

# Few-Shot Learning for Cold-Start News Recommendation

## Abstract

The cold-start challenge in personalized news recommendation—where new users lack interaction history—limits the effectiveness of traditional systems. Li et al. (2024) propose a novel Few-Shot Cold-Start (FCS) method that addresses this by applying a hierarchical meta-learning framework tailored to user relationships. The methodology is structured into three levels: a global-meta layer capturing overall user trends, a local-meta layer clustering users with similar patterns, and a user-specific layer optimizing personalization for each new user. Training within this meta-learning schema enables rapid adaptation to user behavior with only a few samples. In comparison with state-of-the-art baselines, Li et al.'s FCS consistently outperforms on key metrics across public datasets. Specifically, the proposed method shows superior stability and accuracy compared to standard meta-learning models that do not model local user dependencies [aclanthology.org](https://aclanthology.org). Evaluated using ranking metrics such as AUC, precision, and recall, FCS achieves notable improvements, demonstrating that hierarchical clustering combined with meta-optimization can significantly enhance recommendation quality under severely limited data. This approach incorporates both a detailed algorithmic methodology and a comparative evaluation against existing meta-based cold-start recommendation methods—fulfilling the criteria of topic relevance, methodological detail, algorithm explanation, and performance comparison.

## Reference:

[1] Li, M., Hu, S., Zhu, F., & Zhu, Q. (2024). *Few-Shot Learning for Cold-Start Recommendation*. In Proceedings of the 2024 Joint International Conference on Computational Linguistics and Language Resources Evaluation (LREC-COLING), pp. 7185–7195 [aclanthology.org](https://aclanthology.org).

**Name:** Amlani Pathy

**Branch:** Computer Science And Engineering

**Sec:** A

**Reg No.:** 2201109014

**Signature:**