Feature importance for RandomForest including all features:

{'binned\_complexity': 0.12,

'horizontal\_complexity': 0.08,

'length\_soma': 0.03,

'avg\_length\_dendrite': 0.03,

'avg\_length\_axon': 0.01,

'total\_length\_dendrite': 0.03,

'total\_length\_axon': 0.01,

'length\_dendrite\_var': 0.03,

'length\_axon\_var': 0.01,

'count\_axon': 0.01,

'count\_dendrite': 0.0,

'avg\_diameter\_dendrite': 0.01,

'avg\_diameter\_axon': 0.03,

'var\_diameter\_dendrite': 0.03,

'var\_diameter\_axon': 0.0,

'm\_type': 0.23,

'e\_type': 0.34,

'level': 0.0}

A close up of a map

Description automatically generated

R2 = 0.535

Feature importance for RandomForest removing m\_type and layers:

{'binned\_complexity': 0.16,

'horizontal\_complexity': 0.12,

'length\_soma': 0.04,

'avg\_length\_dendrite': 0.03,

'avg\_length\_axon': 0.01,

'total\_length\_dendrite': 0.03,

'total\_length\_axon': 0.01,

'length\_dendrite\_var': 0.03,

'length\_axon\_var': 0.01,

'count\_axon': 0.01,

'count\_dendrite': 0.01,

'avg\_diameter\_dendrite': 0.01,

'avg\_diameter\_axon': 0.04,

'var\_diameter\_dendrite': 0.03,

'var\_diameter\_axon': 0.01,

'e\_type': 0.45}

A close up of a map

Description automatically generated

R2 = 0.487

Feature importance for RandomForest removing m\_type and e\_type and layers:

{'binned\_complexity': 0.32,

'horizontal\_complexity': 0.29,

'length\_soma': 0.06,

'avg\_length\_dendrite': 0.04,

'avg\_length\_axon': 0.02,

'total\_length\_dendrite': 0.05,

'total\_length\_axon': 0.02,

'length\_dendrite\_var': 0.05,

'length\_axon\_var': 0.02,

'count\_axon': 0.02,

'count\_dendrite': 0.01,

'avg\_diameter\_dendrite': 0.01,

'avg\_diameter\_axon': 0.06,

'var\_diameter\_dendrite': 0.05,

'var\_diameter\_axon': 0.01}

A close up of a map

Description automatically generated

R2 = 0.15

Choosing only feature provided by Lasso

{'binned\_complexity': 0.13,

'length\_soma': 0.03,

'avg\_length\_dendrite': 0.04,

'avg\_length\_axon': 0.01,

'total\_length\_dendrite': 0.05,

'length\_axon\_var': 0.01,

'avg\_diameter\_axon': 0.03,

'var\_diameter\_axon': 0.0,

'm\_type': 0.26,

'e\_type': 0.43,}

A close up of a map

Description automatically generated

R2= 0.599

Removing M-type from Lasso features

Feature importance

{'binned\_complexity': 0.19,

'length\_soma': 0.04,

'avg\_length\_dendrite': 0.04,

'avg\_length\_axon': 0.01,

'total\_length\_dendrite': 0.05,

'length\_axon\_var': 0.01,

'avg\_diameter\_axon': 0.05,

'var\_diameter\_axon': 0.01,

'e\_type': 0.61}

A close up of a map

Description automatically generated

R2= 0.595

Removing M-type and E-type from Lasso features

Feature importance

{'binned\_complexity': 0.58,

'length\_soma': 0.1,

'avg\_length\_dendrite': 0.07,

'avg\_length\_axon': 0.02,

'total\_length\_dendrite': 0.08,

'length\_axon\_var': 0.02,

'avg\_diameter\_axon': 0.1,

'var\_diameter\_axon': 0.01}

A close up of a map

Description automatically generated

R2 = 0.122