Overview

Motivation:
- Exploding demand for craft beer
- Designing new beers relies on trial and error

Goal:
- Optimize beer recipe generation to design better tasting beers, with less effort

Approach:
- Use deep and recurrent neural networks to learn (and map between) representations of beer in different domains

Background

Long Short Term Memory Networks
- Specializes in modeling sequential data
- Memory cells store relevant long-term info

Beer Recipes
- Fermentables: affect sweetness, body, color, alcohol content
- Hops: give bitter, zesty, citric flavors
- Yeasts: affect alcohol content, flavor, aroma
- Miscellaneous: affects clarity and flavor

Models

DNN

LSTM-DNN

Embeddings

Experimental Setup

Data

Training
- Developed using Tensorflow, Scikit-learn
- Bayesian hyperparameter tuning
- Stochastic gradient-based optimization

Results

Name

Type

Style

Future Work

- Generate meaningful representations of beer recipes using encoder-decoder model
- Create combined model of recipes and reviews
- Generate beer recipes and reviews