Topics for Midterm 2

Midterm 2 will be cumulative, but heavily weighted towards what we have covered since Midterm 1. It is an open-note, closed-device exam that will be taken on paper during class.

- Evaluation
    - Precision
    - Recall
    - F-measure
    - Macro v micro-average
    - Cross-validation
    - Perplexity
- Vector Semantics
    - TF-IDF
    - Word2Vec
    - Cosine similarity
- Text Generation
    - N-gram language models
        - Smoothing
    - Sampling
        - Random
        - Top-k
        - Top-p
    - Feedforward neural language models
        - Embedding averaging
        - Embedding concatenation
- Text Classification
    - Naive Bayes classifiers
        - Smoothing
    - Binary logistic regression
    - Multinomial logistic regression
- Training a Supervised Classification Model
    - Loss functions
    - Optimization with Stochastic Gradient Descent
    - Weight updates
- Simple Neural Networks
    - Single unit equation
    - Fitting simple logical functions with perceptrons (AND, OR, XOR)
    - Decision boundaries
    - Common non-linear activation functions
    - Hidden layers
    - Incorporating word embeddings as input