

Clifford Erhardt Hauenstein IV

Johns Hopkins School of Medicine
Cognitive Neurology/Neuropsychology
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Education

Ph.D. Quantitative Psychology Georgia Institute of Technology, Atlanta, GA Advisor: Dr. Susan Embretson	2013 – 2022
M.A. School Psychology Pupil Personnel Services Credential California University State University – Chico, Chico, CA	2010 - 2013
B.A. Biological Sciences University of Southern California, Los Angeles, CA	2005 - 2009

Professional Experience

Postdoctoral Research Fellow Cognitive Neurology/Neuropsychology, Johns Hopkins School of Medicine Supervisor: Dr. Derek Smith, Dr. Barry Gordon <i>Modeling social interactions within autism/neurodivergent populations, as well as developing and refining psychometric methods for identifying individual differences in ability and strategy use, particularly dynamic psychometric models. Additionally, providing statistical consultation for empirical analyses of cognitive control.</i>	November 2022 – Current
Research Assistant Cognitive Measurement Lab, Georgia Institute of Technology, Atlanta, GA Supervisor: Dr. Susan Embretson <i>Assisted with the application and interpretation of psychometric measurement models to cognitive and educational test data. Projects involved analysis of differential item functioning for automatically generated items, multi-stage testing with automatically generated items, IRT mixture modeling with concept learning data, and the development of time series/hidden Markov IRT models.</i>	Fall 2013 – Spring 2022
Research Assistant Decision Processes Lab, Georgia Institute of Technology, Atlanta, GA Supervisor: Dr. Rick Thomas <i>Assisted with DOD funded project involving natural language processing and topic modeling.</i>	Fall 2021
Statistical Consultant Decision Processes Lab, Georgia Institute of Technology, Atlanta, GA Supervisor: Dr. Rick Thomas <i>Developed and applied psychometric models with Bayesian estimation and MCMC sampling to capture individual and cluster level differences in geopolitical forecasting ability. Previous findings were updated by applying psychometric models that account for both the effects of response time and individual differences in item selection.</i>	Fall 2020 - Spring 2021
Intern - Research and Development Educational Testing Service (ETS), Princeton, NJ Mentors: Matthew Johnson and Jie Gao <i>Applied psychometric models to process data/information from log files to capture interindividual and intraindividual variability in strategy use.</i>	Summer 2019

Statistical Consultant

Summer 2014 - Fall 2015

Human Factors and Aging Lab, Georgia Institute of Technology, Atlanta, GA
Supervisor: Dr. Wendy Rogers

Assisted with the implementation and interpretation of hierarchical linear models in R and SAS to explore daily fluctuations in self-reported emotional and physical wellbeing.

Intern – School Psychology

Fall 2011 - Spring 2013

Orland Unified School District, Orland, CA
Supervisor: Joey Brett

Authored Psychoeducational Reports. Administered and interpreted cognitive/achievement batteries and surveys (e.g. Woodcock-Johnson, WISC, ADOS, BASC, WIAT). Consultant for student behavior modification. Provided diagnostic reading evaluations and developed reading interventions. Provided individual and group counseling services.

Substitute Teacher

Fall 2009 – Spring 2010

Parlier Unified School District, Parlier, CA
Substitute taught at primary and secondary levels.

Research Assistant

Fall 2008 – Spring 2009

PSHAW Lab, University of Southern California, Los Angeles, CA
Supervisor: Dr. Jennifer Overbeck

Managed database systems, performed video transcription, coordinated subjects for studies, registered participants, provided instructions, and organized survey data.

Publications

Hauenstein, C. E., & Embretson, S. E. (2022). A Mixture Explanatory IRT Model for Dynamic Processes [Abstract]. *Multivariate Behavioral Research*, 1-1.

Hauenstein, C. E., & Embretson, S. E. (2020). Modeling Item Difficulty in a Dynamic Test. *Journal of cognitive education and psychology*.19(2), 93-106.

Hauenstein, C. E., & Embretson, S. E. (2019). Development and Applications of Item Response Theory. In J. Edlund & A. E. Nichols (Eds.), *Advanced research methods for the social sciences* (pp. 309-327). Cambridge University Press.

Hauenstein, C. E., & Embretson, S. E. (2018). The Impact of Item Features and Performance Feedback on the WJ III Concept Formation Subtest [Abstract]. *Multivariate behavioral research*, 53(1), 149.

Hauenstein, C.E., Embretson, S.E. (2016). Classical Test Theory. In B. Frey (Ed.), *The Sage encyclopedia of qualitative research methods*. Thousand Oaks, CA: Sage Publications.

Submitted Manuscripts

Hauenstein, C. E., Thomas, R. P., Illingworth D. A., & Dougherty, M. R. (Submitted) Rethinking the role of teams and training in geo-political forecasting: The effect of uncontrolled method variance on statistical conclusions. Submitted to: *Psychological Science*.

Working Manuscripts, Near Submission

Hauenstein, C. E., & Embretson, S. E. Capturing Intercluster Variability in Test Strategy Transition Patterns: An Explanatory IRT Approach. To be submitted to: *Applied Psychological Measurement*.

Hauenstein, C. E., & Embretson, S. E. Psychometric Modeling to Identify Examinee Strategy Differences Over the Course of Testing. To be submitted to: *Journal of Intelligence*.

Smith, D. M., Hauenstein, C. E., & Schumacher, E. H. The Reliability and Process Composition of the Perceptual Load Effect. To be submitted to: *Psychonomic Bulletin and Review*.

Presentations

Hauenstein, C. E., & Embretson, S. E. Implementing Dynamic IRT Models to Account for Response Strategy Heterogeneity. Paper presented at the International Meeting for the Psychometric Society; 2019 July 24-28; College Park, MD.

Hauenstein, C. E., Kim, E., & Embretson, S. E. Application of Mixture Explanatory Item Response Models to Explore Response Process Validity. Poster presented at the National Council on Measurement in Education Annual Conference; 2021 June 9-11; held virtually.

Hauenstein, C. E., & Embretson, S. E. Joint Modeling of Process and Response Data: A Mixture Markov Process Approach. Poster presented at the National Council on Measurement in Education Annual Conference; 2020 April 16-20; held virtually.

Hauenstein, C. E., & Embretson, S. E. Application of the Hybrid Model to Determine Utility of Process Data. Poster presented at the National Council on Measurement in Education Annual Conference; 2020 April 16-20; held virtually.

Hauenstein, C. E., & Embretson, S. E. Differential validity of cognitive models for concept learning among latent classes. Poster presented at the International Meeting for the Psychometric Society; 2019 July 15-19; Santiago, Chile.

Hauenstein, C. E., & Embretson, S. E. Class Specific Response Processes in Concept Learning and Intelligence Tests. Poster presented at the National Council on Measurement in Education Annual Conference; 2019 April 4-8; Toronto, ON.

Hauenstein, C. E., & Embretson, S. E. Item Difficulty Modeling of Fluid Reasoning on the Woodcock Johnson Test. Paper presented at the National Council on Measurement in Education Annual Conference; 2018 April 12-16; New York, NY.

Pezeshki, M., Hauenstein, C. E., & Embretson, S. E. SAT Reading Construct Validation: Predicting Item Difficulty from Text and Item Complexity. Poster presented at the National Council on Measurement in Education Annual Conference; 2018 April 12-16; New York, NY.

Hauenstein, C. E., & Embretson, S. E. The Impact of Item Features and Performance Feedback on the WJ III Concept Formation Subtest. Poster presented at: Society of Multivariate Experimental Psychologists Annual Meeting; 2017 Oct 5-8; Minneapolis, MN.

Hauenstein, C. E., & Embretson, S. E. Identifying Bias Across Generated Items of Various Complexity in a Mathematics Achievement Assessment. Paper presented at the National Council on Measurement in Education Annual Conference; April 2015; Chicago, IL.

Hauenstein, C. E., Identifying Reclassification Barriers and Post-Reclassification Growth for English Language Learners. Poster presented at the National Association of School Psychologists Annual Conference; February 2014; Washington DC.

Workshops Taught

Item Response Theory and IRTPRO 4,

Gleacher Center, Chicago, IL, May 31, 2018 – June 1, 2018

Sponsored by Scientific Software International, co-hosted instructional workshop for using the IRTPRO software package and application of IRT models. Described methods and examples for differential item functioning, equating, data simulation; as well as graphical output procedures.

Teaching Experience

Lab Instructor, Statistics I

Spring 2014, Fall 2017 – Spring 2020

Undergraduate Level

Lectured 3 hrs per week, topics included basic principles of probability, ANOVA, linear regression, power analysis. Additionally provided instruction in SPSS and R statistical software and developed assignments and projects for students, supported students through research projects, held exam reviews and homework sessions.

Lab Instructor, Research Methods

Summer 2016, Summer 2018

Undergraduate Level

Lectured 3 hrs per week, topics included basic research design, sampling methods, and reviewing various data modeling approaches. Additionally developed assignments and projects for students, supported students through research projects, provided feedback for research proposals, held exam reviews and homework sessions.

Lab Instructor, Regression Analysis

Spring 2016

Graduate Level

Lectured 3 hrs per week, topics included linear regression, regression diagnostics, ANCOVA, multilevel modeling and logistic regression. Additionally provided instruction in SPSS and R statistical software and developed assignments and projects for students, supported students through research projects, provided feedback for research proposals, held exam reviews and homework sessions.

Teaching Assistant, Research Methods

Fall 2016 – Spring 2017

Undergraduate/Graduate Level

Teaching Assistant, Sensation and Perception

Fall 2016

Undergraduate Level

Teaching Assistant, Introduction to Psychology

Fall 2013

Undergraduate Level

Software Experience

R, SPSS, SAS, WinBUGS, JAGS, BILOG, IRTPro

Affiliations

National Council on Measurement in Education

National Association of School Psychologists

Relevant Graduate Courses

Research Methods	IRT Modeling with Response Times
Mathematical Statistics I/II	Advanced Topics in IRT
Regression Analysis in Industrial Engineering	Biopsychology
Multivariate Statistics	Sensation and Perception
Factor Analysis/Structural Equation Modeling	Psychoeducational Assessment of Special Populations
Multilevel Modeling	Practicum in Psychoeducational Assessment of Special Populations
Multidimensional Scaling	Behavioral Analysis with Special Populations
Data Simulation	Practicum in Behavioral Analysis
Classical Test Theory	Practicum in Individual and Group Counseling
Item Response Theory (IRT)	Assessment of Reading Disabilities
Advanced IRT	
IRT Modeling for Cognitive Assessment	

Volunteer Work

Peer Provider and Peer Recovery Coordinator Veteran's Hospital, Fresno, CA Supervisor: Dr. Paula Solomon <i>Delivered patient support at a mental health clinic. Assisted with implementation of the "WRAP" model of patient recovery. Partnered with patients to develop Recovery Care Plan contracts.</i>	Summer 2008
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Awards

Conference Travel Award Society of Multivariate Experimental Psychology	Fall 2017
Merit Based Scholarship California State University – Chico	Fall 2011
Cum Laude Graduate University of Southern California	Spring 2009
Latino Honor Society Academic Achievement Award University of Southern California	2005
Alpha Lambda Delta Honor Society University of Southern California	2005
Dean's Academic Honor List University of Southern California	2005 - 2009