
selective_inference package

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SELECTIVE_INFERENCE

1.1 selective_inference package

class `selective_inference.si.SI_result` (*A: list, k: float, p_values: list, CIs: list*)
 this class have result of selective inference. each selective inference function return this class.

A

selected feature

Type `List[int]`**k**

hyperparameter of feature selection algorithm

Type `float`**p_values**

p-values of selected features

Type `List[float]`**CIs**

confidence intervals of selected features

Type `List[portion.interval.Interval]`

`selective_inference.sfs_si.parametric_sfs_cv_si` (*X: numpy.ndarray, y: numpy.ndarray,*
k_candidates: List[float], k_folds: int,
sigma: int = 1, alpha: float = 0.05) →
selective_inference.si.SI_result

parametric selective inference for stepwise feature selection with cross validation

Parameters

- **X** (*np.ndarray*) – design matrix($n \times p$)
- **y** (*np.ndarray*) – objective variable($n \times 1$)
- **k_candidates** (*list[float]*) – list of k candidates
- **k_folds** (*int*) – fold number in cross validation
- **sigma** (*int, optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float, optional*) – significance level. Defaults to 0.05.

Returns please refer to document of `SI_result`**Return type** *si.SI_result*

`selective_inference.sfs_si.parametric_sfs_si` (*X*: *numpy.ndarray*, *y*: *numpy.ndarray*, *k*:
int, *sigma*: *int* = 1, *alpha*: *float* = 0.05)
→ *selective_inference.si.SI_result*

parametric selective inference for stepwise feature selection

Parameters

- **X** (*np.ndarray*) – design matrix(*n* x *p*)
- **y** (*np.ndarray*) – objective variable(*n* x 1)
- **k** (*int*) – number of feature to be selected(hyperparameter)
- **sigma** (*int*, *optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float*, *optional*) – significance level. Defaults to 0.05.

Returns refer to document of *SI_result*

Return type *si.SI_result*

`selective_inference.lasso_si.parametric_lasso_cv_si` (*X*, *y*, *k_candidates*, *k_folds*)

parametric selective inference for lasso with cross validation

Parameters

- **X** (*np.ndarray*) – design matrix(*n* x *p*)
- **y** (*np.ndarray*) – objective variable(*n* x 1)
- **k_candidates** (*List[float]*) – list of *k* candidates
- **k_folds** (*int*) – fold number in cross validation
- **sigma** (*int*, *optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float*, *optional*) – significance level. Defaults to 0.05.

Returns please refer to document of *SI_result*

Return type *si.SI_result*

`selective_inference.lasso_si.parametric_lasso_si` (*X*, *y*, *alpha*)

parametric selective inference for lasso

Parameters

- **X** (*np.ndarray*) – design matrix(*n* x *p*)
- **y** (*np.ndarray*) – objective variable(*n* x 1)
- **k** (*int*) – regularization parameter (hyperparameter)
- **sigma** (*int*, *optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float*, *optional*) – significance level. Defaults to 0.05.

Returns refer to document of *SI_result*

Return type *si.SI_result*

`selective_inference.lars_si.parametric_lars_cv_si` (*X*, *y*, *k_candidates*, *k_folds*)

parametric selective inference for lars with cross validation

Parameters

- **X** (*np.ndarray*) – design matrix(*n* x *p*)
- **y** (*np.ndarray*) – objective variable(*n* x 1)

- **k_candidates** (*List [float]*) – list of k candidates
- **k_folds** (*int*) – fold number in cross validation
- **sigma** (*int, optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float, optional*) – significance level. Defaults to 0.05.

Returns please refer to document of SI_result

Return type *si.SI_result*

`selective_inference.lars_si.parametric_lars_si` (*X: numpy.matrix, y: numpy.matrix, k: int*)

parametric selective inference for lars

Parameters

- **X** (*np.ndarray*) – design matrix (n x p)
- **y** (*np.ndarray*) – objective variable (n x 1)
- **k** (*int*) – number of feature to be selected (hyperparameter)
- **sigma** (*int, optional*) – variance for selective inference. Defaults to 1.
- **alpha** (*float, optional*) – significance level. Defaults to 0.05.

Returns refer to document of SI_result

Return type *si.SI_result*

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