MTEB

Massive Text Embedding Benchmark

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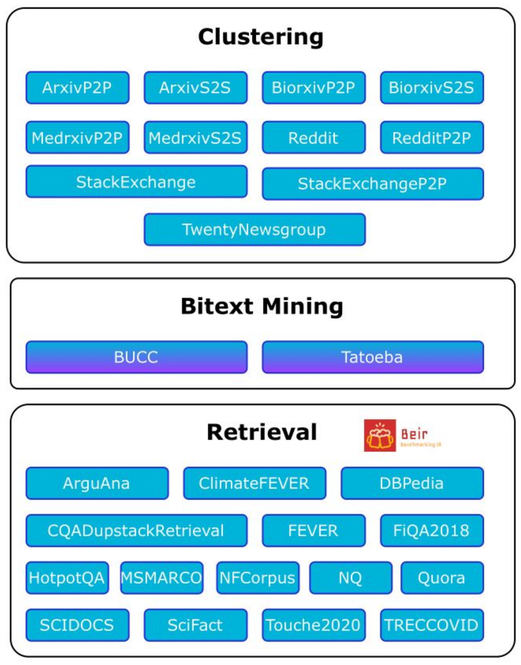
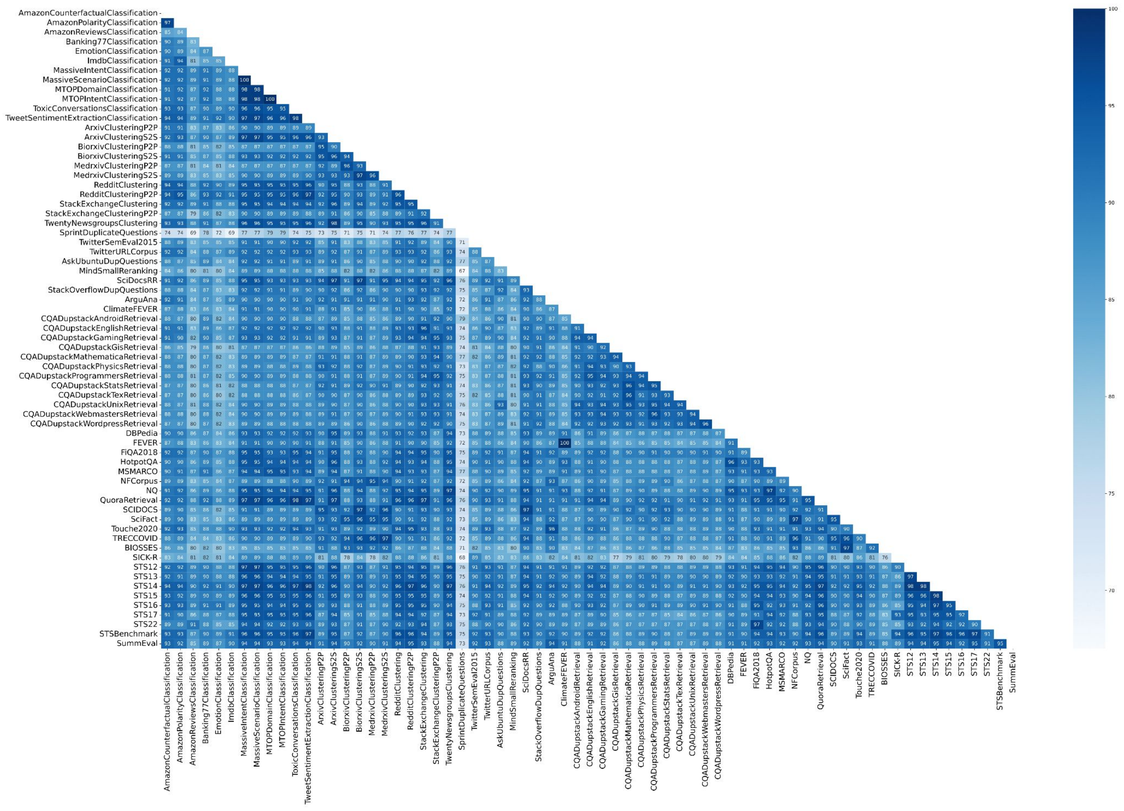
Paper: arxiv.org/abs/2210.07316
Code: github.com/embeddings-benchmark/mteb
Data: hf.co/mteb
Leaderboard: hf.co/spaces/mteb/leaderboard

Hugging Face

co:here

I. A MASSIVE BENCHMARK

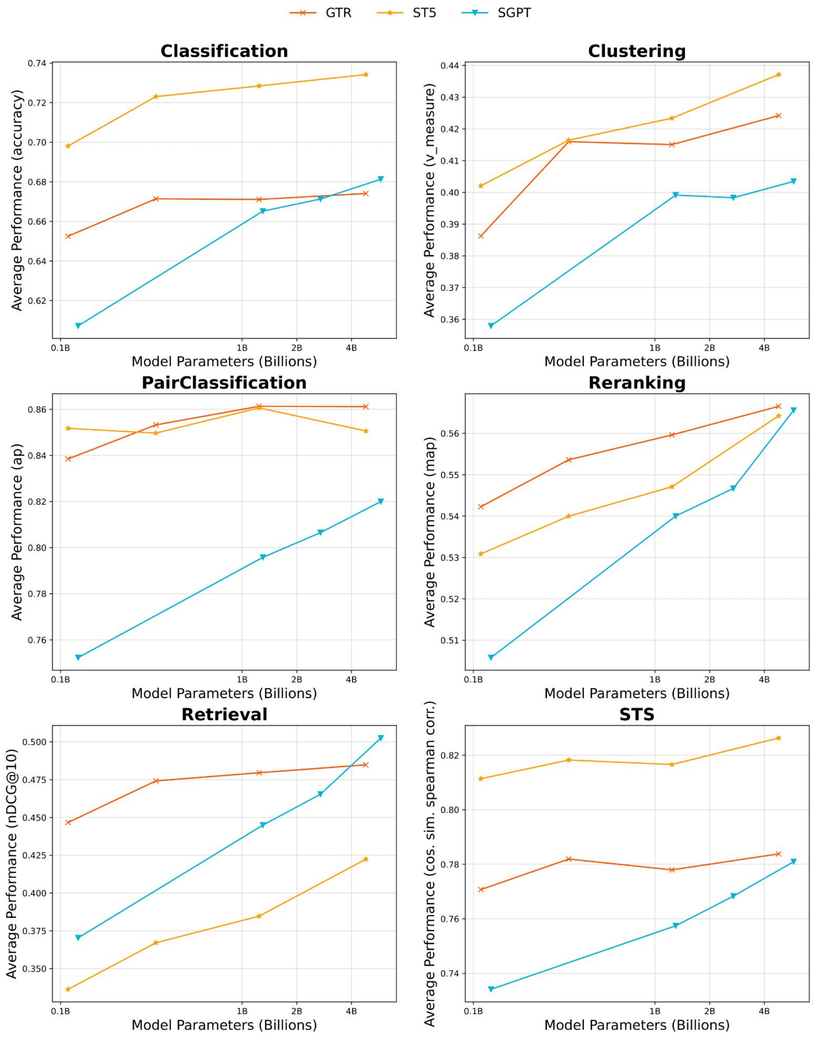




II. MASSIVE BENCHMARKING

Num. Datasets (→)	Class. 12	Clust. 11	PairClass. 3	Rerank. 4	Retr. 15	STS 10	Summ. 1	Avg. 56
Self-supervised methods								
Glove	57.29	27.73	70.92	43.29	21.62	61.85	28.87	41.97
Komninos	57.65	26.57	72.94	44.75	21.22	62.47	30.49	42.06
BERT	61.66	30.12	56.33	43.44	10.59	54.36	29.82	38.33
SimCSE-BERT-unsup	62.50	29.04	70.33	46.47	20.29	74.33	31.15	45.45
Supervised methods								
SimCSE-BERT-sup	67.32	33.43	73.68	47.54	21.82	79.12	31.17	48.72
coCondenser-msmarco	64.71	37.64	81.74	51.84	32.96	76.47	29.50	52.35
Contriever	66.68	41.10	82.53	53.14	41.88	76.51	30.36	56.00
SPECTER	52.37	34.06	61.37	48.10	15.88	61.02	27.66	40.28
LaBSE	62.71	29.55	78.87	48.42	18.99	70.80	31.05	45.21
LASER2	53.65	15.28	68.86	41.44	7.93	55.32	26.80	33.63
MiniLM-L6	63.06	42.35	82.37	58.04	41.95	78.90	30.81	56.26
MiniLM-L12	63.21	41.81	82.41	58.44	42.69	79.80	27.90	56.53
MiniLM-L12-multilingual	64.30	37.14	78.45	53.62	32.45	78.92	30.67	52.44
MPNet	65.07	43.69	83.04	**59.36**	43.81	80.28	27.49	57.78
MPNet-multilingual	67.91	38.40	80.81	53.80	35.34	80.73	31.57	54.71
OpenAI Ada Similarity	70.44	37.52	76.86	49.02	18.36	78.60	26.94	49.52
SGPT-125M-nli	61.46	30.95	71.78	47.56	20.90	74.71	30.26	45.97
SGPT-5.8B-nli	70.14	36.98	77.03	52.33	32.34	80.53	30.38	53.74
SGPT-125M-msmarco	60.72	35.79	75.23	50.58	37.04	73.41	29.71	51.25
SGPT-1.3B-msmarco	66.52	39.92	79.58	54.00	44.49	75.74	30.43	56.20
SGPT-2.7B-msmarco	67.13	39.83	80.65	54.67	46.54	76.83	31.03	57.17
SGPT-5.8B-msmarco	68.13	40.35	82.00	56.56	**50.25**	78.10	31.46	58.93
SGPT-BLOOM-7.1B-msmarco	66.19	38.93	81.90	55.65	48.21	77.74	**33.60**	57.59
GTR-Base	65.25	38.63	83.85	54.23	44.67	77.07	29.67	56.19
GTR-Large	67.14	41.60	85.33	55.36	47.42	78.19	29.50	58.28
GTR-XL	67.11	41.51	**86.13**	55.96	47.96	77.80	30.21	58.42
GTR-XXL	67.41	42.42	86.12	56.65	48.48	78.38	30.64	58.97
ST5-Base	69.81	40.21	85.17	53.09	33.63	81.14	31.39	55.27
ST5-Large	72.31	41.65	84.97	54.00	36.71	81.83	29.64	57.06
ST5-XL	72.84	42.34	86.06	54.71	38.47	81.66	29.91	57.87
ST5-XXL	**73.42**	**43.71**	85.06	56.43	42.24	**82.63**	30.08	**59.51**

Table 1: Average of the main metric (see Section 3.2) per task per model on MTEB English subsets.



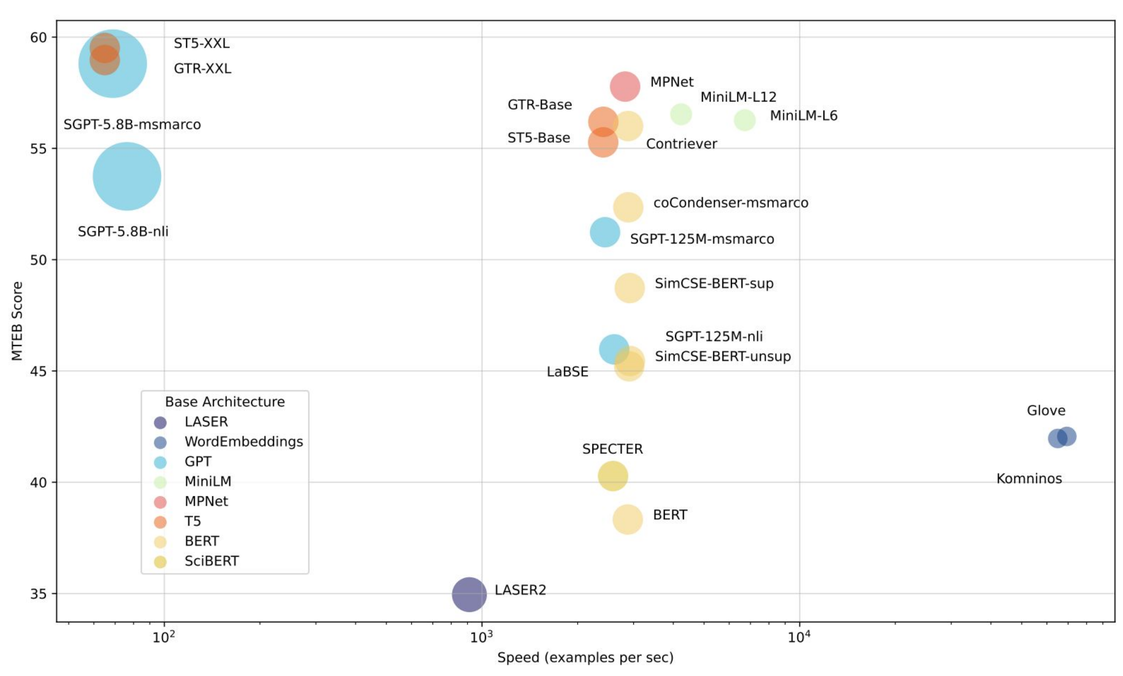


Figure 4: Performance, speed, and size of produced embeddings (size of the circles) of different embedding models. Embedding sizes range from 1.2 kB (Glove / Komninos) to 16.4 kB (SGPT-5.8B) per example. Speed was benchmarked on STS15 using 1x Nvidia A100 80GB with CUDA 11.6.