Numerical Analysis and Scientific Computing Seminar

Bayesian Filtering Methods for Dynamic Parameter Estimation in Differential Equations

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Abstract: Estimating and quantifying uncertainty in unknown system parameters from partial, noisy system measurements remains a challenging inverse problem. In addition to constant parameters, a variety of systems stemming from real-world applications include unobservable parameters that change with time but have unknown evolution models. In this talk, we present several approaches using Bayesian filtering techniques to estimate time-varying parameters in deterministic dynamical systems governed by differential equations.

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