SwissCheese: Sentiment Classification using an Ensemble of Convolutional Neural Networks and Distant Supervision

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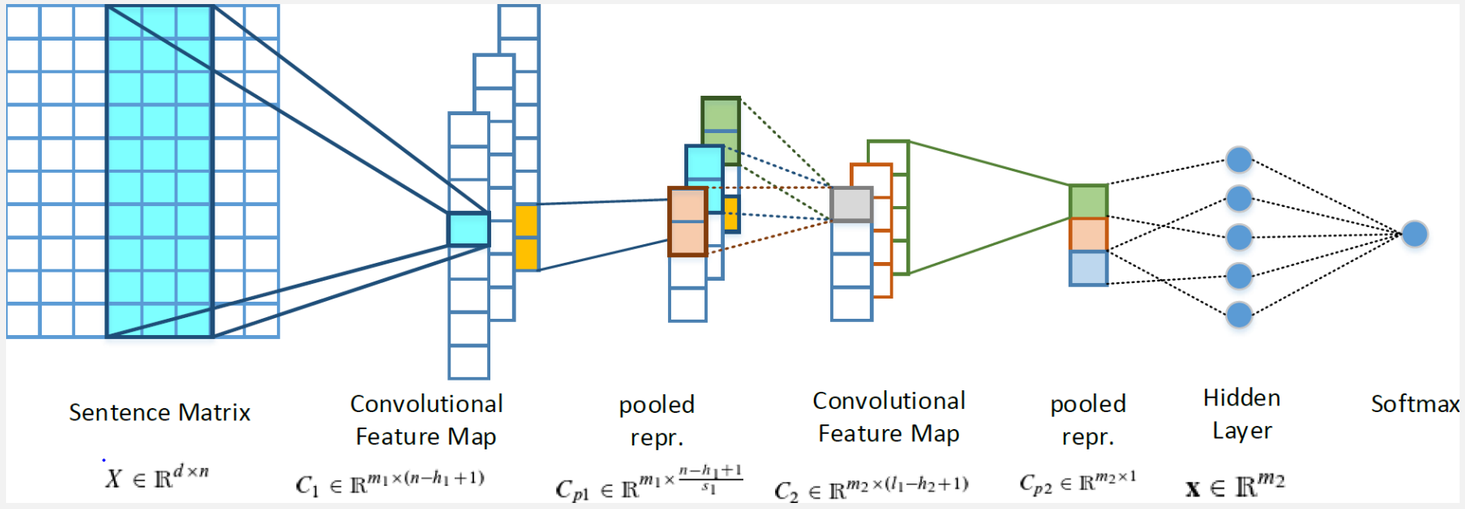
CNN 2Layer Architecture



3 Step Training

Word Embeddings
- S1: word2vec with 200M tweets
- S2: GloVe with 90M tweets

Distant Phase
- S1: 90M tweets
- S2: 60M tweets

Supervised Phase
- Both: 18K provided training data

Meta Classifier

Supervised Phase: High Variance in F1-score over # epochs
Goal: Increase Robustness
Solution: Train a Random Forest on the outputs of the various systems

S1: Trained for different number of epochs (a-f)
S2: Trained until it reached good average scores among validation sets

Results

	S1a	S1b	S1c	S1d	S1e	S1f	S2	FS
Test2016	60.47	62.73	61.89	60.58	57.19	62.20	62.36	**63.30**
Test2015	64.26	65.80	64.80	64.20	61.02	66.70	66.63	**67.05**
Test2014	73.98	74.60	**75.70**	74.15	69.12	72.00	72.45	71.55
Test2013	**71.52**	70.10	70.90	71.50	67.00	68.00	70.05	70.01
LiveJournal2014	73.86	70.57	72.54	**74.00**	71.32	68.00	70.86	69.51
Sarcasm2014	57.84	52.04	51.50	57.84	62.00	57.30	**62.74**	56.63