**Datasheet and Model Card**

**Datasheet**

* **Purpose**: The Bayesian Optimization code is designed to optimize an unknown objective function by querying the function at strategically chosen points.
* **Data Description**: The function evaluations represent noisy observations of the black-box function's value at specified points.
* **Limitations**:
  + The code assumes the function is continuous and well-behaved within the defined bounds.
  + Noise in the function evaluation might lead to suboptimal updates in the Gaussian Process model.
  + The optimization process might converge to local minima if the exploration parameter (xi) is too small.

**Model Card**

* **Model Name**: Bayesian Optimization with Gaussian Process
* **Intended Use**:
  + To optimize expensive-to-evaluate black-box functions.
  + Applications include hyperparameter tuning, experimental design, and resource allocation.
* **Biases and Limitations**:
  + Sensitive to hyperparameter choices (kernel parameters in the Gaussian Process).
  + Performance depends on the representativeness of the initial sample points.
* **Evaluation**: The model's performance is evaluated based on the convergence towards the global optimum of the target function.