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*Tree-based Methods for Emulation of a Complex Computer Model*

Many complex phenomena are difficult to investigate through controlled physical experiments. Instead, computer models become important alternatives to provide insights into such phenomena. A Gaussian Process (GP) is commonly used as a statistical surrogate for the input-output relationship of a computer model. However, a GP has a strong assumption of stationarity of the output. This drawback can be overcome by tree-based methods, which split the output space and fit separate statistical surrogates within each subregion. In this poster, we first review several tree-based methods. A comparison between different tree-based methods is conducted via simulation and the optimal method is identified.