Image Retrieval/Generation for Arguments [Joint Task with ImageCLEF]

Touché'25 Task 3

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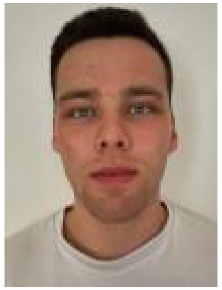

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Task Description

Scenario: Enhance the impact of arguments.

Task: Given an argument, identify images that effectively convey the argument's premise.

- Participants may either retrieve images from a dataset or generate them using a text-to-image model.

Data:
- 128 arguments across 27 topics
- ca. 32,000 crawled images with corresponding website information and additional metadata, including automatically generated captions

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Example

Topic: Public Transportation vs. Private Cars

Claim: Cars make it easy to transport goods and belongings

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Evaluation

- For each argument, two aspects were identified, and each aspect was rated using the following scale:

  0: Aspect does not convey the claim
  1: Aspect partially conveys the claim
  2: Aspect fully conveys the claim

- For each annotator, the aspect scores were aggregated to derive a single rating for an argument-image pair.

- Final score for an argument-image pair is computed by combining the individual ratings from two annotators.

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Example Submission

Argument	Retrieval	Generation
Topic: Public Transportation vs. Private Cars **Claim:** Cars make it easy to transport things **Aspects:** car, transport things	 Source: Web	 Source: Stable Diffusion 3.5

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Example Submission

Argument	Retrieval	Generation
Topic: Public Transportation vs. Private Cars **Claim:** Cars make it easy to transport things **Aspects:** car, transport things		
	Source: Web	Source: Stable Diffusion 3.5

Here both images get a score of two. The two required aspects do not need to be combined in a precise way.

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Results - Retrieval

Rank	Team	Approach	NDCG@5
1	Baseline	CLIP Image	0.855
2	Infotec+CentroGEO	OpenCLIP Image	0.836
3	Baseline	SBERT Website-Text	0.811
4	Infotec+CentroGEO	MCIP Image	0.794
5	Infotec+CentroGEO	SBERT Image-Text+Caption	0.755
6	CEDNAV–UTB	CLIP Image-Caption	0.236

The 'Approach' column specifies how the embeddings for the images were generated and compared with the arguments. For example, 'CLIP Image' indicates that multimodal CLIP embeddings are employed.

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Results - Generation

Rank	Team	Approach	NDCG@5
1	Hanuman	Generative Prompt	0.963
2	Baseline	Stable Diffusion 1.0	0.844
3	Baseline	Stable Diffusion 3.5	0.839

Approaches:

- **Generative-Prompt:** Use an LLM to identify key aspects of the argument and compose a tailored image-generation prompt. For generation Stable Diffusion 1.0 is used.
- **Baseline:** Directly use the arguments themselves as the image-generation prompt.

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Image generation for arguments produces good results, especially when using carefully crafted custom prompts.

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Lessons Learned

- Finding suitable images for arguments is challenging; generation often works better for specific arguments than retrieval.
- Retrieval approaches are constrained by the limited scope of available web sources, which tend to emphasize more general arguments.
- The main challenge for generation approaches lies in combining multiple aspects effectively and depicting elements that should not be displayed.