Surrogate Modelling of the Tritium Breeding Ratio

Petr Mánek   Graham Van Goffrier

Centre for Doctoral Training in Data Intensive Science
University College London

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Conventional regression task – search for a cheap surrogate $\hat{f}(x)$ that minimizes dissimilarity with an expensive function $f(x)$:

- Regression performance (capability to approximate)
    - Absolute: mean absolute error, σ of error
    - Relative: R^2, $R^2_{adj.}$
- Computational complexity: wall training & prediction time / sample.

2 approaches for surrogate training:

1. Decoupled – trains models from previously sampled $\mathcal{T} = \{(x, f(x))\}$.
2. Adaptive – repeats sampling & model training, increases sampling density in low-performance regions.

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