TRAIN AND TEST INTELLIGENT MODEL.

Using Python 3 and the Keras framework with Tensorflow, we trained a model to learn to recognize reviews that evaluate workers based on mission-critical metrics and non-critical ones. We train the following models:

Word ngram + LR: Logistic regression with word ngrams.

Char ngram + LR: Logistic regression with character ngrams.

(Word + Char ngram) + LR: Logistic regression with word and character ngrams.

RNN no embedding: Recurrent neural network (bidirectional GRU) without pre-trained embeddings.

RNN + GloVe embedding: Recurrent neural network (bidirectional GRU) with GloVe pre-trained embeddings.

CNN (multi-channel): Multi-channel Convolutional Neural Network.

RNN + CNN: Recurrent neural network (Bidirectional GRU) + Convolutional Neural Network.

Google BERT (Devlin et al., 2018): Bidirectional Encoder Representations from Transformers, is a new method of pre-training language representations which obtains state-of-the-art results on a wide range of Natural Language Processing (NLP) tasks.

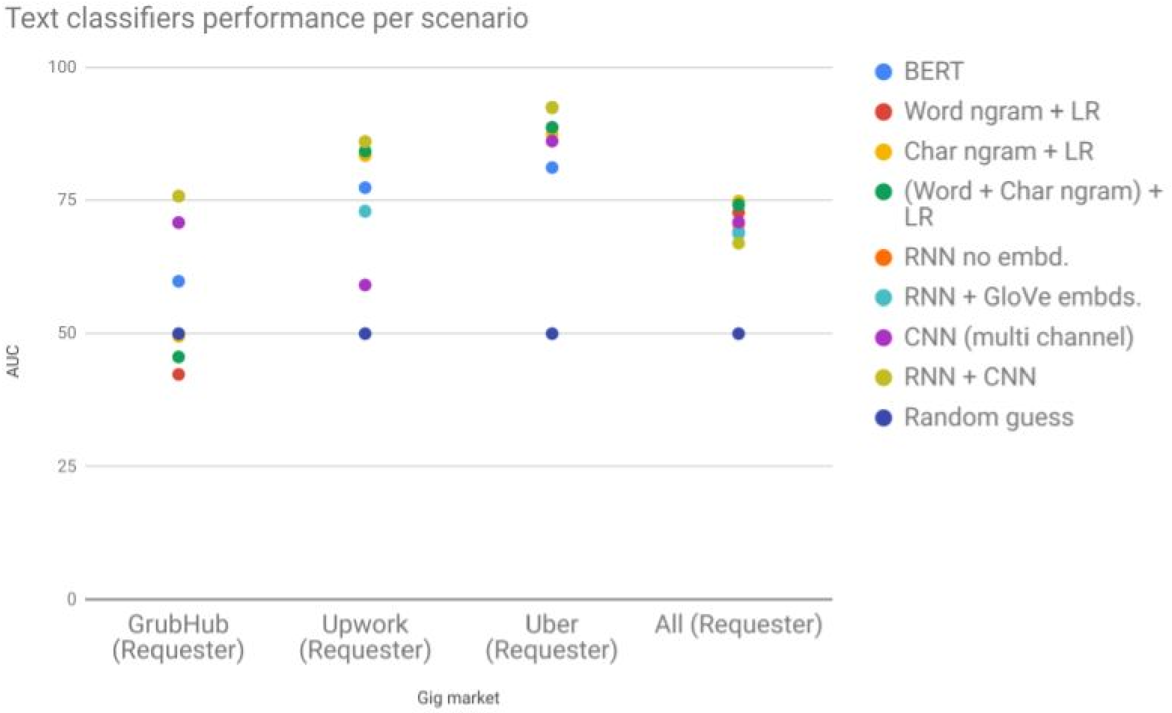
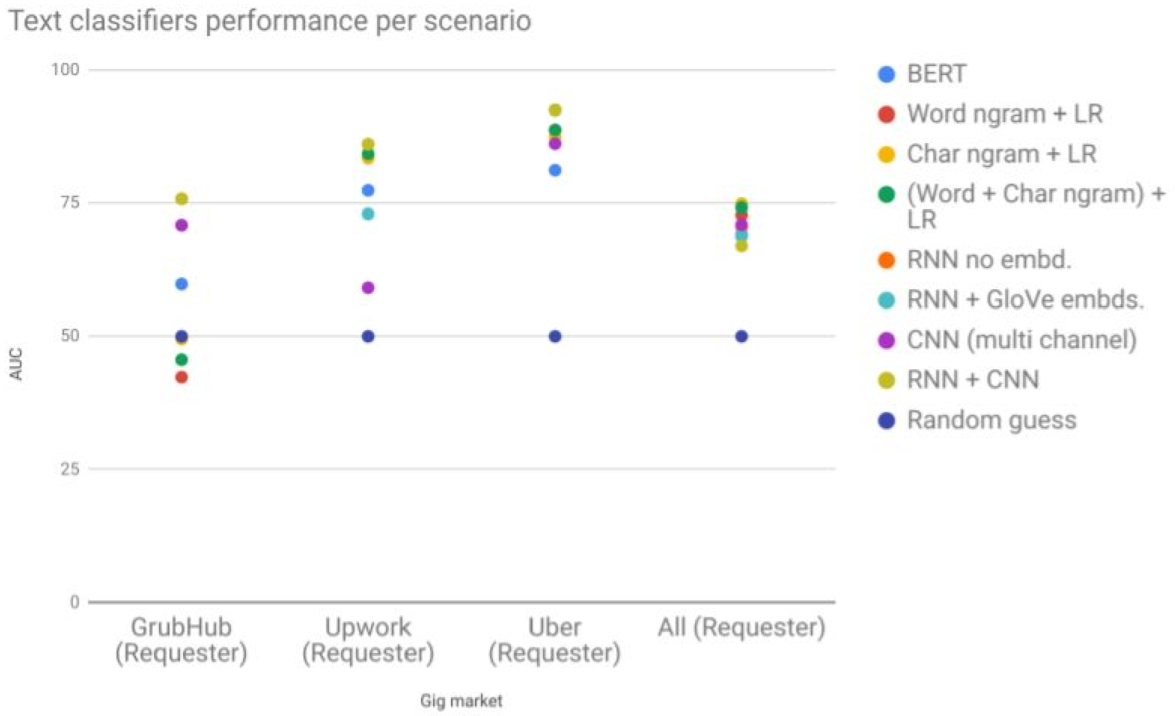


Figure X. Text classifier benchmark. Recurrent Neural Networks (RNN) + Convolutional Neural Network (CNN) approach performed better across conditions.

Fig. X presents an overview of the benchmark of Reputation Agent's training models. We note that different machine learning models performed better on different gig markets. However, RNN (Recursive Neural Network, a Deep Learning Algorithm) performed in general best across all gig markets. Once Reputation Agent had identified the best models to use for a particular gig market, it is ready to be deployed on the gig market. After the model has been trained, it is exposed as a REST web service via JSON requests to our front-end interface. The service is consumed directly by Reputation Agent's Accuracy Promoter and it displays the messages accordingly.



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