Multimedia Appendix 4. Hyper-parameters used for training models.

After experimenting with various values, the following hyper-parameter setting produced the best performance. We implemented algorithms with Keras for LSTM and Scikit-Learn for Logistic regression, SVM, Decision Tree, Random Forest, and MLP.

Table S5. Hyper-parameter settings for training the models

Model	Scikit-Learn/Keras	Hyper-parameter
Logistic regression	LogisticRegression	L2 regularization: 1.0
SVM	LinearSVC	loss:hinge, Max epoch: 100
Decision Tree	DecisionTreeClassifier	max_depth: 10
Random Forest	RandomForestClassifier	Max_depth: 10, n_estimators:100
MLP with 55 features	MLPClassifier	Activation function: ReLU, Early_stopping:True, Hidden_layer_sizes :37, max_iter:20, alpha:2
MLP with 278 features	MLPClassifier	Activation function: ReLU, Early_stopping:True, Hidden_layer_sizes :186, max_iter:20, alpha:2
MLP with 555 features	MLPClassifier	Activation function: ReLU, Early_stopping:True, Hidden_layer_sizes :371, max_iter:20, alpha:2
LSTM models with 55 features	CuDNNLSTM	Number of layers: 2, batch_size :128, epochs:15, number of steps:150
LSTM models with 258 features	CuDNNLSTM	Number of layers: 1, batch_size:512, epochs:15, number of steps: 150
LSTM models with 555 features	CuDNNLSTM	Number of layers: 1, batch_size: 64, epochs: 5, number of steps: 100