMETRICIAN

- Lead the statistical analysis of several international and domestic professional certification exams using item response theory and classical test theory
- Identified trends using regression and correlations, presented findings and implications to clients
- Summarized analyses in technical reports and presented findings and recommendations to examination supervisory boards
- Created statistical programs to manage multiple large datasets using R and Microsoft Access for reproducible and expedited report creation
- Lead job analyses workshops and surveys to validate newly developed exams
- Conducted and presented research on improving job analysis using natural language processing and multidimensional item response theory

Chicago, Illinois

Dec. 2016 - Mar. 2019

APTMetrics

CONSULTANT

- Performed a meta-analysis of employee selection tool performance across seven locations to present as expert witness testimony
- Conducted adverse impact and pay equity analyses for several Fortune 500 organizations
- Performed regression and correlation analysis to support the criterion validation of a new situational judgement test
- Developed a family of competency models using interview and survey methodology

Darien, Connecticut

Jul. 2016 - Dec. 2016

Go Metrics

PSYCHOMETRIC CONSULTANT

Athens, Georgia

Jan. 2016 - Jul. 2016

- Lead the development and validation of two vocational interest inventories to be used in employee selection

Frito-Lay

ORGANIZATION AND MANAGEMENT DEVELOPMENT INTERN

Plano, Texas

Jan. 2015 - Dec. 2015

- Lead the analysis of human resource data for 12 jobs, over a 4-year period and 800,000 applicants. Recommendations for reducing turnover and increasing diverse applicants were presented to senior HR leaders.
- Supported an organization wide administration and analysis of an organizational culture survey and quartley pulse surveys
- Played a primary role in conducting the analyses that lead to the successful defense of an adverse impact OFCCP audit
- Developed various Excel tools using macros and complex formulae to help facilitate data collection from HR Business Partners

Research & Publications

SELECTED PUBLICATIONS

GRAY, C. J., CARTER, N. T., & SEARS, K. L. (2016). THE UWBQ-I: AN ADAPTATION AND VALIDATION OF A MEASURE OF INSTIGATED INCIVILITY. JOURNAL OF BUSINESS AND PSYCHOLOGY, 1-19.

EBY, L. T., MITCHELL, M. E., GRAY, C. J., PROVOLT, L., LORYS, A., FORTUNE, E., ALLEN, T. D., & GOODIE, A. (2014). GAMBLING-RELATED PROBLEMS IN FAMILY AND WORK LIFE: AN EXPLORATORY STUDY OF WEEKLY GAMBLERS. COMMUNITY, WORK, & FAMILY, 1-17.

SELECTED PRESENTATIONS

GRAY, C. J. (APRIL, 2021). IN S. MARIN & C. J. GRAY (CHAIRS), AUTOMATIC ESSAY SCORING: 'BIG' DATA WITH SMALL SAMPLES. ACCEPTED AT THE 36TH ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY: VIRTUAL CONFERENCE.

PANELIST (APRIL, 2021). IN J. MEADEN (CHAIR), DOING WHAT THE ROBOTS CAN'T: THE ROLE OF (HUMAN) I/OS IN AI ASSESSMENT. ACCEPTED AT THE 36TH ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY: VIRTUAL CONFERENCE.

PANELIST (APRIL, 2021). IN L. M., KATH (CHAIR), CREATIVE WAYS TO GET THE WORD OUT ABOUT I-O PSYCHOLOGY. ACCEPTED AT THE 36TH ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY: VIRTUAL CONFERENCE.

GRAY, C. J. & MEAD A. D. (CHAIRS, APRIL 2020). UNSTRUCTURED DATA IN ORGANIZATIONAL RESEARCH. PRESENTED AT THE 35TH ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY: VIRTUAL CONFERENCE.

GRAY, C. J. & BECKER, K. A. (2018). AUTOMATING JOB TASK ANALYSIS WITH NATURAL LANGUAGE PROCESSING. PAPER PRESENTED TO THE 2017 SOCIETY FOR INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (SIOP) ANNUAL CONFERENCE, CHICAGO, IL.

GRAY, C. J., LAUTENSCHLAGER, G. J., & CARTER, N. T. (2017). IMPROVING MEASUREMENT PRECISION IN ORGANIZATIONAL RESEARCH: A CASE FOR MULTIDIMENSIONAL ITEM RESPONSES THEORY. PAPER PRESENTED TO THE 2017 SOCIETY FOR INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (SIOP) ANNUAL CONFERENCE, ORLANDO, FL.

GRAY, C. J., MORELLI, N. A., & MCCLANE, W. (2015). DOES USE CONTEXT AFFECT SELECTION ASSESSMENTS DELIVERED VIA MOBILE DEVICES? PAPER PRESENTED TO THE 2015 SOCIETY FOR INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (SIOP) ANNUAL CONFERENCE, PHILADELPHIA, PA.

GRAY, C. J., CARTER, N. T., & SEARS, K. (2015). THE UWBQ-I: THE VALIDATION OF A MEASURE OF INSTIGATED INCIVILITY. PAPER PRESENTED TO THE 2015 SOCIETY FOR INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (SIOP) ANNUAL CONFERENCE, PHILADELPHIA, PA.

COMPETITIONS & RELEVANT COURSEWORK

- 2018 Titanic Machine Learning, Top 8%
- 2018 Machine Learning, Stanford University

Kaggle.com

Coursera