Title: Gaussian Process Regression for Machine Learning & Statistical Computing

Speaker: Dr. Jimmy Risk, UC Santa Barbara

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Abstract:

Gaussian Process (GP) regression is a Bayesian non-parametric interpolation based modeling method, popularized as of late for its applications in machine learning and computer experiments. Also useful in spatial analysis (being initially introduced in geostatistics), the idea is similar to that of linear modeling and spines, but instead the data is modeled to a Gaussian process driven by covariance of nearby points. This brings a Bayesian perspective that is completely data driven: at any collection of input locations, the output is multivariate normal whose mean and covariance are influenced solely by the data. In this talk, we give a simple introduction to the GP model along with basic motivating examples, followed by a more specific application of quantile estimation in nested Monte Carlo simulation problems.