

Diversed Model Discovery via Structured Table Discovery

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Code



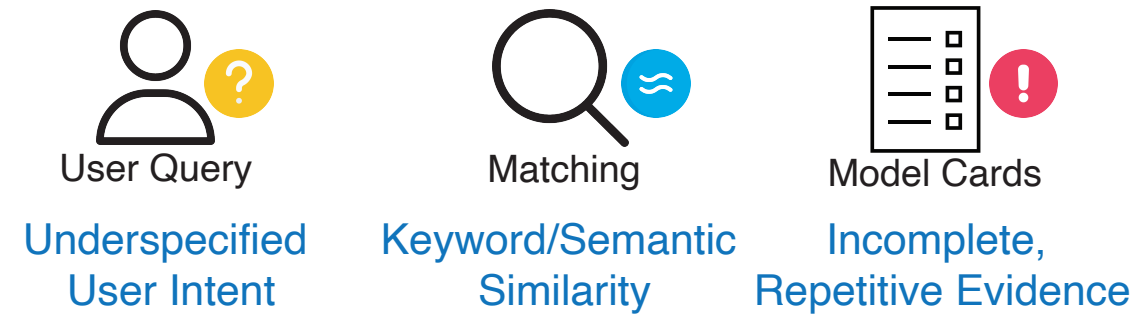
Paper



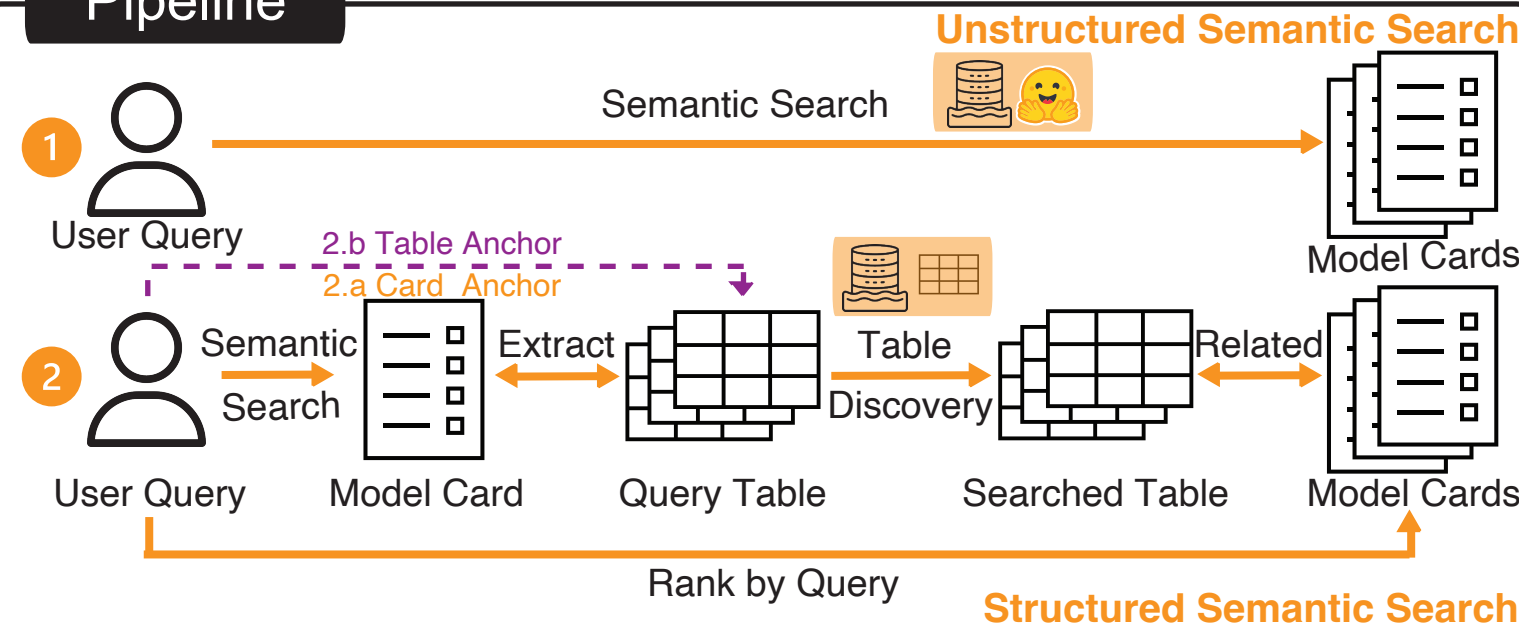
Video

Motivation

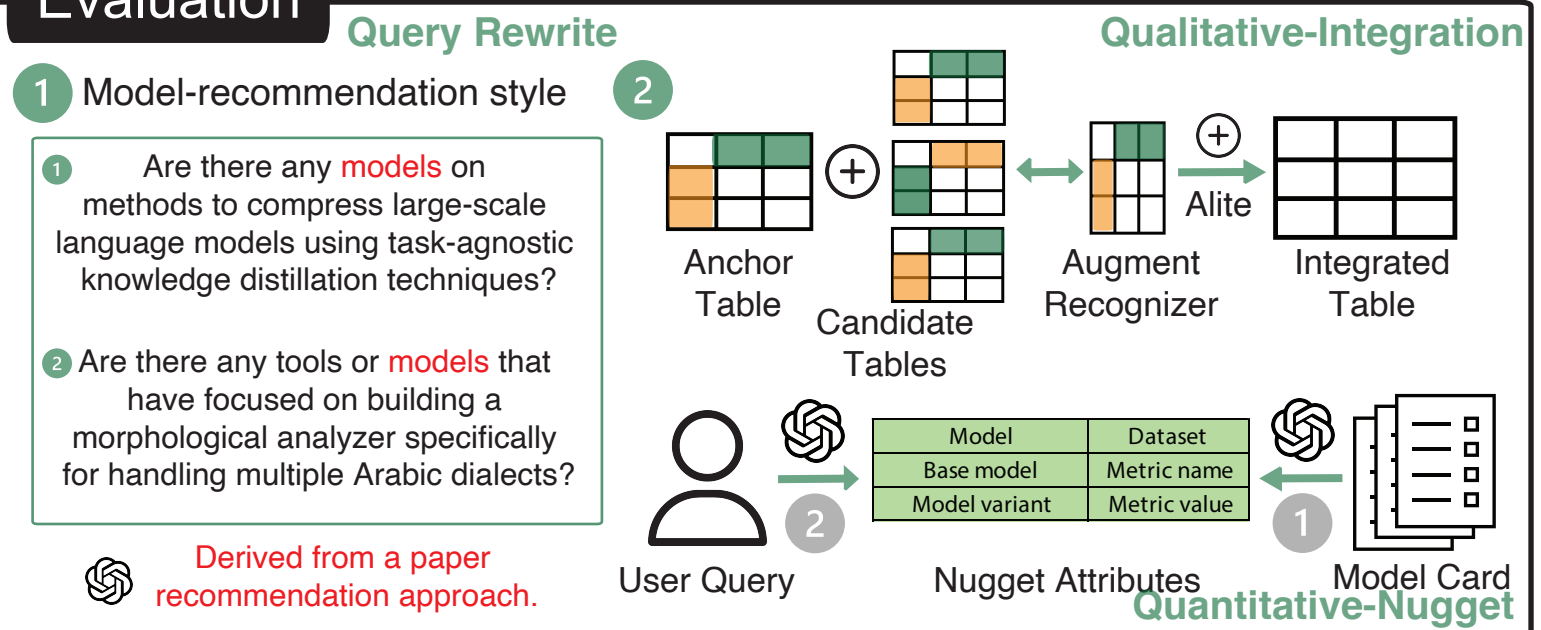
Card-based search misses implicit intent and favors textually similar models.



Pipeline

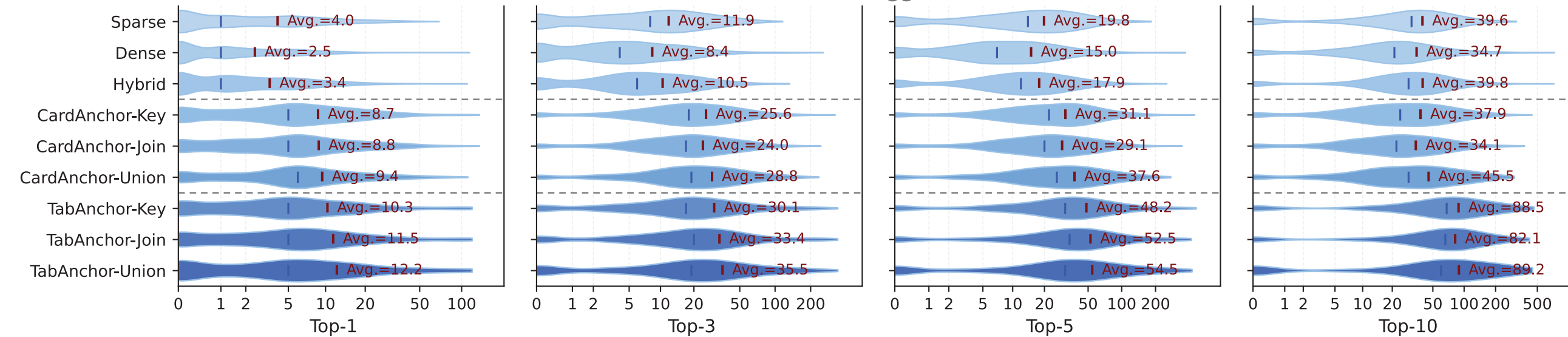


Evaluation



Quantitative Results

Distribution of nugget count



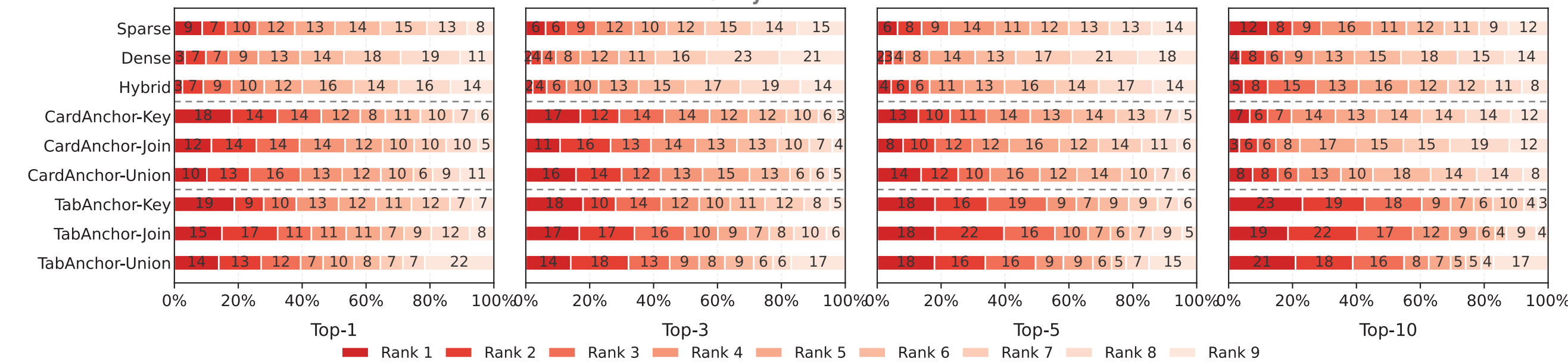
Takeaway: Table-anchored retrieval consistently provides the highest mean nugget coverage across all top-k budgets.

Findings: Dominance across budgets: Every TabAnchor variant outperforms every CardAnchor and text baseline at all top-k.

Union performs best on average: TabAnchor-Union achieves 3.05x, 2.98x, 2.75x, and 2.24x the best text baseline at top-1/3/5/10.

Anchor choice matters at depth: At top-10, TabAnchor-Union achieves 1.96x the coverage of the best CardAnchor method.

Query-level rank outcomes



Takeaway: Table-anchor methods dominate Rank-1 outcomes, although the leading operator varies with retrieval depth.

Findings: Top-1/3: TabAnchor-Key ranks first most often, for 19% and 18% of queries.

Top-5: All three TabAnchor operators tie, each ranking first for 18% of queries.

Top-10: TabAnchor-Key leads at 23%, followed by Union at 21% and Join at 19%.

Case Studies

Which image classification models are lightweight enough for deployment on edge devices?

Table Top K: 0 to 5

Model Top K: 0 to 10

Search

1 Query2Card Results

Dense 3 models

timmm/edgenext_small.usi_in1k

timmm/edgenext_base.usi_in1k

qualcomm/MobileNet-v3-Large-Quantized

Unionable 3 models

qualcomm/MediaPipe-Face-Detection-Quantized

qualcomm/QuickSRNetLarge-Quantized

qualcomm/Midas-V2-Quantized

Sparse 3 models

xintaozhen/MiniVLA

NexaAI/gemma-3n

sagea-ai/VORA-L1

Joinable 3 models

qualcomm/MobileNet-v3-Large

Mungert/DeepSeek-R1-Distill-Qwen-32B-GGUF

EleutherAI/deep-ignorance-strong-filter-pt-weak-filter-anneal-cb

Hybrid 3 models

qualcomm/MobileNet-v3-Large-Quantized

qualcomm/MobileNet-v2-Quantized

qualcomm/Inception-v3-Quantized

Keyword 3 models

qualcomm/MNASSNet05

qualcomm/Mobile_Vit

qualcomm/AOT-GAN

1 Anchor Card Table

ModelId: qualcomm/MobileNet-v3-Large-Quantized, Stats: 32 rows x 9 cols

Model	Device	Chipset	Target Runtime	Inference Time (ms)	Peak Memory Range (MB)	...
MobileNet-v3-Large	Samsung Galaxy S23	Snapdragon@ 8 Gen 2	TFLITE	0.35 ms	0 - 33 MB	...
...	...	...	...	...	...	...

2 Query2Tab2Card Unionable Search

Query Table. Related ModelId: qualcomm/MobileNet-v3-Large-Quantized

Model	Device	Chipset	Target Runtime	Inference Time (ms)	Peak Memory Range (MB)	...
MobileNet-v3-Large	Samsung Galaxy S23	Snapdragon@ 8 Gen 2	TFLITE	0.35 ms	0 - 33 MB	...
...	...	...	...	...	...	...

Stats: 32 rows x 9 cols

Top-1 Table. Related ModelId: qualcomm/MediaPipe-Face-Detection-Quantized

Model	Device	Chipset	Target Runtime	Inference Time (ms)	Peak Memory Range (MB)	...
FaceDetectorQuantizable	Samsung Galaxy S23	Snapdragon@ 8 Gen 2	TFLITE	0.262 ms	0 - 11 MB	...
...	...	...	...	...	...	...

Stats: 64 rows x 9 cols

Top-2 Tables. Related ModelId: qualcomm/Midas-V2-Quantized

Model	Device	Chipset	Target Runtime	Inference Time (ms)	Peak Memory Range (MB)	...
Midas-V2	Samsung Galaxy S23	Snapdragon@ 8 Gen 2	TFLITE	1.061 ms	0 - 133 MB	...
...	...	...	...	...	...	...

Stats: 32 rows x 9 cols

Top-3 Tables. Related ModelId: qualcomm/QuickSRNetLarge-Quantized

Model	Device	Chipset	Target Runtime	Inference Time (ms)	Peak Memory Range (MB)	...
QuickSRNetLarge	Samsung Galaxy S23	Snapdragon@ 8 Gen 2	TFLITE	1.495 ms	0 - 5 MB	...
...	...	...	...	...	...	...

Stats: 31 rows x 9 cols

Integrated Tables Stats: 159 rows x 9 cols

References

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- Khawwaja, A., Shraga, R., Gatterbauer, W., & Miller, R. J. (2022). Integrating Data Lake Tables. PVLDB 2022.
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