

Open Postdoctoral position, faculty mentor Nilam Ram

The LEarning VAriability NeTwork Exchange (LEVANTE) project seeks a Postdoctoral Scholar to study psychometrics and longitudinal change for a full time, 1 year (potentially renewable) appointment in the Department of Psychology or Graduate School of Education at Stanford University. The aim of the postdoc is to develop psychometric and longitudinal models for study of human development.

The postdoctoral scholar would be advised by Prof. Nilam Ram (Psychology & Communications, The Change Lab and Screenomics), and Prof. Ben Domingue (Education, Jacobs Research Fellow). Dr. Ram's lab specializes in longitudinal research methodology and lifespan development – particularly in how longitudinal study designs contribute to our understanding of human development and the psychological changes processes. The lab develops and uses novel longitudinal methods to articulate and examine how individuals change over time (and with age), and how various individual characteristics, contextual factors, and events influence those trajectories. Dr. Domingue's lab focuses on a variety of psychometric issues. He is interested in the development and evaluation of methodologies in psychometrics and is especially excited about building the Item Response Warehouse, a tool meant to help psychometrics become a more data-driven discipline. Our labs are combining in this project to propel discovery about development of children's cognitive abilities in heterogeneous contexts.

The general aim of the work is to study the psychometric and longitudinal properties of existing/new multi-item measures and multi-trial tasks that can be used to track developmental change in children's cognitive abilities, and how those developmental trajectories differ (and are similar) across contexts.

Planned projects:

The planned research will focus on analysis of data collected in a global multi-site project, LEarning VAriability NeTwork Exchange (LEVANTE), that is producing and analyzing a large, well-curated, high value dataset that characterizes developmental variability within individuals, groups, and communities around the world.

The psychometric/longitudinal research has two key aims. Aim 1. Conduct analysis of LEVANTE data, focusing on evaluating psychometric performance of individual tasks and surveys for inclusion in the larger study and framework. Aim 2. Conduct scientific investigations of cross-task patterns in pilot data, with a focus on understanding the challenges and opportunities of multi-site data collection and how those might be addressed in practice and analysis. The results of the analysis and investigations will inform design and implementation of next-generation longitudinal studies.

Particular analyses will adapt techniques from psychometrics, including item response theory and factor analysis, to analyze the LEVANTE data. These analyses will include examination of how each item/trial supports the measurement of the intended constructs, discovery of the relations among the constructs, and how the (latent) scores on those constructs differ with age

and context. We will evaluate measurement invariance (differential item functioning) across child characteristics (e.g., age, gender) and context (e.g., study site), and use those findings to make recommendations, if needed, on how the measures might be changed/adapted for use in subsequent LEVANTE studies.

Complementary projects on psychometrics of longitudinal data and study of developmental processes are expected and encouraged. Collectively, the group has a substantial collection of longitudinal data repositories available for innovative analysis and is eager to expand the possibilities for modeling multidimensional change at multiple time scales and levels of analysis.

Required Qualifications:

- Highly motivated postdoctoral researcher with extensive experience as follows;
 - Ph.D. in quantitative methods for social science (e.g., educational measurement, quantitative psychology) or related discipline.
 - Demonstrated interest in measurement of psychological constructs and study of change.
 - Substantial experience with latent variable models (especially factor analysis, item response theory, and growth modeling) and coding in R.
 - Strong collaborative skills and ability to work well in a complex, multidisciplinary environment across multiple teams, with the ability to prioritize effectively.
 - Being highly self-motivated to leverage the distributed supervision structure.
 - Must be able to work well with academic and industry/foundation personnel. English language skills (verbal and written) must be strong.
 - Eager to contribute to a vibrant group of faculty, post-docs, and students coalescing around psychometric and longitudinal modeling issues.

Required Application Materials:

To apply, please submit:

- Cover letter (2 pages),
- CV,
- Copies of two research papers that demonstrate research agenda,
- Two letters of recommendation

Stanford is an equal opportunity employer and all qualified applicants will receive consideration without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, veteran status, or any other characteristic protected by law.