

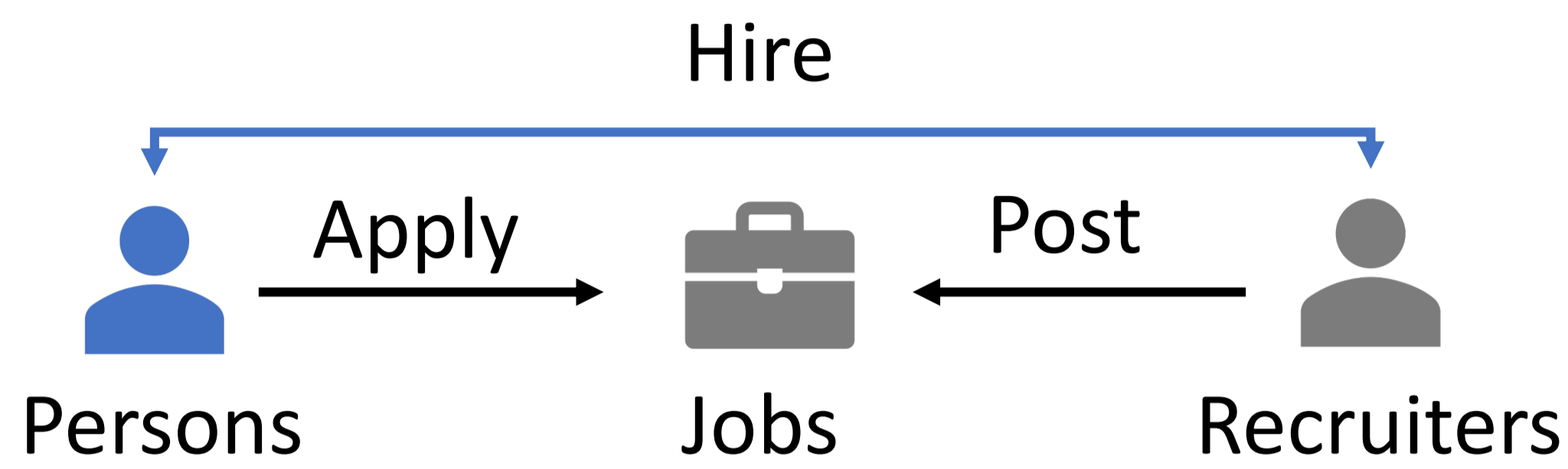
TAROT: A Hierarchical Framework with Multitask Co-Pretraining on Semi-Structured Data Towards Effective Person-Job Fit



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Person-Job Fit Task



A job seeker u apply to a job j , the objective of Person-job fit is to predict $M(u, j)$ where M refers to the matching degree.

Text Compression in P-J Fit



User profiles/resumes are of hierarchical structures, and so are job descriptions. However, previous works [1,2,3] typically ignore this hierarchical feature, and the correlation between profile and job descriptions.

TAROT Model

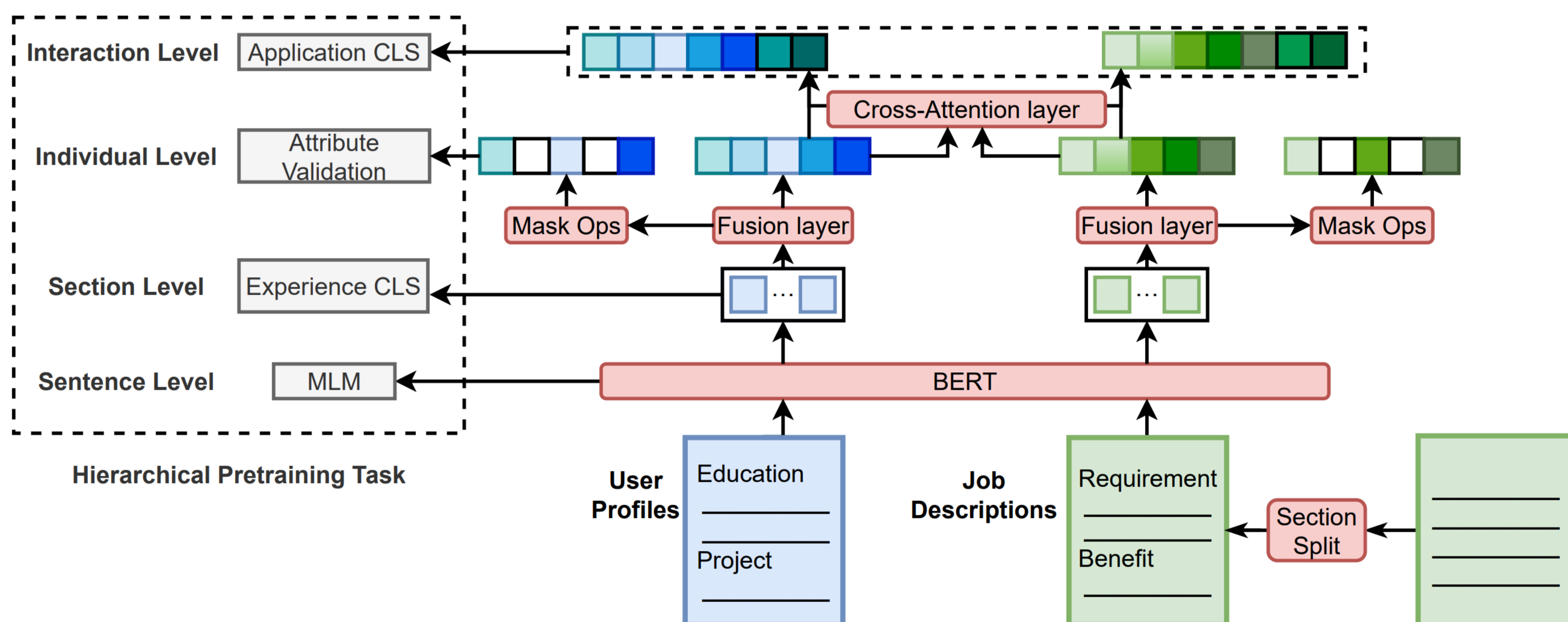


Figure 1. TAROT model structure.

TAROT model framework. Gray boxes refer to different pretraining tasks at each level. Given a user profile $u = \{s_{u,1}, s_{u,2}, \dots\}$ and a job description $j = \{s_{j,1}, s_{j,2}, \dots\}$, the model first produces a section level embedding for both u and j . After that, in the individual level, the fusion layer fuse the section embeddings to form individual embeddings emb_u and emb_j . At each level, we design a pretraining task, to help the model learn better representations.

References

[1] Chuan Qin, Hengshu Zhu, Tong Xu, Chen Zhu, Liang Jiang, Enhong Chen, and Hui Xiong, "Enhancing person-job fit for talent recruitment: An ability-aware neural network approach," 06 2018, pp. 25–34

Results

Task	Job Recommendation			Candidate Recommendation		
Models	AUC	Recall	NDCG	AUC	Recall	NDCG
PJFNN+B	+2.54%	+2.28%	+2.03%	+0.33%	+1.46%	+1.77%
PJFNN+T	+4.48%	+3.94%	+3.90%	+6.98%	+8.18%	+13.49%
APIJFNN+B	+10.69%	+4.90%	+2.24%	+6.87%	+9.46%	+12.08%
APIJFNN+T	+11.89%	+6.28%	+10.55%	+8.30%	+14.22%	+17.03%

Table 1. Offline experiment results.

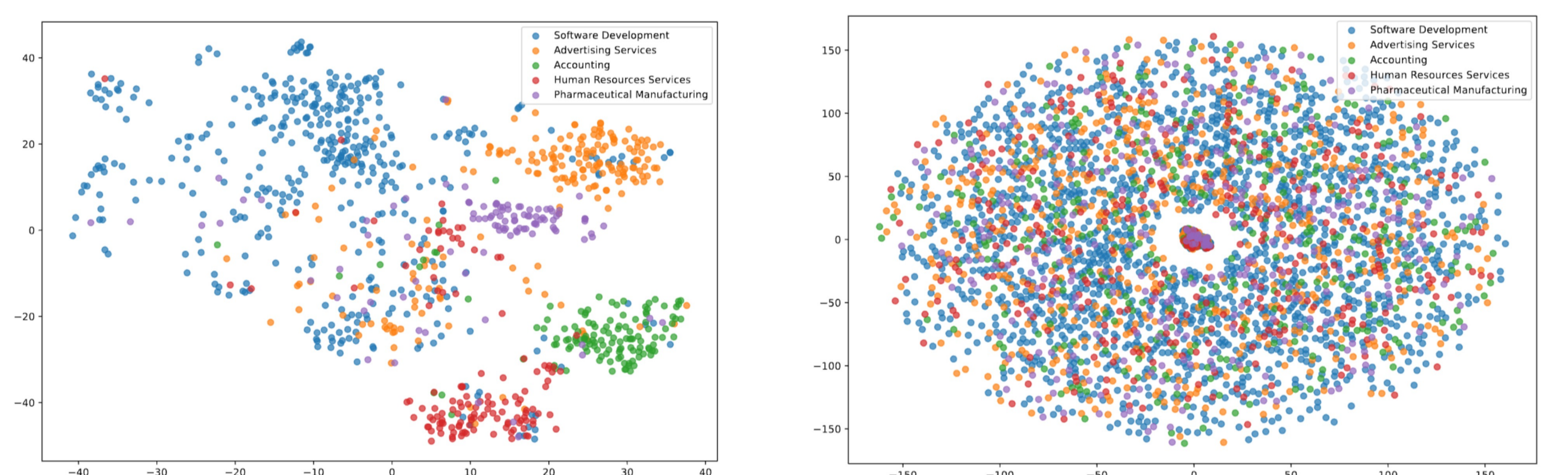
The baseline model for comparison is PJFNN[1] with member and job raw features. B refers to BERT embeddings and T refers to TAROT embeddings. Both embeddings serve as plugins during experimentation and serving.

Analysis and Discussions

Task	Job Recommendation			Candidate Recommendation		
Models	AUC	NDCG	MRR	AUC	NDCG	MRR
OF	-	-	-	-	-	-
OF+B	+0.3%	-0.7%	-1.9%	+1.8%	+0.6%	+0.6%
OF+T	+6.0%	+12.9%	+6.0%	+5.5%	+4.3%	+4.5%

[1] OF: Online Features, B: BERT embeddings, T: TAROT embeddings

Table 2. Online experiment results.



(a) TAROT embeddings.

(b) BERT embeddings.

Figure 2. Comparison between TAROT and BERT embeddings.