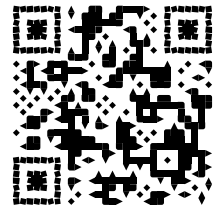




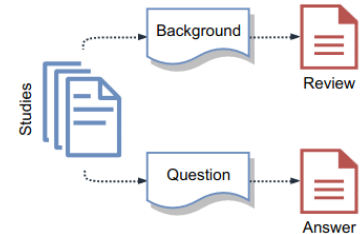
Retrieve-and-Rank End-to-End Summarization of Biomedical Studies

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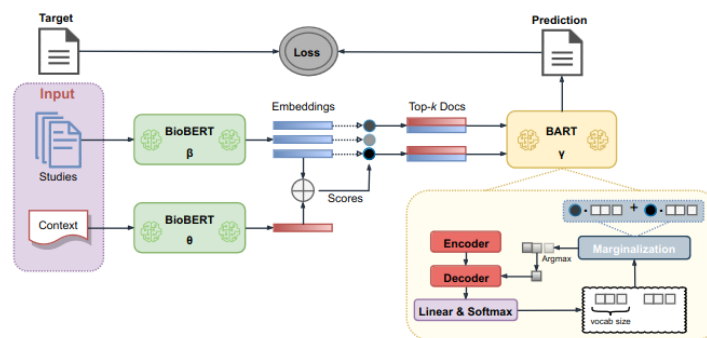


RAMSES - Contributions

- **Applicative domain:** Biomedical context-aware multi-document summarization (CA-MDS).
- **Main problems of competitors:** Limitations of existing retrieval solutions in MDS and unexplored potential of end-to-end applications.
- **Contribution of RAMSES:** Introduction of (i) an end-to-end retrieve-and-rank solution that marginalizes the probability distribution during decoding and (ii) a new dataset (FAQsumC19).



RAMSES - Architecture



- 1 RAMSES is designed as an **end-to-end solution** where all modules learn jointly.
- 2 It retrieves **relevant text** from biomedical articles.
- 3 **Marginalization** is applied to the token probability distribution during decoding to produce a single output from multiple inputs.

FAQsumC19 - Dataset

- **New dataset** introduced in the paper, derived from the **COVID-19 FAQ** section on the WHO website and augmented with scientific articles from the **CORD-19 dataset**.
- Contains **514 COVID-19-related FAQs** with abstractive answers written by experts.
- Each FAQ is supported by **30 abstracts of scientific articles**, totaling 15,420 documents.

Dataset	Samples	S		T	S → T
		Docs	Words	Words	Comp
Ms2	15,597	23.30	9563.95	70.81	135.06
FAQsumC19	514	30	5635.50	139.06	40.53

RAMSES - Results

- ✓ Outperforms state-of-the-art models in biomedical CA-MDS tasks.
- ✓ 76% of answers generated by RAMSES were rated better than those of LED-GAQ.
- ✓ 7.33% of answers by RAMSES were more informative than the 'gold' answers from WHO.
- ✓ Human evaluations indicate room for improvement in the generated answers.

Model	Ms2				FAQSUMC19			
	R-1 _{f1}	R-2 _{f1}	R-L _{f1}	ℳ	R-1 _{f1}	R-2 _{f1}	R-L _{f1}	ℳ
Baselines								
LED-GAQ	26.89	8.91	20.32	18.60	25.55	4.42	13.77	14.47
BART-FiD	27.56	9.49	20.80	19.18	20.26	5.59	14.84	13.51
DAMEN	28.95	9.72	21.83	20.04	23.81	3.50	13.03	13.35
PRIMERA	30.07	9.85	22.16	20.55	25.04	3.64	13.00	13.79
Our								
RAMSES	31.83	10.44	22.19	21.32	30.18	7.31	15.67	17.56