Psychometrics, Dynamics and Functional Data Analysis

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Functional data analysis is a suite of methods for the analysis of curves and images. These techniques are particularly promising for the analysis of functions of time, or dynamic data. Is there any scope for these new tools in psychometrics?

This talk will be short on data and math, and rather long on conjecture. It will argue that we need to move to assessing intelligence or ability as a rate of change or velocity rather than as a state or level, and that, consequently, models for change using differential equations will be the natural choice. Moreover, functional data analysis can then be used to estimate models like these.

Some simple examples will be drawn from engineering. Some thoughts on how to assess short-term changes in skill may be offered.