Enhancing Named Entity Recognition for Agricultural Commodity Monitoring with Large Language Models

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Introduction

- Effective crop quantity & price monitoring
- Vital for food security & global economy

Need expressed by governments & agri-business
Essential for informed decision-making

Challenge

- Processing unstructured data
- Massive data volumes in agriculture sector
Objectives

Improve data accessibility through automated tagging and categorization using NER.

We assess the effectiveness of LLMs in NER specifically for agricultural commodity monitoring.
Methodology

- We used AWS Ground Truth for annotation.
- The study involved a total of 395 samples extracted from various sources.
Models

- Large Language Models (LLMs):
  - Models: GPT-3.5 Turbo, GPT-4, and Claude v2.
  - Technique: We used the few-shot prompting technique.
- Base Model:
  - Model: The Multilingual BERT model, facilitated by the spaCy-transformers library.
  - Data allocation: 60% of the samples were allocated for training the model, while 40% were used as the evaluation set.
Comparing the F1 scores of various language models for NER tasks, specifically in identifying the five entities.
Conclusion

- Broaden entity recognition for better analytics
- Develop methods for model reliability verification
- Explore continuous learning for model relevance
THANK you for your attention!