

## Data

Dataset with historical records of Population Distribution, Binary Urban Footprint, etc.



## Auto Tuning Algorithm.



Best spatio-temporal regression pipelines for predicting Population Distribution.



Best features.



## Hyperparameters

**Spatiotemporal Hyperparameters:**  $(p_i, q_i, \Phi_i, f_i)$  for each input variable  $v_i$ .

**Machine Learning Models to Explore:** Linear regression (LR), Lasso regression (LR with  $L_1$  norm), Ridge regression (LR with  $L_2$  norm), Bayesian regression, Trees, Random forest (RF), Gradient boost regressor, Support vector machines (SVM), Multilayer perceptron (MLP), etc.

**Other Hyperparameters:** number of iterations, options to extract high-order features, search space for models' hyperparameters, percentage for local and global data splits, number of K-folds for local cross-validation, type of input data scaler, random seed, performance metric, etc.