

SEQUENTIAL DESIGNS FOR NON-STATIONARY PROBLEMS

MARIAN FRAZIER

The federal government wants to understand how much people depend on their retirement pensions, which is related to income, expenses, and interest rates. NASA is designing a new reusable rocket booster and wants to understand how flight characteristics like lift, drag, and pitch will change as a function of speed and angle of attack. Ossur wants to build a stronger prosthetic limb and needs to understand the relationship between durability and explanatory variables like material and weight.

What do all the of these situations have in common?

In all of them, performing a traditional physical experiment is infeasible. Instead, we perform a *computer experiment*.

In this talk, I will discuss the two major questions we must answer in order to investigate the situations above: How do we design these experiments? And how do we develop a model to understand the relationship between the explanatory variables and the response? After answering these questions, I will present an investigation of the pension dependency situation using a specific model-design combination.