

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'VariableNamingRule' to 'preserve' to use the original column headers as table variable names.

Learner types to explore: ensemble, gp, kernel, linear, net, svm, tree

Total iterations (MaxObjectiveEvaluations): 210

Total time (MaxTime): 50

```

=====
| Iter | Eval | log(1+valLoss) | Time for training | Observed min | Estimated
min | Learner | Hyperparameter: Value |
| | result | & validation (sec) | validation loss | validation
loss | | | | |
=====
| 1 | Best | 0.17786 | 3.1723 | 0.17786 |
0.17786 | kernel | KernelScale: 43.249 |
| | | | | |
| | | Lambda: 0.0003874 | |
| | | | | |
| | | Epsilon: NaN | |
| 2 | Best | 0.17378 | 0.61844 | 0.17378 |
0.17378 | gp | Sigma: 0.001452 |
| 3 | Accept | 0.34475 | 0.20274 | 0.17378 |
0.17378 | kernel | KernelScale: 222.96 |
| | | | | |
| | | Lambda: 0.00011356 | |
| | | | | |
| | | Epsilon: NaN | |
| 4 | Accept | 0.4829 | 0.67743 | 0.17378 |
0.17378 | net | Activations: none |
| | | | | |
| | | Standardize: true | |
| | | | | |
| | | Lambda: 356.95 | |
| | | | | |
| | | LayerSizes: [ 8 60 11 ] | |
| 5 | Best | 0.14752 | 0.2032 | 0.14752 |
0.16065 | gp | Sigma: 0.50469 |
| 6 | Best | 0.07892 | 2.0493 | 0.07892 |
0.07892 | ensemble | Method: LSBoost |
| | | | | |
| | | NumLearningCycles: 85 | |
| | | | | |
| | | LearnRate: 0.022572 | |
| | | | | |
| | | MinLeafSize: 9 | |
| 7 | Best | 0.035091 | 0.30045 | 0.035091 |
0.035091 | tree | MinLeafSize: 7 |
| 8 | Best | 0 | 0.04663 | 0 |

```

0.017546		tree		MinLeafSize:		2			
	9		Accept		0.054769		1.0817		0
0.017546		ensemble		Method:			Bag		
			NumLearningCycles:			51			
			LearnRate:			NaN			
			MinLeafSize:			2			
	10		Accept		0.16867		0.32708		0
0.017546		linear		Lambda:			0.10084		
			Learner:			leastsq			
	11		Accept		0.47909		0.21301		0
0.017546		net		Activations:			tanh		
			Standardize:			false			
			Lambda:			143.63			
			LayerSizes:			62			
	12		Accept		0.48524		0.18149		0
0.017546		net		Activations:			none		
			Standardize:			false			
			Lambda:			3484			
			LayerSizes:			[15 299]			
	13		Accept		0.48484		0.14731		0
0.017546		net		Activations:			sigmoid		
			Standardize:			false			
			Lambda:			1753.1			
			LayerSizes:			[135 1]			
	14		Accept		0.17378		0.11842		0
0.017546		gp		Sigma:			0.0024844		
	15		Accept		0.11708		1.3025		0
0.017546		ensemble		Method:			Bag		
			NumLearningCycles:			83			
			LearnRate:			NaN			
			MinLeafSize:			7			
	16		Accept		0.4333		1.524		0
0.017546		svm		BoxConstraint:			32.85		
			KernelScale:			0.67985			
			Epsilon:			0.0042852			

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| 17 | Accept | 0.2064 | 0.10786 | 0 | ✓
0.017546 | linear | Lambda: 2.8885e-06 |
| | | | | | ✓
| | Learner: leastsquares |
| 18 | Accept | 0.09315 | 0.98482 | 0 | ✓
0.017546 | ensemble | Method: LSBoost |
| | | | | | ✓
| | NumLearningCycles: 57 |
| | | | | | ✓
| | LearnRate: 0.016154 |
| | | | | | ✓
| | MinLeafSize: 3 |
| 19 | Accept | 0.12091 | 0.28063 | 0 | ✓
0.017546 | kernel | KernelScale: 39.535 |
| | | | | | ✓
| | Lambda: 0.0048919 |
| | | | | | ✓
| | Epsilon: NaN |
| 20 | Accept | 0.39234 | 2.0989 | 0 | ✓
0.017546 | svm | BoxConstraint: 39.279 |
| | | | | | ✓
| | KernelScale: 0.036725 |
| | | | | | ✓
| | Epsilon: 0.133 |
|=====✓
=====|
| Iter | Eval | log(1+valLoss) | Time for training | Observed min | Estimated ✓
min | Learner | Hyperparameter: Value |
| | result | & validation (sec) | validation loss | validation ✓
loss | | | | |
|=====✓
=====|
| 21 | Accept | 0.28012 | 0.11908 | 0 | ✓
0.017546 | kernel | KernelScale: 0.62994 |
| | | | | | ✓
| | Lambda: 17.906 |
| | | | | | ✓
| | Epsilon: NaN |
| 22 | Accept | 0.080707 | 3.3683 | 0 | ✓
0.017546 | ensemble | Method: LSBoost |
| | | | | | ✓
| | NumLearningCycles: 222 |
| | | | | | ✓
| | LearnRate: 0.0045085 |
| | | | | | ✓
| | MinLeafSize: 2 |
| 23 | Accept | 0.23201 | 0.10104 | 0 | ✓
0.017546 | gp | Sigma: 1.0637 |
| 24 | Accept | 0.38076 | 0.94171 | 0 | ✓
0.017546 | ensemble | Method: LSBoost |
| | | | | | ✓
| | NumLearningCycles: 58 |
| | | | | | ✓

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|           | LearnRate:           0.0025758 |
|           |           |           |           | ↵
|           | MinLeafSize:           1 |
| 25 | Accept | 0.23201 | 0.077248 | 0 | ↵
0.017546 | svm | BoxConstraint:           2.0409 |
|           |           |           |           | ↵
|           | KernelScale:           53.247 |
|           |           |           |           | ↵
|           | Epsilon:           12.647 |
| 26 | Accept | 0.10707 | 2.8586 | 0 | ↵
0.017546 | net | Activations:           sigmoid |
|           |           |           |           | ↵
|           | Standardize:           true |
|           |           |           |           | ↵
|           | Lambda:           0.00067193 |
|           |           |           |           | ↵
|           | LayerSizes:           [ 37  4  46 ] |
| 27 | Accept | 0 | 0.089814 | 0 | ↵
0.011697 | tree | MinLeafSize:           1 |
| 28 | Accept | 0.15688 | 0.10348 | 0 | ↵
0.011697 | linear | Lambda:           4.3589 |
|           |           |           |           | ↵
|           | Learner:           leastsquares |
| 29 | Accept | 0.31447 | 0.71654 | 0 | ↵
0.011697 | ensemble | Method:           LSBoost |
|           |           |           |           | ↵
|           | NumLearningCycles:           41 |
|           |           |           |           | ↵
|           | LearnRate:           0.0063883 |
|           |           |           |           | ↵
|           | MinLeafSize:           3 |
| 30 | Accept | 0.23201 | 0.08705 | 0 | ↵
0.011697 | svm | BoxConstraint:           2.3667 |
|           |           |           |           | ↵
|           | KernelScale:           283.46 |
|           |           |           |           | ↵
|           | Epsilon:           1.8464 |
| 31 | Accept | 0.17378 | 0.11859 | 0 | ↵
0.011697 | gp | Sigma:           0.0027221 |
| 32 | Accept | 0.16039 | 0.078068 | 0 | ↵
0.011697 | linear | Lambda:           0.82741 |
|           |           |           |           | ↵
|           | Learner:           leastsquares |
| 33 | Accept | 0.20523 | 0.07604 | 0 | ↵
0.011697 | linear | Lambda:           0.00094288 |
|           |           |           |           | ↵
|           | Learner:           leastsquares |
| 34 | Accept | 0.1955 | 0.051773 | 0 | ↵
0.011697 | linear | Lambda:           0.010555 |
|           |           |           |           | ↵
|           | Learner:           leastsquares |
| 35 | Accept | 0.28494 | 0.14188 | 0 | ↵
0.011697 | net | Activations:           none |

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|      |      |      |      |      |      | | |
|      |      | Standardize:      | false |      |      |
|      |      |      |      |      |      |      |
|      |      | Lambda:      | 4.3211 |      |      |
|      |      |      |      |      |      |      |
|      |      | LayerSizes:      | [ 11  4 ] |      |      |
| 36 | Accept |      | 0.2784 |      | 0.16 |      | 0 |
0.011697 |      | kernel | KernelScale:      | 10.735 |      |
|      |      |      |      |      |      |      | |
|      |      | Lambda:      | 22.732 |      |      |
|      |      |      |      |      |      |      |
|      |      | Epsilon:      | NaN |      |      |
| 37 | Accept |      | 0.073266 |      | 3.4455 |      | 0 |
0.011697 |      | ensemble | Method:      | LSBoost |      |
|      |      |      |      |      |      |      | |
|      |      | NumLearningCycles:      | 229 |      |
|      |      |      |      |      |      |      |
|      |      | LearnRate:      | 0.010381 |      |
|      |      |      |      |      |      |      |
|      |      | MinLeafSize:      | 9 |      |
| 38 | Accept |      | 0.17376 |      | 0.087936 |      | 0 |
0.011697 |      | gp | Sigma:      | 0.017486 |      |
| 39 | Accept |      | 0.27355 |      | 0.086457 |      | 0 |
0.011697 |      | linear | Lambda:      | 1.9051e-05 |      |
|      |      |      |      |      |      |      | |
|      |      | Learner:      | svm |      |
| 40 | Accept |      | 0.23201 |      | 0.092501 |      | 0 |
0.011697 |      | gp | Sigma:      | 2.629 |      |
|=====
=====|
| Iter | Eval | log(1+valLoss)| Time for training | Observed min | Estimated
min | Learner | Hyperparameter:      | Value |
|      | result |      | & validation (sec)| validation loss | validation
loss |      |      |      |      |
|=====
=====|
| 41 | Accept |      | 0.13926 |      | 1.4743 |      | 0 |
0.011697 |      | net | Activations:      | sigmoid |      |
|      |      |      |      |      |      |      | |
|      |      | Standardize:      | false |      |
|      |      |      |      |      |      |      |
|      |      | Lambda:      | 0.0038632 |      |
|      |      |      |      |      |      |      |
|      |      | LayerSizes:      | [ 4  2  43 ] |      |
| 42 | Accept |      | 0.38793 |      | 0.09551 |      | 0 |
0.011697 |      | net | Activations:      | sigmoid |      |
|      |      |      |      |      |      |      | |
|      |      | Standardize:      | false |      |
|      |      |      |      |      |      |      |
|      |      | Lambda:      | 70.803 |      |
|      |      |      |      |      |      |      |
|      |      | LayerSizes:      | [ 3  37 ] |      |
| 43 | Accept |      | 0.17373 |      | 0.07564 |      | 0 |

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0.011697 | gp | Sigma: 0.027961 |
| 44 | Accept | 0.00068521 | 3.8334 | 0 | ↵
0.00072241 | ensemble | Method: LSBoost |
| | | | | | ↵
| | | NumLearningCycles: 258 |
| | | | | | ↵
| | | LearnRate: 0.013121 |
| | | | | | ↵
| | | MinLeafSize: 3 |

```

Optimization completed.

Total iterations: 44

Total elapsed time: 51.3935 seconds

Total time for training and validation: 33.9186 seconds

Best observed learner is a tree model with:

Learner: tree

MinLeafSize: 2

Observed log(1 + valLoss): 0

Time for training and validation: 0.04663 seconds

Best estimated learner (returned model) is an ensemble model with:

Learner: ensemble

Method: LSBoost

NumLearningCycles: 258

LearnRate: 0.013121

MinLeafSize: 3

Estimated log(1 + valLoss): 0.00072241

Estimated time for training and validation: 3.8231 seconds

Documentation for fitrauto display

Learner types to explore: ensemble, gp, kernel, linear, net, svm, tree

Total iterations (MaxObjectiveEvaluations): 210

Total time (MaxTime): 50

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===== ↵
=====|
| Iter | Eval | log(1+valLoss)| Time for training | Observed min | Estimated ↵
min | Learner | Hyperparameter: Value |
| | result | | & validation (sec)| validation loss | validation ↵
loss | | | | |
===== ↵
=====|
| 1 | Best | 0.45426 | 0.23127 | 0.45426 | ↵
0.45426 | net | Activations: sigmoid |
| | | | | | ↵
| | | Standardize: false |
| | | | | | ↵
| | | Lambda: 417.91 |
| | | | | | ↵
| | | LayerSizes: [ 199 1 56 ] |
| 2 | Best | 0.091325 | 0.099147 | 0.091325 | ↵

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0.091325 |          gp | Sigma:          0.10283 |
|      3 | Accept |      0.21535 |      0.1453 |      0.091325 | ↵
0.091325 |          net | Activations:          sigmoid |
|      |      |      |      |      |      |
|      |      | Standardize:          true |      |
|      |      |      |      |      |      |
|      |      | Lambda:          0.36116 |      |
|      |      |      |      |      |      |
|      |      | LayerSizes:          33 |      |
|      4 | Accept |      0.1849 |      0.1055 |      0.091325 | ↵
0.091325 |      linear | Lambda:          1.0289e-05 |
|      |      |      |      |      |      |
|      |      | Learner:          leastsquares |      |
|      5 | Accept |      0.47429 |      0.081724 |      0.091325 | ↵
0.091325 |          net | Activations:          tanh |
|      |      |      |      |      |      |
|      |      | Standardize:          true |      |
|      |      |      |      |      |      |
|      |      | Lambda:          82.233 |      |
|      |      |      |      |      |      |
|      |      | LayerSizes:          1 |      |
|      6 | Accept |      0.39927 |      1.2199 |      0.091325 | ↵
0.091325 |          net | Activations:          relu |
|      |      |      |      |      |      |
|      |      | Standardize:          false |      |
|      |      |      |      |      |      |
|      |      | Lambda:          2.154e-05 |      |
|      |      |      |      |      |      |
|      |      | LayerSizes:          6 |      |
|      7 | Best   |      0 |      0.088328 |      0 | ↵
0 |      tree | MinLeafSize:          1 |
|      8 | Accept |      0.11423 |      0.091668 |      0 | ↵
0 |          gp | Sigma:          0.091233 |
|      9 | Accept |      0.8645 |      2.19 |      0 | ↵
0 |          svm | BoxConstraint:          0.031798 |
|      |      |      |      |      |      |
|      |      | KernelScale:          0.0030969 |      |
|      |      |      |      |      |      |
|      |      | Epsilon:          0.0034584 |      |
|     10 | Accept |      0.25709 |      0.19233 |      0 | ↵
0 |      kernel | KernelScale:          0.0015482 |
|      |      |      |      |      |      |
|      |      | Lambda:          0.79019 |      |
|      |      |      |      |      |      |
|      |      | Epsilon:          NaN |      |
|     11 | Accept |      0.22972 |      0.15554 |      0 | ↵
0 |      kernel | KernelScale:          0.034299 |
|      |      |      |      |      |      |
|      |      | Lambda:          0.33363 |      |
|      |      |      |      |      |      |
|      |      | Epsilon:          NaN |      |
|     12 | Accept |      0 |      0.081326 |      0 | ↵
0 |      tree | MinLeafSize:          3 |

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| 13 | Accept | 0.59231 | 2.0985 | 0 | ✓
0 | svm | BoxConstraint: 789.49 |
| | | | | | ✓
| | | KernelScale: 0.36661 | | ✓
| | | | | | ✓
| | | Epsilon: 0.0059306 | | ✓
| 14 | Accept | 0.21974 | 0.044036 | 0 | ✓
0 | svm | BoxConstraint: 0.92124 | | ✓
| | | | | | ✓
| | | KernelScale: 0.027586 | | ✓
| | | | | | ✓
| | | Epsilon: 3.3634 | | ✓
| 15 | Accept | 0.21974 | 0.12915 | 0 | ✓
0 | gp | Sigma: 4.4711 | | ✓
| 16 | Accept | 6.163e-32 | 1.7055 | 0 | ✓
0 | ensemble | Method: LSBoost | | ✓
| | | | | | ✓
| | | NumLearningCycles: 106 | | ✓
| | | | | | ✓
| | | LearnRate: 0.37227 | | ✓
| | | | | | ✓
| | | MinLeafSize: 3 | | ✓
| 17 | Accept | 0 | 0.060744 | 0 | ✓
0 | tree | MinLeafSize: 1 | | ✓
| 18 | Accept | 0.1849 | 0.093229 | 0 | ✓
0 | linear | Lambda: 5.3285e-06 | | ✓
| | | | | | ✓
| | | Learner: leastsquares | | ✓
| 19 | Accept | 2.2788e-10 | 0.37104 | 0 | ✓
0 | ensemble | Method: LSBoost | | ✓
| | | | | | ✓
| | | NumLearningCycles: 18 | | ✓
| | | | | | ✓
| | | LearnRate: 0.4532 | | ✓
| | | | | | ✓
| | | MinLeafSize: 1 | | ✓
| 20 | Accept | 0.14375 | 0.089015 | 0 | ✓
0 | gp | Sigma: 0.0035482 |
|=====✓
=====|
| Iter | Eval | log(1+valLoss) | Time for training | Observed min | Estimated ✓
min | Learner | Hyperparameter: Value |
| | result | & validation (sec) | validation loss | validation ✓
loss | | | |
|=====✓
=====|
| 21 | Accept | 0.0025478 | 0.050532 | 0 | 1.1394 ✓
e-10 | tree | MinLeafSize: 7 |
| 22 | Accept | 0.30219 | 0.74157 | 0 | -7.8393 ✓
e-05 | ensemble | Method: LSBoost | | ✓
| | | | | | ✓
| | | NumLearningCycles: 46 | | ✓
| | | | | | ✓

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|           | LearnRate:           0.0061961 | | |
|           |           |           |           |
|           | MinLeafSize:           1 |           |
| 23 | Accept | 0.27334 | 0.15415 | 0 | -7.8393 ✓
e-05 | kernel | KernelScale: 0.0021432 |           |
|           |           |           |           |
|           | Lambda:           2.7844 |           |
|           |           |           |           |
|           | Epsilon:           NaN |           |
| 24 | Accept | 0.13262 | 0.13541 | 0 | -7.8393 ✓
e-05 | kernel | KernelScale: 0.13846 |           |
|           |           |           |           |
|           | Lambda: 0.00012514 |           |
|           |           |           |           |
|           | Epsilon:           NaN |           |
| 25 | Accept | 0.1652 | 0.1365 | 0 | -7.8393 ✓
e-05 | kernel | KernelScale: 0.031117 |           |
|           |           |           |           |
|           | Lambda: 0.0075904 |           |
|           |           |           |           |
|           | Epsilon:           NaN |           |
| 26 | Accept | 0.20395 | 0.06816 | 0 | -7.8393 ✓
e-05 | linear | Lambda: 0.00077061 |           |
|           |           |           |           |
|           | Learner:           svm |           |
| 27 | Accept | 0 | 0.060801 | 0 | -7.8393 ✓
e-05 | tree | MinLeafSize: 1 |           |
| 28 | Accept | 0.094994 | 1.565 | 0 | -4.8095 ✓
e-05 | ensemble | Method: Bag |           |
|           |           |           |           |
|           | NumLearningCycles: 96 |           |
|           |           |           |           |
|           | LearnRate:           NaN |           |
|           |           |           |           |
|           | MinLeafSize: 7 |           |
| 29 | Accept | 0.41654 | 0.13291 | 0 | -4.8095 ✓
e-05 | net | Activations: tanh |           |
|           |           |           |           | |
|           | Standardize: true |           |
|           |           |           |           |
|           | Lambda: 11.168 |           |
|           |           |           |           |
|           | LayerSizes: [ 4 27 ] |           |
| 30 | Accept | 0.0015301 | 0.4254 | 0 |
-0.00040773 | ensemble | Method: LSBoost |           |
|           |           |           |           | |
|           | NumLearningCycles: 18 |           |
|           |           |           |           |
|           | LearnRate: 0.15379 |           |
|           |           |           |           |
|           | MinLeafSize: 1 |           |
| 31 | Accept | 0.10899 | 0.17015 | 0 |
-0.00040773 | net | Activations: tanh |

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|           |           |           |           |           |           |
|           | Standardize:           | true |           |           |
|           |           |           |           |           |           |
|           | Lambda:           | 0.10509 |           |           |
|           |           |           |           |           |           |
|           | LayerSizes:           | 42 |           |           |
| 32 | Accept | 0.17755 | 0.16445 | 0 |           |
-0.00040773 | kernel | KernelScale:           | 0.076891 |           |
|           |           |           |           |           |           |
|           | Lambda:           | 0.00010137 |           |           |
|           |           |           |           |           |           |
|           | Epsilon:           | NaN |           |           |
| 33 | Accept | 0 | 0.084734 | 0 |           |
-0.00040773 | tree | MinLeafSize:           | 4 |           |
| 34 | Accept | 0.16972 | 0.092838 | 0 |           |
-0.00040773 | linear | Lambda:           | 0.88435 |           |
|           |           |           |           |           |           |
|           | Learner:           | leastsquares |           |           |
| 35 | Accept | 0.1747 | 0.046955 | 0 |           |
-0.00040773 | linear | Lambda:           | 0.070331 |           |
|           |           |           |           |           |           |
|           | Learner:           | leastsquares |           |           |
| 36 | Accept | 0.21795 | 0.15296 | 0 |           |
-0.00040773 | net | Activations:           | sigmoid |           |
|           |           |           |           |           |           |
|           | Standardize:           | true |           |           |
|           |           |           |           |           |           |
|           | Lambda:           | 0.29022 |           |           |
|           |           |           |           |           |           |
|           | LayerSizes:           | 117 |           |           |
| 37 | Accept | 0.21974 | 0.051391 | 0 |           |
-0.00040773 | tree | MinLeafSize:           | 11 |           |
| 38 | Accept | 0.18487 | 0.066387 | 0 |           |
-0.00040773 | linear | Lambda:           | 8.5859e-05 |           |
|           |           |           |           |           |           |
|           | Learner:           | leastsquares |           |           |
| 39 | Accept | 0.19654 | 0.043203 | 0 |           |
-0.00040773 | linear | Lambda:           | 506.4 |           |
|           |           |           |           |           |           |
|           | Learner:           | leastsquares |           |           |
| 40 | Accept | 0 | 0.047127 | 0 |           |
-0.00040773 | tree | MinLeafSize:           | 4 |           |
|=====|
|=====|
| Iter | Eval | log(1+valLoss) | Time for training | Observed min | Estimated
min | Learner | Hyperparameter: | Value |
| | result | | & validation (sec) | validation loss | validation
loss | | | | |
|=====|
|=====|
| 41 | Accept | 0.18904 | 0.048584 | 0 |           |
-0.00040773 | linear | Lambda:           | 217.26 |           |
|           |           |           |           |           |           |

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|           | Learner:           leastsquares |
|  42 | Accept | 0.29003 | 0.43427 | 0 | ↵
-0.00040773 | svm | BoxConstraint: 0.0067888 |
|           |           |           |           |           |
|           | KernelScale: 0.012168 |           |           |
|           |           |           |           |           |
|           | Epsilon: 0.071844 |           |           |
|  43 | Accept | 0.23144 | 8.8871 | 0 | ↵
-0.00040773 | net | Activations: tanh |
|           |           |           |           |           |
|           | Standardize: true |           |           |
|           |           |           |           |           |
|           | Lambda: 7.4674e-05 |           |           |
|           |           |           |           |           |
|           | LayerSizes: [ 208 85 ] |           |           |
|  44 | Accept | 0.071983 | 0.32855 | 0 | ↵
-0.0020307 | ensemble | Method: Bag |
|           |           |           |           |           |
|           | NumLearningCycles: 14 |           |           |
|           |           |           |           |           |
|           | LearnRate: NaN |           |           |
|           |           |           |           |           |
|           | MinLeafSize: 6 |           |           |
|  45 | Accept | 0.29296 | 0.063356 | 0 | ↵
-0.0020307 | svm | BoxConstraint: 0.77298 |
|           |           |           |           |           |
|           | KernelScale: 216.01 |           |           |
|           |           |           |           |           |
|           | Epsilon: 0.036726 |           |           |
|  46 | Accept | 0.21974 | 0.03861 | 0 | ↵
-0.0020307 | svm | BoxConstraint: 0.37468 |
|           |           |           |           |           |
|           | KernelScale: 733.24 |           |           |
|           |           |           |           |           |
|           | Epsilon: 16.66 |           |           |
|  47 | Accept | 0.21974 | 0.038024 | 0 | ↵
-0.0020307 | svm | BoxConstraint: 269.73 |
|           |           |           |           |           |
|           | KernelScale: 0.010228 |           |           |
|           |           |           |           |           |
|           | Epsilon: 12.606 |           |           |
|  48 | Accept | 0.021594 | 0.23932 | 0 | -6.5819 ↵
e-06 | ensemble | Method: Bag |
|           |           |           |           |           |
|           | NumLearningCycles: 11 |           |           |
|           |           |           |           |           |
|           | LearnRate: NaN |           |           |
|           |           |           |           |           |
|           | MinLeafSize: 1 |           |           |
|  49 | Accept | 0.2803 | 0.1416 | 0 | -6.5819 ↵
e-06 | kernel | KernelScale: 35.359 |
|           |           |           |           |           |
|           | Lambda: 32.053 |           |           |

```

							↙
			Epsilon:		NaN		
	50		Accept		0.13545		
	e-06		net		2.3366		0 -6.5819 ↙
			Activations:		sigmoid		
							↙
			Standardize:		false		
							↙
			Lambda:		5.2889e-05		
							↙
			LayerSizes:		[2 282]		
	51		Accept		0.18619		
	e-06		svm		0.072268		0 -6.5819 ↙
			BoxConstraint:		0.0012594		
							↙
			KernelScale:		2.1915		
							↙
			Epsilon:		0.22365		
	52		Accept		0.15235		
	e-06		kernel		0.15436		0 -6.5819 ↙
			KernelScale:		1.9894		
							↙
			Lambda:		0.27501		
							↙
			Epsilon:		NaN		
	53		Accept		0.14248		
	e-06		net		3.6653		0 -6.5819 ↙
			Activations:		sigmoid		
							↙
			Standardize:		true		
							↙
			Lambda:		0.00082084		
							↙
			LayerSizes:		[18 151]		
	54		Accept		0.21974		
	e-06		svm		0.053559		0 -6.5819 ↙
			BoxConstraint:		1.1578		
							↙
			KernelScale:		0.0015226		
							↙
			Epsilon:		3.9218		
	55		Accept		0.26181		
	e-06		kernel		0.12469		0 -6.5819 ↙
			KernelScale:		0.43383		
							↙
			Lambda:		2.0763		
							↙
			Epsilon:		NaN		
	56		Accept		0.12492		
	e-06		kernel		0.13916		0 -6.5819 ↙
			KernelScale:		0.19634		
							↙
			Lambda:		4.5744e-05		
							↙
			Epsilon:		NaN		
	57		Accept		0.16127		
	e-06		kernel		0.21458		0 -6.5819 ↙
			KernelScale:		65.443		
							↙
			Lambda:		0.00076332		
							↙

| | Epsilon: NaN |

Optimization completed.

Total iterations: 57

Total elapsed time: 50.1486 seconds

Total time for training and validation: 30.644 seconds

Best observed learner is a tree model with:

Learner: tree

MinLeafSize: 1

Observed log(1 + valLoss): 0

Time for training and validation: 0.088328 seconds

Best estimated learner (returned model) is an ensemble model with:

Learner: ensemble

Method: LSBoost

NumLearningCycles: 106

LearnRate: 0.37227

MinLeafSize: 3

Estimated log(1 + valLoss): -6.5819e-06

Estimated time for training and validation: 1.6746 seconds

Documentation for fitrauto display

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