Engaging Content
Engaging People

Social-media Storytelling Linking

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European Union
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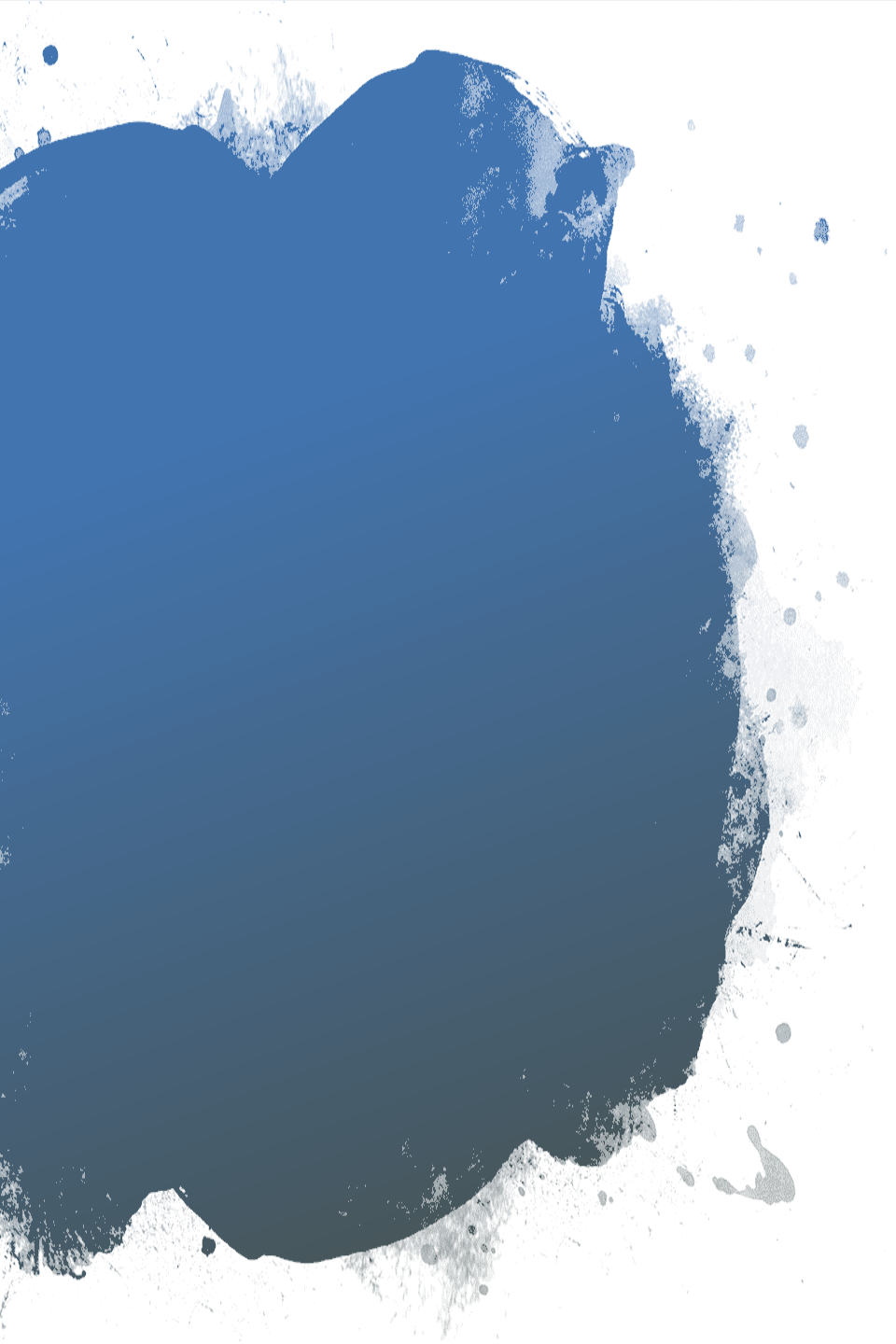

- Task definition
- Challenges & Solutions
- Training
- Searching
- Result

Mercy

PRESENTS

BITES+BREWS+BANDS

FARMERS MARKET PAVILION

Tour France

Story segment 1	Story segment 2	Story segment 3
The Edinbrugh Festival is home to one of the most unique celebrations of arts.	Street circus is a popular attraction at Edfest with peculiar performances such as unicle juggling.	Street circus is full of colorful artists.

Segment 1 illustration	Segment 2 illustration	Segment 2 illustration

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Challenges & Solutions

Lack of training data

Video can’t be concluded by only one sentences.

Challenges

Pre-train + Fine tuning

Video segmentation

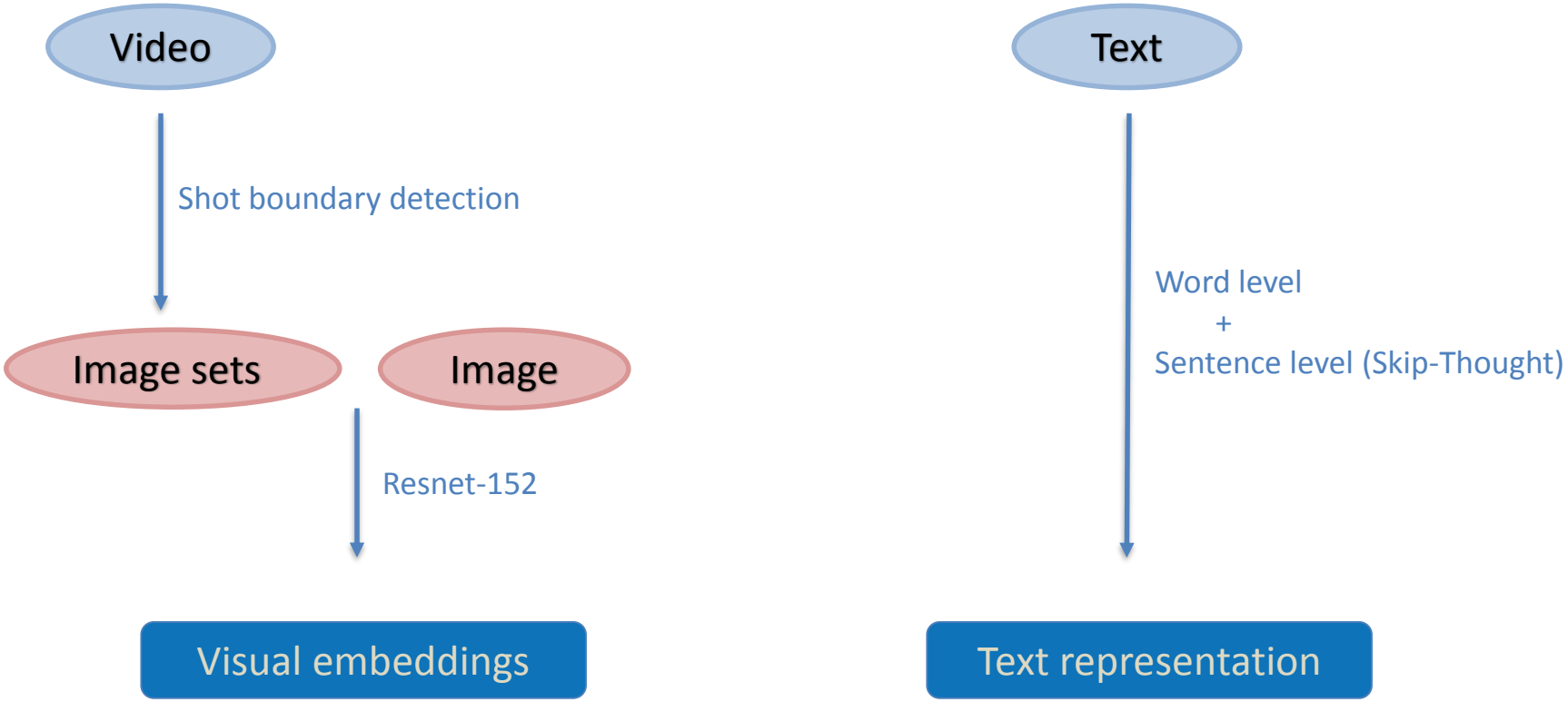
+

Length normalization

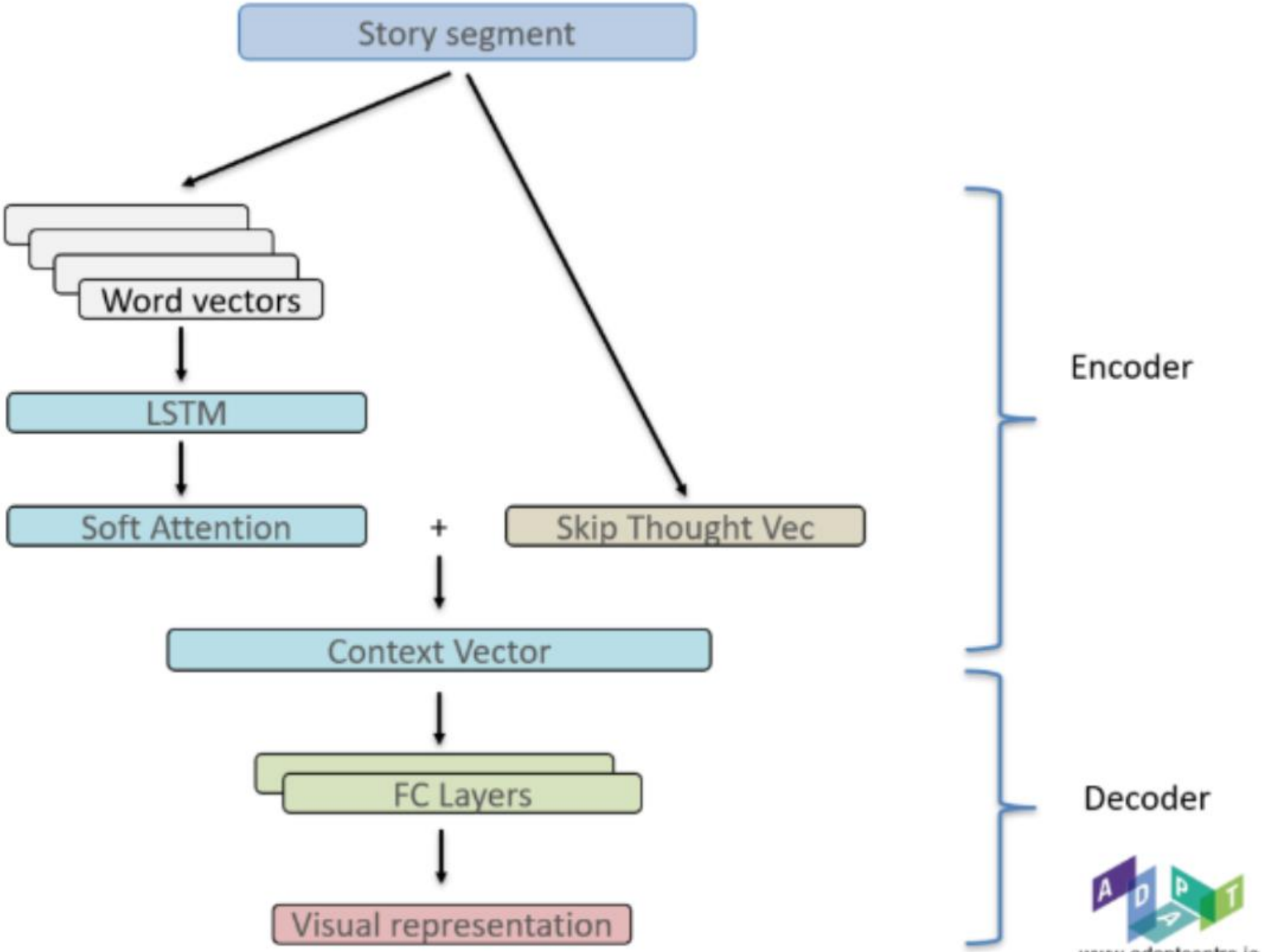
Solutions

Data
pre-processing

	Images	Videos	Queries
Edinburgh Festival	32k	6.2k	60
Le Tour de France	66k	19k	58


Video
Shot boundary detection
Image sets
Image
Resnet-152
Visual embeddings
Text
Word level
+
Sentence level (Skip-Thought)
Text representation

Model overview


Story segment
Word vectors
LSTM
Soft Attention
+
Skip Thought Vec
Context Vector
FC Layers
Visual representation
Encoder
Decoder
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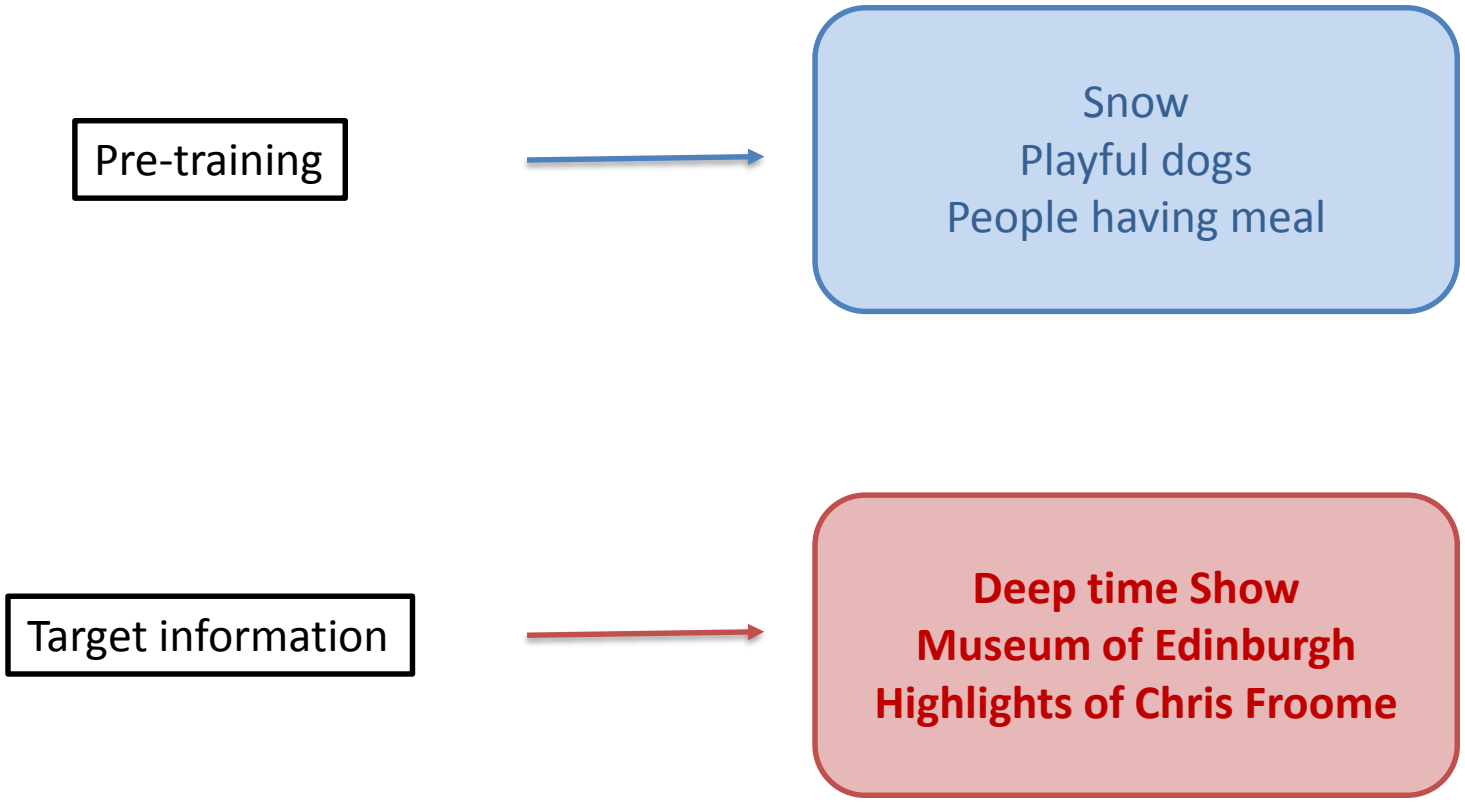
Training


Pre-training
Snow
Playful dogs
People having meal
Target information
Deep time Show
Museum of Edinburgh
Highlights of Chris Froome

Examples

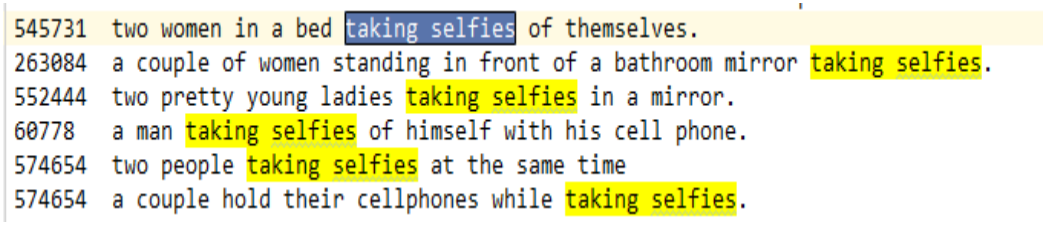
A boy in a dark shirt is reading a book while sitting on a piano bench

Pre-training

Introducing **Flickr30k** (High quality “image”- “text” pairs)

Collecting from source domain:

- Identify keywords from query file.
- Match keywords with data in the source.



E.g. Keyword: **taking selfies**.

Collecting from search engine:

- Collect labels from online image search engine (Google and Bing) using story segments + event name as query.

Model

Target information collecting

Chris Froome pedaling

Snow

Searching

Trade-off between consistency and accuracy

$$R_t = 0.2 * R_{t-1} + 0.8 * M_t$$

(M is the model raw output, R is the modified output)

Search

There are 5 runs submitted. The main difference is the value of λ:

Conf	Run1	Run2	Run3	Run4	Run5
λ	3	5	12	20	50
Source	Google+ Bing	Google	Google	Google	Google

$$\bar{S}_c = S_c * Sig(\frac{\lambda}{\log_2 L})$$

λ used in penalizing long videos;
L denotes number of segments;
Sig() is sigmoid function.

$$Sig(x) = \frac{e^x}{e^x + 1}$$

Search

Results

Summary Quality
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Run1
Run2
Run3
Run4
Run5
Edfest
Tourfrance

Conclusion & Future Work

Target specific information are crucial.

Improve video representations by applying key frame selection (or building sequence model).

Build a classifier to filter crawled images to make this process automatic.

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Thanks for listening.

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