UNIVERSITÀ DEGLI STUDI DI PADOVA

DIPARTIMENTO DI INGEGNERIA DELL'INFORMAZIONE

A Docker-Based Replicability Study of a Neural Information Retrieval Model

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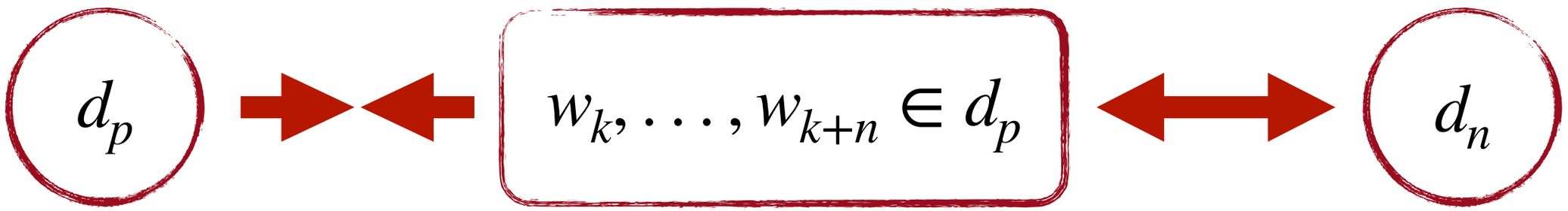
Neural Vector Space Model



Christophe Van Gysel, Maarten de Rijke, and Evangelos Kanoulas. 2018. Neural Vector Spaces for Unsupervised Information Retrieval. ACM Trans. Inf. Syst. 36, 4, Article 38 (June 2018), 25 pages. DOI: https://doi.org/10.1145/3196826.

Results

	MAP	nDCG@100	P@10	Recall
Original	0.150	0.287	0.298	–
OSIRRC run	0.142	0.276	0.288	0.616
CPU (run 0)	0.138	0.271	0.285	0.608
GPU (run 0)	0.137	0.265	0.277	0.610
GPU (run 1)	0.138	0.270	0.277	0.607
GPU (run 2)	0.137	0.268	0.270	0.611

Retrieval results on the Robust04 (T) collection computed with the two shared Docker images of NVSM.

Runs Similarity

	GPU (run 0)	GPU (run 1)	GPU (run 2)	CPU
GPU (run 0)	1.0	0.025	0.025	0.018
GPU (run 1)	0.025	1.0	0.089	0.014
GPU (run 2)	0.025	0.089	1.0	0.009
CPU	0.018	0.014	0.009	1.0

Kendall's τ correlation coefficient values between the runs we computed with the NVSM GPU and CPU Docker images considering the top 100 ranked documents in each run.

Final Remarks

CPU	GPU (run 0)	GPU (run 1)	GPU (run 2)
FBIS3-55219	**FBIS3-55219**	**FBIS3-55219**	**FBIS3-55219**
FBIS4-41991	**FBIS4-7811**	**FBIS4-7811**	**FBIS4-7811**
FBIS4-45469	**FBIS4-43965**	FBIS4-41991	FBIS4-41991
FBIS3-54945	**FBIS3-23986**	**FBIS3-23986**	**FBIS3-23986**
FBIS4-7811	FBIS4-41991	FBIS4-65446	FBIS4-65446

Top 5 documents in the runs computed with the CPU and the GPU. Relevant documents are highlighted in bold.

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Thank you!

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