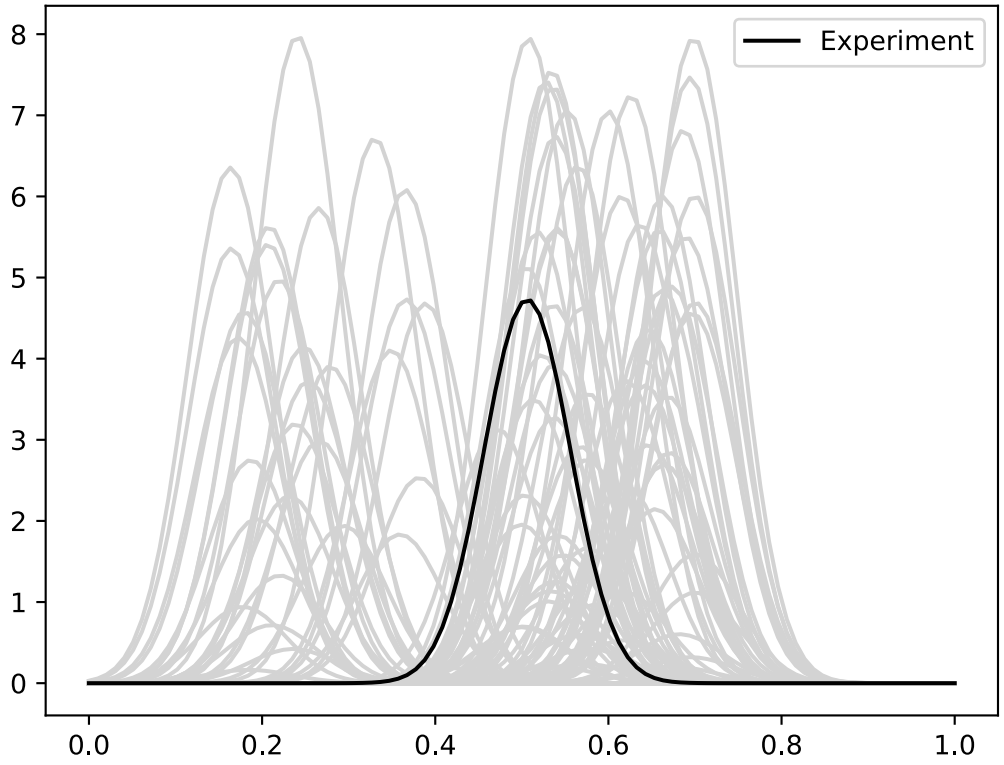
MCMC Sampling

For each experiment the likelihood is a Gaussian likelihood

1. We fit an emulator (Gaussian Process, BASS, MARS) to the simulated data
2. Uniform priors on θ
3. Sample posterior using delayed rejection adaptive Metropolis Hastings
4. Implemented using Impala (LANL) or Dakota (SNL) calibration framework

Simulation



- Simulation study where each function is parameterized Gaussian pdf

$$f_i(t) = \frac{\theta_1}{0.05\sqrt{2\pi}} \exp\left(-\frac{1}{2}\left(\frac{t - (\sin(2\pi\theta_0^2)/4 - \theta_0/10 + 0.5)}{0.05}\right)^2\right)$$

- A set of 100 functions were simulated with θ_0, θ_1 being drawn from a $U[0,1]$
- A third nuisance parameter θ_2 drawn from $U[0,1]$