
CS 333: NLP

Fall 2025

Prof. Carolyn Anderson
Wellesley College

Final Project Presentations

- ◆ 2-3 minutes per person
- ◆ 1 slide (upload to Google Drive by 10pm on Monday)



CS DEPARTMENT PRESENTS

winter Wonderland



DECEMBER **11** 4:30 PM - 6 PM

AT THE LEAKY BEAKER AREA



BRACELET MAKING,
MEXICAN HOT CHOCOLATE,
MULLED CIDER & COOKIES



QUESTIONS? SB129 ACCOMMODATION? ACCESSIBILITY@WELLESLEY.EDU

PLAYABLE MEDIA SHOWCASE

THURSDAY,
12/11 @ 2-4 PM
IN SCI-L140

?: ad114@wellesley.edu

ADR: accessibility@wellesley.edu



Help hours

My help hours for the rest of the semester:

- ◆ Next Monday: 4-5
- ◆ Next Thursday: 3:30-4:30
- ◆ Following Monday: 4-5

What Have We Learned?

Tasks We Learned This Semester

- ◆ Tokenization
- ◆ Sentence Segmentation
- ◆ Textual Similarity Analysis
- ◆ Representation Learning
- ◆ Classification: sentiment analysis, genre prediction...
- ◆ Language Modeling
- ◆ Common-sense reasoning

Techniques We Learned This Semester

- ♦ **Tokenization:** BPE
- ♦ **Textual Similarity Analysis:** tf-idf, PPMI
- ♦ **Representation Learning:** term-document frequency matrixes, static word embeddings, contextualized word embeddings
- ♦ **Classification:** Naive Bayes, regression, neural networks
- ♦ **Language Modeling:** n-grams, neural networks (feedforward, recurrent, attention-based)
- ♦ **Transfer Learning:** fine-tuning, prompt engineering, proxy-tuning
- ♦ **Mechanistic Interpretability:** activation steering

Models We Used This Semester

- ◆ word2vec
- ◆ regression and feedforward neural networks in PyTorch
- ◆ Encoder-decoder Transformers (DistilBERT)
- ◆ Decoder-only Transformers (Llama, Smol)

Skills We Developed This Semester

- ♦ **text processing**: working with strings, reading in text datasets, tokenizing, cleaning text, regular expressions
- ♦ **evaluation**: computing metrics (accuracy, precision, recall, F-score, perplexity, and cosine similarity), understanding statistical reliability
- ♦ **implementing classification models**
- ♦ **building** and **running** neural network models
- ♦ **fine-tuning** and **prompting** large language models

What Is There Still
To Learn?

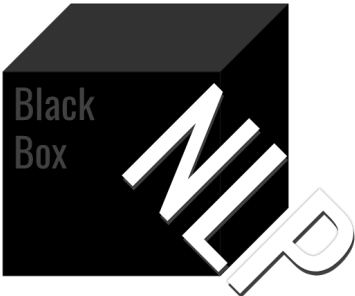
Interpretability and Explainability

How do blackbox models make decisions?

What are large language models learning, and how do they use this information?

What are the limits of what large language models?

How can we intervene when models are incorrect?




Workshop on analyzing and interpreting
neural networks for NLP

BlackboxNLP 2023

The sixth edition of BlackboxNLP will be co-located with EMNLP 2023 in Singapore on December 7 2023.

News

- We welcome EMNLP Findings papers with high empirical quality and interpretability for presentation at the BlackboxNLP workshop. Contact us via blackboxnlp@googlegroup.com by October, noon ET.
- Find us on Twitter/X here: <https://twitter.com/blackboxnlp>.
- We started a YouTube channel: <https://www.youtube.com/channel/UCvTjDkUWzYtRQdFmXGgZw>. Subscribe to be informed about future events! You can already watch the BlackboxNLP 2022 workshop recordings.

A banner for the TrustNLP workshop. It features a dark background with abstract, glowing green and blue light patterns. The text is white and centered.

TrustNLP: Third Workshop on Trustworthy Natural Language Processing

Colocated with the Annual Conference of the Association for Computational Linguistics (ACL 2023)

About

Recent advances in Natural Language Processing, and the emergence of pretrained Large Language Models (LLM) specifically, have made NLP systems omnipresent in

Grounding and Multi-Modality

How do we combine text-based models with other modalities, like vision and perceptual information?

How can we help models relate to the physical world?

How do we help models understand social interaction?

How much of a role does access to perceptual information play in learning?

SpLU-RoboNLP 2023

Third International Combined Workshop on
Spatial Language Understanding and Grounded Communication for Robotics

[Topics](#) [Schedule](#) [Invited Speakers](#) [Organizers](#) [Program Committee](#)

Aim and Scope

Leveraging the foundation built in the prior workshops SpLU-RoboNLP 2021, SpLU 2020, SpLU-RoboNLP 2019, SpLU 2018 and RoboNLP 2017, we propose the Third International Combined Workshop on Spatial Language Understanding and Grounded Communication for Robotics. Natural language communication with general purpose embodied robots has long been a topic of interest in the research community, and natural language interfaces have the potential to make robots more accessible to a wider range of users. Achieving this goal requires the continuous development of new technologies for linking language to perception and action in the physical world. This joint workshop is aimed at bringing together the perspectives of researchers in the field of natural language processing, robotics, and human-computer interaction to foster collaboration and advance the state-of-the-art in the field.

[Confirmed Speakers](#) [Call For Papers](#) [Submission Instructions](#) [Schedule](#) [Papers](#) [Organizers](#)

NILLI

Novel Ideas in Learning-to-Learn through Interaction

All Editions

- [NILLI First Edition @ EMNLP'21](#)
- [NILLI Second Edition @ EMNLP'22](#)
- [NILLI Second Edition @ EMNLP'23](#)

Workshop @ EMNLP 2023

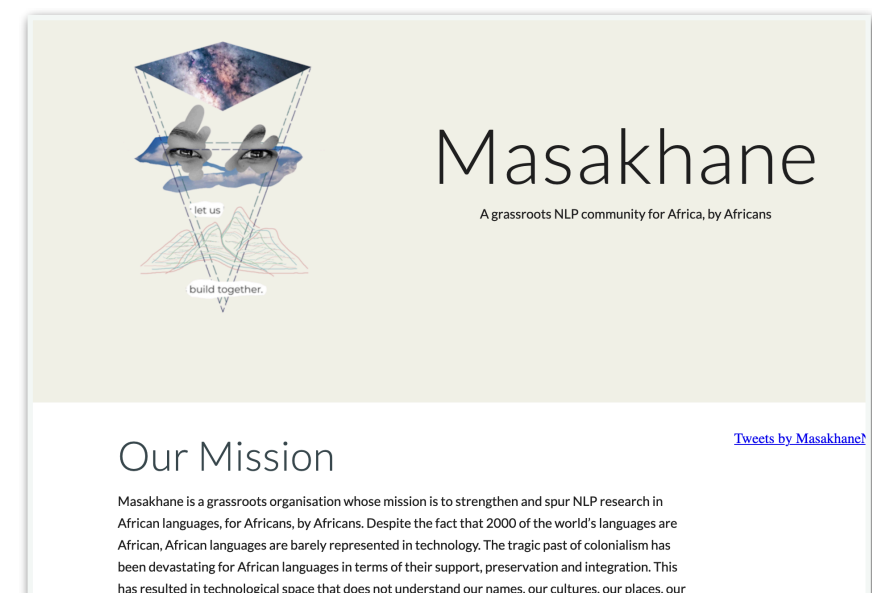
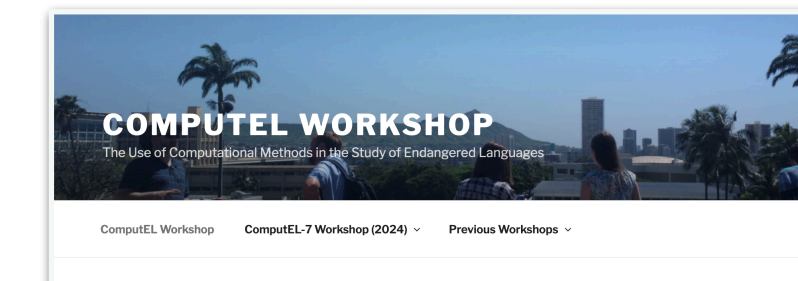
Collaborative dialogues [1, 2, 3] with automated systems through language interactions have become ubiquitous, wherein it is becoming common from setting an alarm to planning one's day through language

Linguistic Diversity

How can we improve NLP tools for low-resource languages?

How can we achieve good performance with sparse data?
With small models and limited compute?

How do models deal with different language varieties?



Computational Social Science

How can we share our best approaches for text processing with other fields?

How well do NLP techniques work with limited data?
In niche domains? In tasks that require expert judgment?



LaTeCH-CLfL 2023

The 7th Joint SIGHUM Workshop on Computational Linguistics, Cultural Heritage, Social Sciences, Humanities and Literature

to be held on 5 May 2023 in conjunction with EACL 2023 in Dubrovnik



Today's Guest