RESULTS AND DISCUSSION

4.1 DATA CONSTRUCTION

4.1.1 DATA COLLECTION AND FEATURE ENGINEERING

4.1.2 DATA PREPROCESSING

4.1.3 DATA PREPROCESSING: IMPACT ON MODELS

4.2 MODEL TRAINING

4.2.1 TRAINING AND TESTING DATA

4.2.2 HARDWARE

4.2.2.1 ENVIRONMENTAL SETUP

4.2.2.2 TRAINING TIME

4.3 MODEL EVALUATION

4.3.1 MODEL PERFORMANCE METRICS (BRIEF EXPLANATION OF WHAT IS TO BE SEEN IN THIS SECTION)

4.3.1.1 BIDIRECTIONAL RNN-LSTM (SHOW 10 HYPERPARAMETER TUNING ITERATIONS IN A TABLE AND HOW THE METRICS ARE AFFECTED)

4.3.1.2 RANDOM FOREST (SHOW 10 HYPERPARAMETER TUNING ITERATIONS IN A TABLE AND HOW THE METRICS ARE AFFECTED)

4.3.1.3 STACKED MODEL (SHOW 10 HYPERPARAMETER TUNING ITERATIONS IN A TABLE AND HOW THE METRICS ARE AFFECTED)

4.3.1.4 1D-CNN (SHOW 10 HYPERPARAMETER TUNING ITERATIONS IN A TABLE AND HOW THE METRICS ARE AFFECTED)

4.3.1.5 COMPARISON OF METRICS (SHOW THE BEST RESULTS FROM EACH MODEL IN A TABLE AND COMPARE THEM) (TABLE SHOULD INCLUDE: F1, PRECISION, RECALL, ACCURACY)

4.3.2 MODEL CONFUSION MATRIX RESULTS (BRIEF EXPLANATION OF WHAT IS TO BE SEEN IN THIS SECTION)

4.3.2.1 BIDIRECTIONAL RNN-LSTM (SHOW CONFUSION MATRIX RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.2.2 RANDOM FOREST (SHOW CONFUSION MATRIX RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.2.3 STACKED MODEL (SHOW CONFUSION MATRIX RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.2.4 1D-CNN (SHOW CONFUSION MATRIX RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.2.5 COMPARISON OF CROSS VALIDATION (SHOW THE BEST RESULTS FROM EACH MODEL IN A TABLE AND COMPARE THEM) (TABLE SHOULD INCLUDE: FALSE POSITIVE, FALSE NEGATIVE, TRUE POSITIVE, TRUE NEGATIVE)

4.3.3 MODEL CROSS VALIDATION RESULTS (BRIEF EXPLANATION OF WHAT IS TO BE SEEN IN THIS SECTION)

4.3.3.1 BIDIRECTIONAL RNN-LSTM (SHOW CROSS VALIDATION RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.2 RANDOM FOREST (SHOW CROSS VALIDATION RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.3 STACKED MODEL (SHOW CROSS VALIDATION RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.5 COMPARISON OF CROSS VALIDATION (SHOW THE BEST RESULTS FROM EACH MODEL IN A TABLE AND COMPARE THEM) (TABLE SHOULD INCLUDE: 1ST – 5th CROSS VALIDATION SCORES and CROSS VALIDATION MEAN SCORE)

4.3.4 MODEL ROC-AUC CURVE RESULTS

4.3.3.1 BIDIRECTIONAL RNN-LSTM (SHOW ROC CURVE and AUC SCORE RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.2 RANDOM FOREST (SHOW ROC CURVE and AUC SCORE RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.3 STACKED MODEL (SHOW ROC CURVE and AUC SCORE RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.4 1D-CNN (SHOW ROC CURVE and AUC SCORE RESULT AND EXPLAIN WHAT THE NUMBERS MEAN)

4.3.3.5 COMPARISON OF CROSS VALIDATION (SHOW THE RESULT FROM EACH MODEL IN A TABLE AND COMPARE THEM) (TABLE SHOULD INCLUDE: AUC SCORES; HAVE THE THREE GRAPHS LINED UP TOGETHER)

4.4 FEATURE IMPORTANCE AND INTERPRETATION

4.4.1 FEATURE IMPORTANCE ANALYSIS

4.4.1.1 RESULTS AND FEATURE CALCULATION

4.4.1.2 RNN PROBABILITY CALCULATION

4.4.2 MEAN DECREASE ACCURACY

4.4.1.1 RESULTS AND FEATURE CALCULATION

4.4.1.2 RNN PROBABILITY CALCULATION

4.4.3 LIME LOCAL EXPLANATION

4.4.1.1 RESULTS AND FEATURE CALCULATION

4.4.1.2 RNN PROBABILITY CALCULATION

4.4.4 FEATURE VALUES FOR TEST INSTANCE

4.4.5 LIME INSTANCE EXPLANATION

4.4.5.1 THRESHOLDS FOR EACH INPUT FEATURE