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Go to First Change (page 2)

MTA4DPR: Multi-Teaching-Assistants Based Iterative Knowledge Distillation for Dense Passage Retrieval

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February 9, 2026

Abstract

[ILLEGIBLE]

1 Introduction

[ILLEGIBLE]

2 Related Work

2.1 Dense Retrieval

[ILLEGIBLE]

2.2 Knowledge Distillation

[ILLEGIBLE]

3 Methodology

3.1 Preliminary

[ILLEGIBLE]

3.2 The MTA4DPR Framework

[ILLEGIBLE]

4 Experiments and Analysis

4.1 Experimental Settings

[ILLEGIBLE]

4.2 Main Results

[ILLEGIBLE]

4.3 Ablation Study

[ILLEGIBLE]

4.4 Analysis

[ILLEGIBLE]

5 Conclusion

[ILLEGIBLE]

Limitations

[ILLEGIBLE]

Acknowledgements

Ethics Statement

[ILLEGIBLE]

Licenses

[ILLEGIBLE]

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A   Algorithm 1

Algorithm 1 MTA4DPR Training Process

Require: T: the teacher model; TA: the assistant models; M_θ: the student model; Q: the query set; P: the passage set; max_iter: maximum number of training iterations; max_steps: maximum number of training steps; η: Learning rate;

Ensure: M_θ

1: $i \leftarrow 0$
2: **while** $i < max\_iter$ **do**
3:    $D_{train}, D_{eval} \leftarrow GenDataset(T, TA, Q, P)$
4:    **repeat**
5:       $id_{bestTA} \leftarrow TASelect(D_{train})$
6:       $\theta \leftarrow \theta - \eta \nabla_\theta \mathcal{L}_{total}(D_{train}, M_\theta, id_{bestTA})$
7:    **until** max_steps reached
8:    $outperformed\_TA \leftarrow Compare(M_\theta, TA, D_{eval})$
9:    **if** $outperformed\_TA$ **then**
10:      remove $Worst(TA)$
11:      add M_θ into TA
12:    **end if**
13:    $i \leftarrow i + 1$
14: **end while**