RecoBERT: A Catalog Language Model for Text-Based Recommendations

Itzik Malkiel[1,2], Oren Barkan[1,3], Avi Caciularu[1,4], Noam Razin[1,2], Ori Katz[1,5] and Noam Koenigstein[1,2]

[1]Microsoft
[2]Tel Aviv University
[3]Ariel University
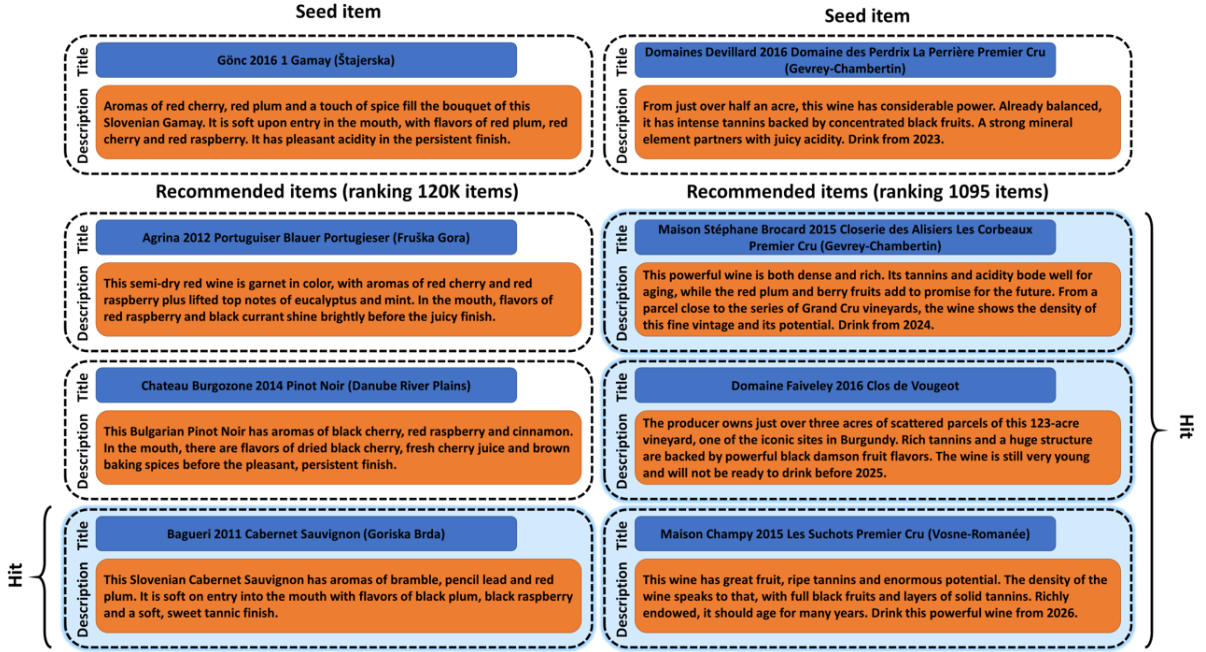[4]Bar-Ilan University
[5]Technion

Appendix

Figure 1: Two representative seeds along with their top three recommended items retrieved by RecoBERT. The left column presents RecoBERT's top three recommendations while ranking the 120K dataset. The right column presents the recommendations for ranking the 1095 expert annotated items. Highlighted recommended items were annotated by the human expert as similar to the seed ("hit").

1 Qualitative Results

Fig 1 exhibits the top three recommendations for two representative wine seeds from the annotated test set, predicted by RecoBERT, while (1) ranking the entire 120K wines in the catalog (left column), and (2) ranking the subset of 1095 annotated dataset (right column). As can be seen in the figure, the third item retrieved by RecoBERT was also annotated by the human wine expert ("hit"). Specifically, for the "Gamay" seed, the origin of the first recommended wine is a neighbor country of the seed's origin, and both items share similar berries aromas and body intensity. The second wine is a Pinot Noir, known as Gamay's "cousin", and shares similar berries aromas. The third item, which is one

out of ten expert annotations for this seed, shares the same seed origin, aromas, and flavors. For the seed "Domaines Devillard", the top three recommendations retrieved by RecoBERT were all annotated by the wine expert. For this seed, all the recommendations share the same aging potential. Also, both the seed, first and third items are Cru wines, sharing the same origin and variety. The origin of the second item is Burgundy, which is considered a high-quality vineyard, similar to Cru.

Fig. 2 exhibits a representative seed from the fashion catalog, along with the top three recommendations ranked by RecoBERT. As can be seen in the figure, the top three recommended items for "V-neck Cashmere Sweater" are (1) consistent with

Seed item

V-neck Cashmere Sweater

Long-sleeved, V-neck sweater in soft, fine-knit cashmere with ribbing at cuffs and hem.

Recommended items

Fine-knit Cashmere Sweater

Fine-knit sweater in soft cashmere with long raglan sleeves and ribbing at neckline, cuffs, and hem.

V-neck Sweater

PREMIUM QUALITY. Fine-knit, V-neck sweater in a soft merino wool blend. Long sleeves and striped ribbing at neckline, cuffs, and hem.

Cashmere Sweater

Long-sleeved sweater in soft, fine-knit cashmere with ribbing at neckline, cuffs, and hem.

Figure 2: Fashion results. A representative seed item associated with the top three recommended items retrieved by RecoBERT.

the sweaters sub-category, (2) comprise the same material or indicated by a "PREMIUM QUALITY" label, and (3) preserve similar style properties, such as V-neck, and ribbing in a few locations on the sweater.