Twitter Sentiment Analysis

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Abstract. We examine sentiment analysis on Twitter data and classify the tweets based on sentiment.We have used existing lexical resources as well as features that capture information about the informal and creative language used in microblogging.

1 Introduction

Microblogging websites have evolved to become a source of varied kind of information. This is due to nature of microblogs on which people post real time messages about their opinions on a variety of topics, discuss current issues, complain, and express positive sentiment for products they use in daily life. In fact, companies manufacturing such products have started to poll these microblogs to get a sense of general sentiment for their product. Many times these companies study user reactions and reply to users on microblogs. One challenge is to build technology to detect and summarize an overall sentiment. So we build models for classifying popular microblog twitter's tweets into positive, negative and neutral sentiment We build models for classifying twitter tweets into positive, negative and neutral sentiment.

2 Models used

2.1 LSTM

Humans dont start their thinking from scratch every second. We dont throw everything away and start thinking from scratch again. Our thoughts have persistence.Traditional neural networks cant do this, and it seems like a major shortcoming. Recurrent neural networks address this issue. They are networks with loops in them, allowing information to persist.A recurrent neural network can be thought of as multiple copies of the same network, each passing a message to a successor.This chain-like nature reveals that recurrent neural networks are intimately related to sequences and lists. Theyre the natural architecture of neural network to use for such data.Long Short Term Memory networks usually just called LSTMs are a special kind of RNN, capable of learning long-term dependencies.LSTMs are explicitly designed to avoid the long-term dependency problem. Remembering information for long periods of time is practically their default behavior, not something they struggle to learn

2.2 CNN

CNNs are basically just several layers of convolutions with nonlinear activation functions like ReLU or tanh applied to the results. In a traditional feedforward neural network we connect each input neuron to each output neuron in the next layer. Thats also called a fully connected layer, or affine layer. In CNNs we dont do that. Instead, we use convolutions over the input layer to compute the output. This results in local connections, where each region of the input is connected to a neuron in the output. Each layer applies different filters, typically hundreds or thousands like the ones showed above, and combines their results. Theres also something something called pooling.During the training phase, a CNN automatically learns the values of its filters based on the task you want to perform.

3 Results

Model Name	Accuracy
CNN	.5041
LSTM	.6950