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Title: Portfolio construction using nonlinear polymodels

Abstract:

Polymodels are a statistical analysis technique for dynamic objects evolving within an environment, which is dynamic as well. Both the object and the environment are described by time series. In a financial context, the object is an asset, a fund, a portfolio, anything that can represent an investment, while the environment is made of variables or "factors" that describe the state of the market. Polymodels provide the individual response of the object to every single variable of the environment, together with a reliability score. These response functions being nonlinear, the fragility/antifragility properties of the object can be evaluated. We will show how to estimate polymodels and to use them for asset selection, risk assessment and portfolio construction.

Reference: Barrau & Douady Artificial Intelligence in Finance: The Polymodel Approach Springer 2022.