10-424/624: Bayesian Methods in ML Lecture 16: Supplement & Figures

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3/13/25
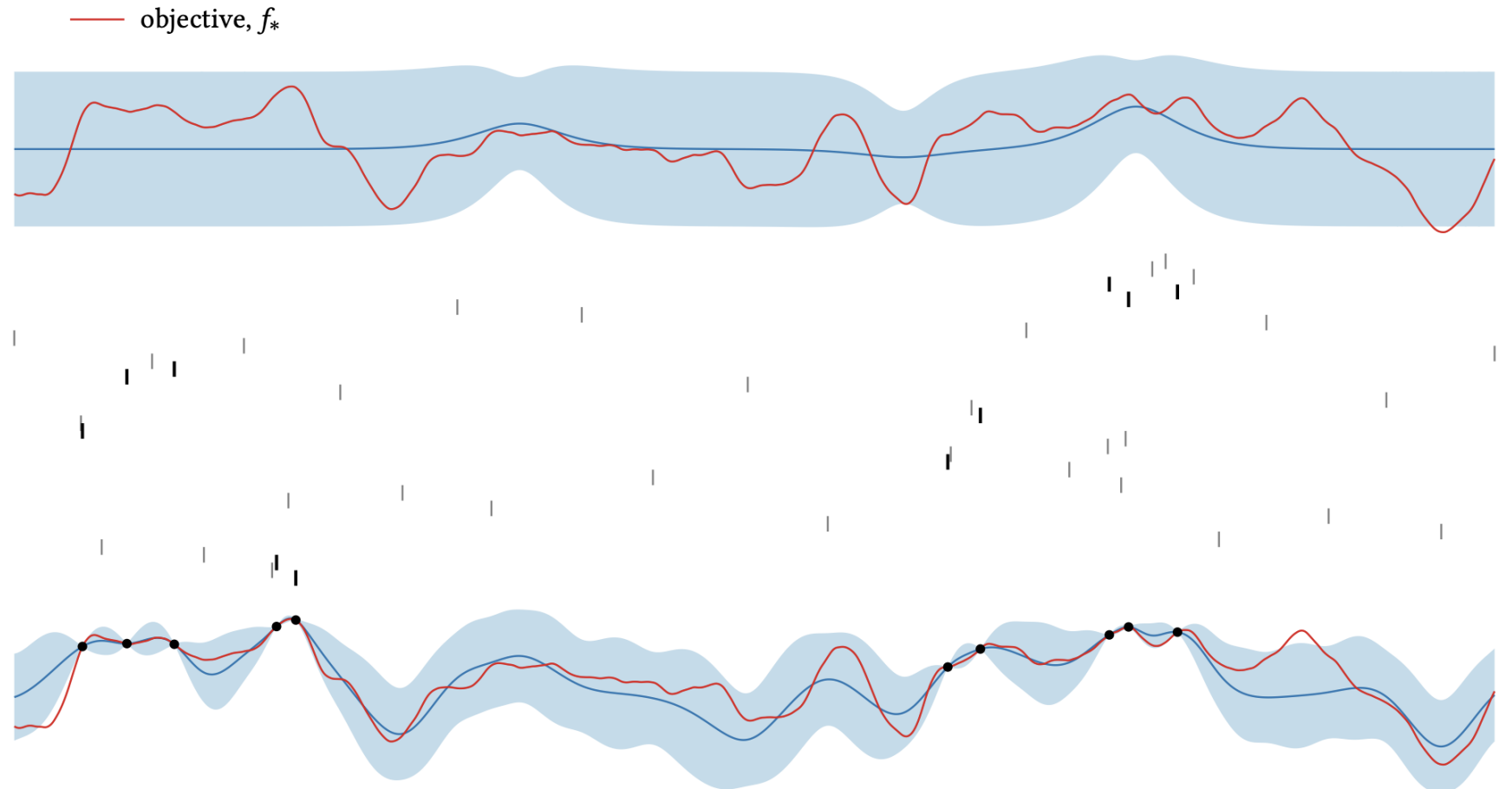
Joint Gaussian Processes

objective, f_*
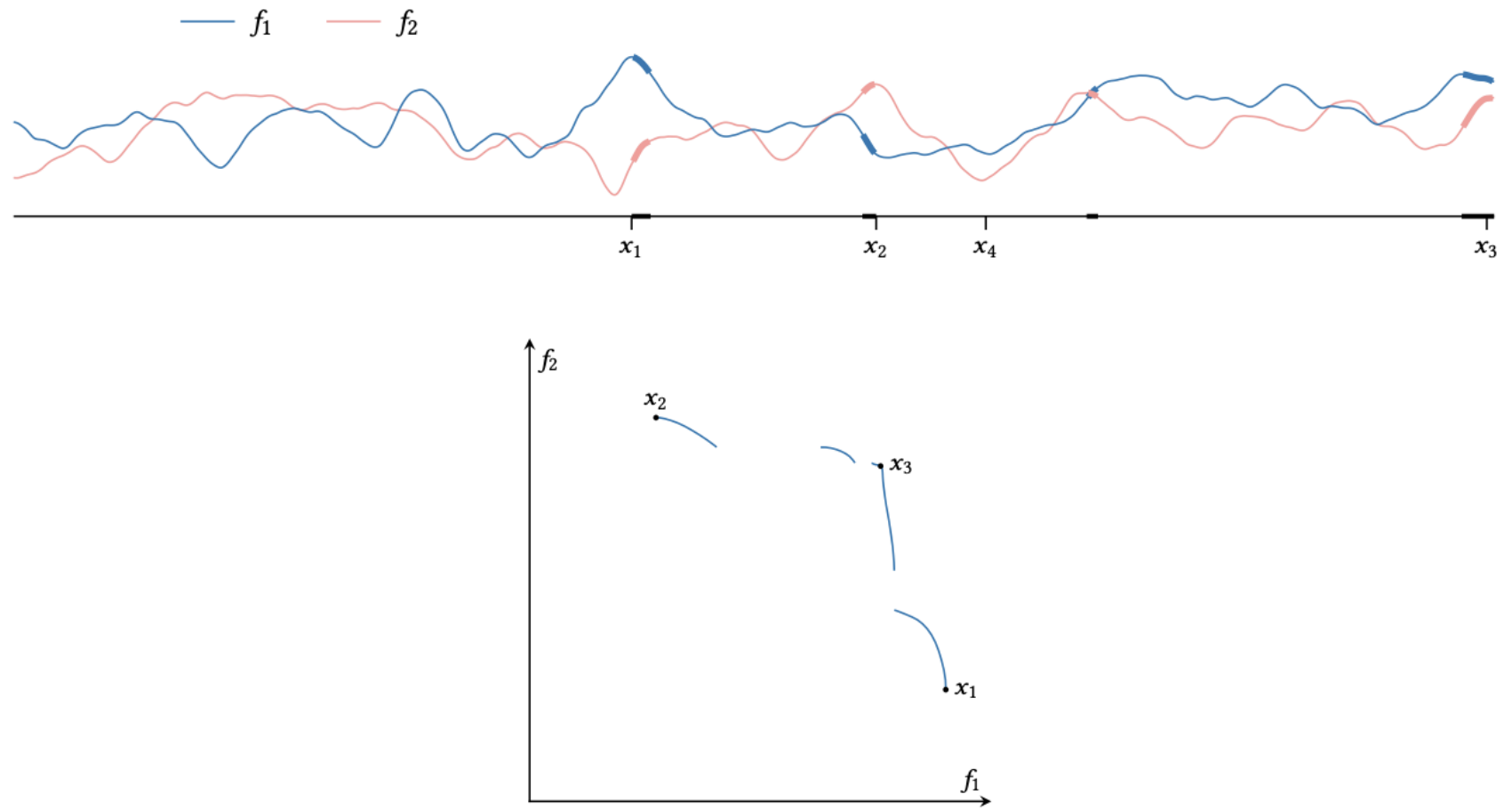
surrogate, f_1

cost-adjusted expected improvement

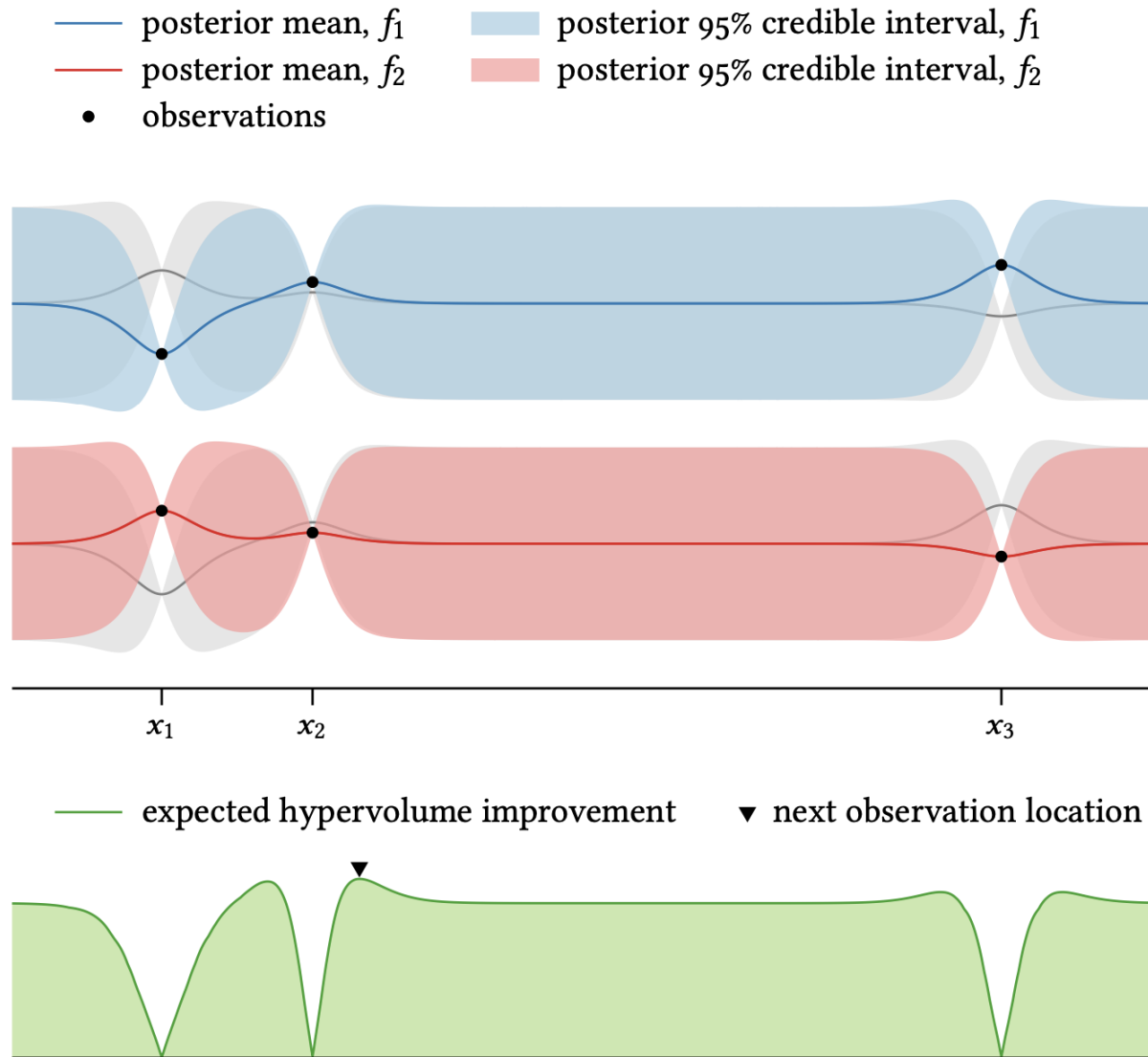▼ next observation location

Multifidelity Bayesian Optimization
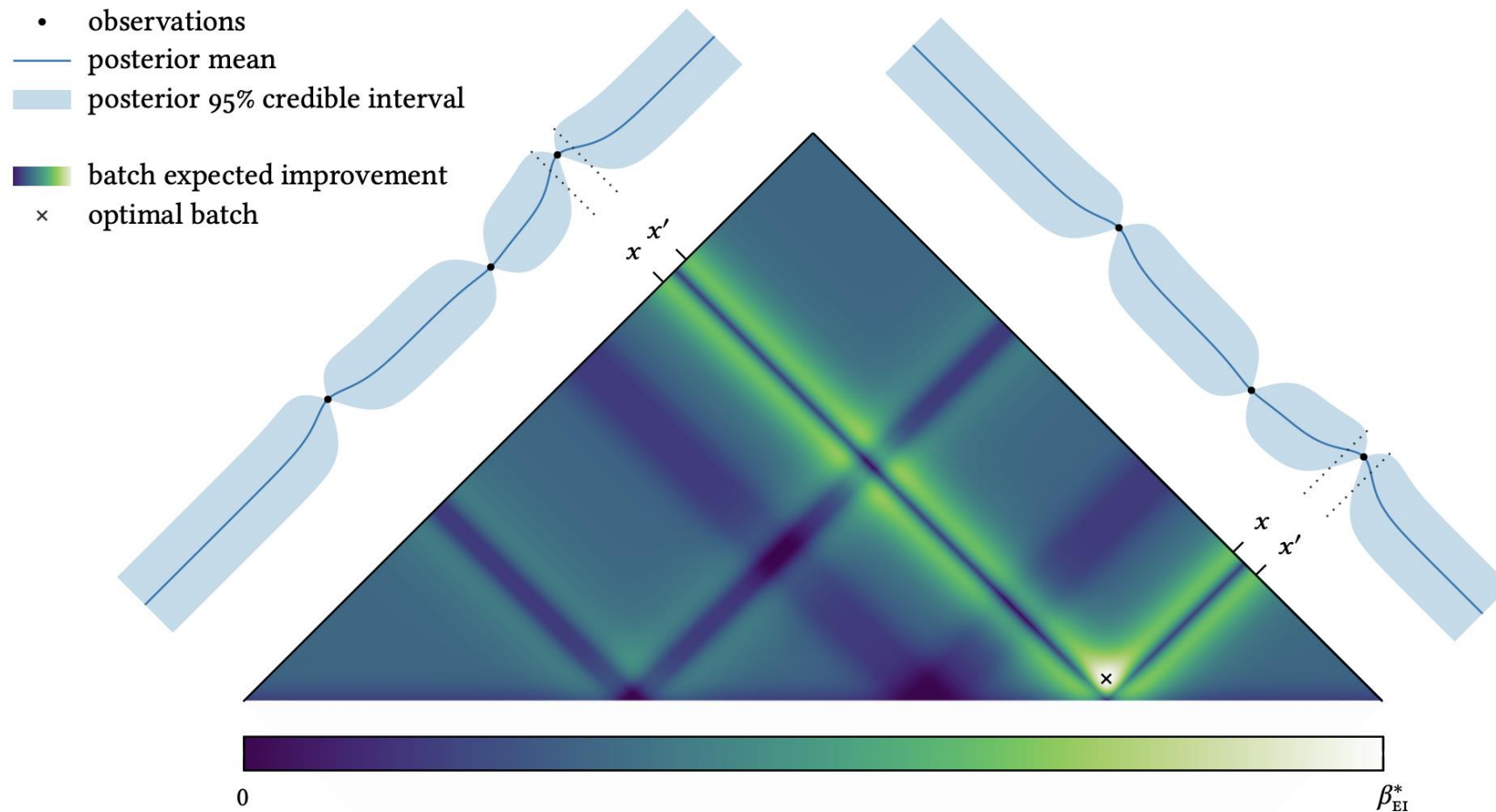
Multifidelity Bayesian Optimization

objective, f_*

Multiobjective Optimization

Multiobjective Optimization: Expected Hypervolume Improvement

Batch Expected Improvement

observations
posterior mean
posterior 95% credible interval

batch expected improvement
× optimal batch

Batch Expected Improvement via Sequential Simulation

expected improvement, α_{EI}

x_6 x_5 x_3 x_4 x_2 x_7

x_1