Workshop 6: AI in Model Building and Forecasting - Which part of AI hype is really of interest for Model Building and Forecasting in Econometrics

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The current AI hype is impressive, but at ISF our focus is not on LLMs but on time-series forecasting. Examining the underlying mathematics of AI, we must ask: which developments are genuinely useful for data analysis, particularly for time series? This abstract highlights two key topics.

First, practical constraints: in many industrial applications we face short time series—a reality unlikely to change. What is the value of decades-old data in a rapidly evolving world? We must therefore work with small datasets relative to problem complexity, leading inevitably to overparameterized models. In this regime, minimizing an error function alone is insufficient; we must prioritize model stability.

Second, we should embed a priori information through network architecture. Recurrent neural networks are an obvious example, but far from a complete solution. Various approaches exist for handling memory and modeling dynamical systems on manifolds, each offering different insights into structure of the underlying dynamical system and the learning of the generated time-series.