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

• Neural network models outperform standard baselines in all tasks

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