Ktransfer Project Overview

Exploring Cross-Domain Few-Shot Prompting

Introduction

- Objective: Develop an effective retriever for **cross-domain** few-shot prompting.
- Background: Few-shot examples from a hint domain aiding a test domain.

Methodology

- Data Collection:
  - Randomly sampled hints from hint domains.
  - Processed to generate positive/negative samples.

- Model Training:
  - Meta-network with Transformer-based sub-networks.
  - Loss: Pairwise contrastive loss.

Experiment Setup

- Dataset: MMLU split into hint and test domains.
- Model:
  - Input: 1536 dimensions (embedding).
  - Layers: 2 Transformer layers, 8 heads.
  - Batch size: 1024; Learning rate: 1e-6; Epochs: 10.

Results

- Cosine Similarity:
  - No significant improvement for most test domains.
- Improved Retriever:
  - Outperformed random selection in some scenarios.

Analysis & Future Work

- Analysis:
  - Current retriever performance limited in complex scenarios.
  - Need for advanced semantic models.

- Future Work:
  - Optimize model structure.
  - Explore more robust training techniques.

Conclusion

- Key Findings:
  - Pairwise-trained retriever shows potential.
  - Challenges in generalizing to complex domains.

- Outlook:
  - Further refinements needed for broader applicability.

Q&A

- Thank you for your attention! Feel free to ask questions.