Python Report

|  |  |
| --- | --- |
| Legend |  |
| Yellow Highlight = | Best Params for optimizer |
| Green Highlight= | Best Params for Model |
| Red Highlight = | Exploded (because inputs were not adjusted for that specific optimizer ) |

Data Set: MPG

Perceptron

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Mpg Data |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| SGD | Selu | 0.1 | 200 | 0 | 0 | 0 | Explode |
|  |  | 0.2 | 200 | 0 | 0 | 0 | Explode |
|  | elu | 0.1 | 200 | 0 | 0 | 0 | Explode |
|  |  | 0.2 | 200 | 0 | 0 | 0 | Explode |
|  | Softmax | 0.1 | 200 | 0.619 | 0.627 | 2 |  |
|  |  | 0.2 | 200 | 0.614 | 0.621 | 2 |  |
|  | Sigmoid | 0.1 | 200 | 0.609 | 0.618 | 2 |  |
|  |  | 0.2 | 200 | 0.615 | 0.62 | 2 |  |
|  | Linear(id) | 0.1 | 200 | 0.798 | 0.732 | 3 |  |
|  |  | 0.2 | 200 | 0.777 | 0.709 | 3 |  |
|  |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| SGD\_M | Selu | 0.1 | 200 | 0 | 0 | 0 | Explode |
|  |  | 0.2 | 200 | 0 | 0 | 0 | Explode |
|  | elu | 0.1 | 200 | 0 | 0 | 0 | Explode |
|  |  | 0.2 | 200 | 0 | 0 | 0 | Explode |
|  | Softmax | 0.1 | 200 | 0.614 | 0.618 | 2 |  |
|  |  | 0.2 | 200 | 0.621 | 0.627 | 2 |  |
|  | Sigmoid | 0.1 | 200 | 0.613 | 0.615 | 2 |  |
|  |  | 0.2 | 200 | 0.614 | 0.622 | 2 |  |
|  | Linear(id) | 0.1 | 200 | 0.765 | 0.745 | 5 |  |
|  |  | 0.2 | 200 | 0.7 | 0.656 | 5 |  |
|  |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| Adam | Selu | 0.1 | 200 | 0.608 | 0.411 | 2 |  |
|  |  | 0.2 | 200 | -0.003 | 0.126 | 2 |  |
|  | elu | 0.1 | 200 | 0.605 | 0.478 | 2 |  |
|  |  | 0.2 | 200 | -0.003 | 0.019 | 2 |  |
|  | Softmax | 0.1 | 200 |  | 0 | 0 |  |
|  |  | 0.2 | 200 | 0 | 0.00E+00 | 1 | Explode |
|  | Sigmoid | 0.1 | 200 | 0.172 | 0.247 | 2 |  |
|  |  | 0.2 | 200 | 0 | 0 | 0 | Explode |
|  | Linear(id) | 0.1 | 200 | 0.69 | 0.692 | 2 |  |
|  |  | 0.2 | 200 | 0.766 | 0.302 | 3 |  |

Data Set: Boston

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Mpg Data |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| SGD | Selu | 0.1 | 200 | 0.871 | 0.867 | 4 |  |
|  |  | 0.2 | 200 | 0.877 | 0.695 | 4 |  |
|  | elu | 0.1 | 200 | 0.889 | 0.876 | 7 |  |
|  |  | 0.2 | 200 | 0.889 | 0.695 | 7 |  |
|  | Softmax | 0.1 | 200 | 0.887 | 0.868 | 6 |  |
|  |  | 0.2 | 200 | 0.888 | 0.871 | 6 |  |
|  | Sigmoid | 0.1 | 200 | 0.882 | 0.874 | 6 |  |
|  |  | 0.2 | 200 | 0.89 | 0.878 | 6 |  |
|  | Linear(id) | 0.1 | 200 | 0.805 | 0.807 | 5 |  |
|  |  | 0.2 | 200 | 0.806 | 0.807 | 3 |  |
|  |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| SGD\_M | Selu | 0.1 | 200 | 0.8922 | 0.8772 | 6 |  |
|  |  | 0.2 | 200 | 0.879 | 0.702 | 5 |  |
|  | elu | 0.1 | 200 | 0.891 | 0.869 | 6 |  |
|  |  | 0.2 | 200 | 0.884 | 0.704 | 7 |  |
|  | Softmax | 0.1 | 200 | 0.886 | 0.871 | 5 |  |
|  |  | 0.2 | 200 | 0.895 | 0.874 | 6 |  |
|  | Sigmoid | 0.1 | 200 | 0.886 | 0.877 | 5 |  |
|  |  | 0.2 | 200 | 0.898 | 0.881 | 6 |  |
|  | Linear(id) | 0.1 | 200 | 0.805 | 0.804 | 5 |  |
|  |  | 0.2 | 200 | 0.806 | 0.818 | 4 |  |
|  |  |  |  |  |  |  |  |
| Optimizer | Transform Functions | ETA value | Epochs | Adjusted rSquared | RSq\_Cv | n\* value |  |
| Adam | Selu | 0.1 | 200 | 0.9 | 0.871 | 7 |  |
|  |  | 0.2 | 200 | 0.884 | 0.845 | 5 |  |
|  | elu | 0.1 | 200 | 0.889 | 0.863 | 4 |  |
|  |  | 0.2 | 200 | 0.884 | 0.866 | 4 |  |
|  | Softmax | 0.1 | 200 | 0.903 | 0.833 | 5 |  |
|  |  | 0.2 | 200 | 0.874 | 0.842 | 4 |  |
|  | Sigmoid | 0.1 | 200 | 0.914 | 0.892 | 5 |  |
|  |  | 0.2 | 200 | 0.901 | 0.827 | 6 |  |
|  | Linear(id) | 0.1 | 200 | 0.806 | 0.805 | 4 |  |
|  |  | 0.2 | 200 | 0.806 | 0.808 | 3 |  |

Data Set: Concrete yp= SLUMP

Data Set: Concrete yp= FLOW

Data Set: Concrete yp= STRENGTH

Data Set: Qsar\_Aqua

Data Set: Fifa

(Running one iteration, 200 epoch with a single param took >4 hours. Could not reasonably compute)