Video Hyperlinking (LNK) TRECVid 2017

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Video Hyperlinking

- Establish links between an ‘anchor’ video segment and ‘target’ video segment(s) in a repository, based on topical relevance

- Or:
  - Content-based, segment level video recommendation
  - Multimodal search using video segment as a query

TRECVID LNK task

- Given a set of manually defined ‘anchors’ in a video collection, provide for each anchor a ranked list of ’target’ videos that are ‘about’ the content in the anchor

- Target requirements:
  - Not in same video as the anchor
  - Targets should not overlap
  - Between 10-120 secs in length

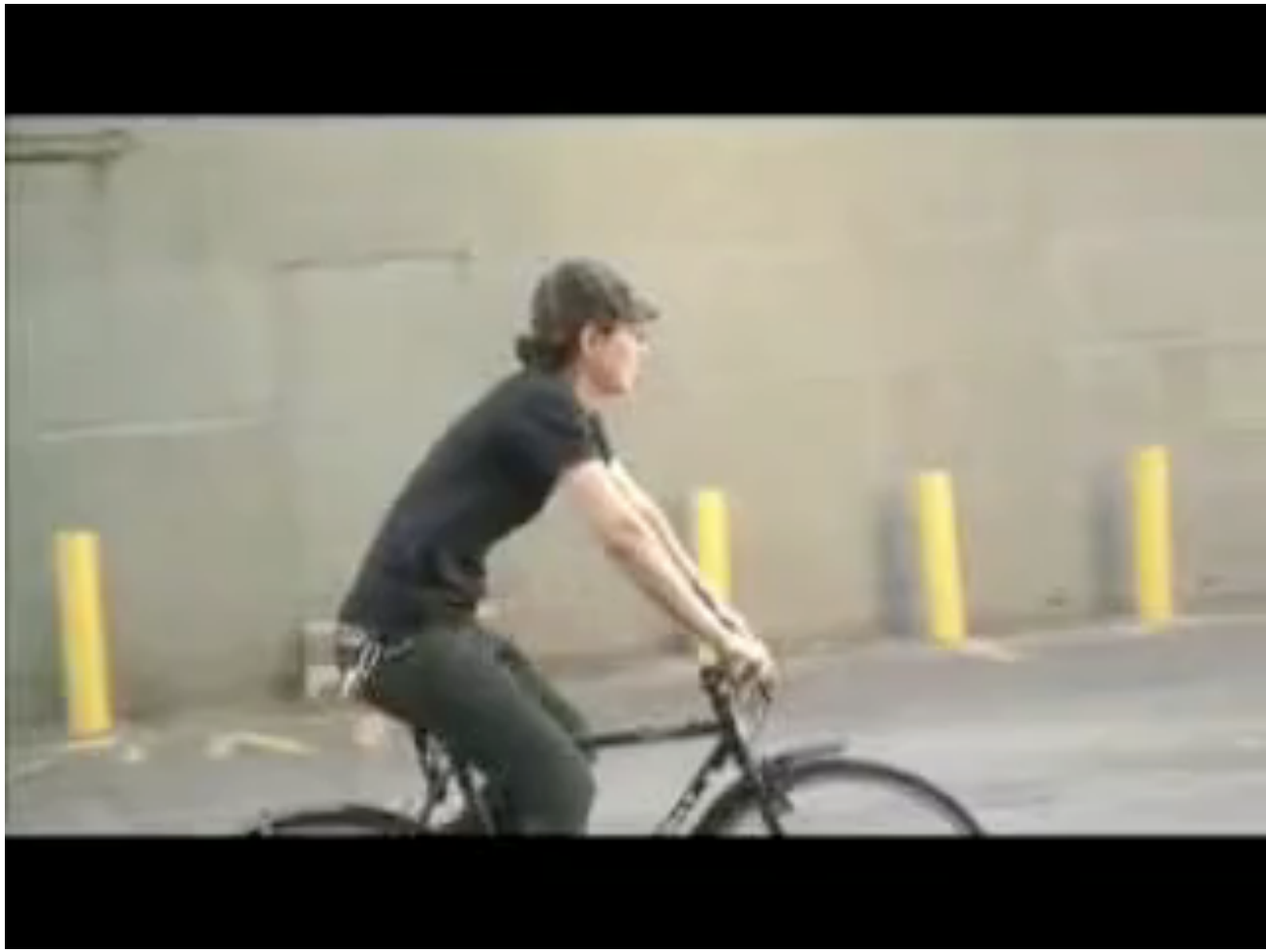
Data set

- Blip10000 dataset : 14,838 semi-professional videos (3288h)

- Shot segmentation (2012)
- ASR transcripts: LIMSI (2012, 2016) and LIUM (2012)
- Visual features (AlexNet): 1000 visual concepts

- 25 anchors, manually selected, defined by video + start/endtime.
- To stimulate multimodal anchors: **select segments in which the producer is using both audio and visuals to convey a message**

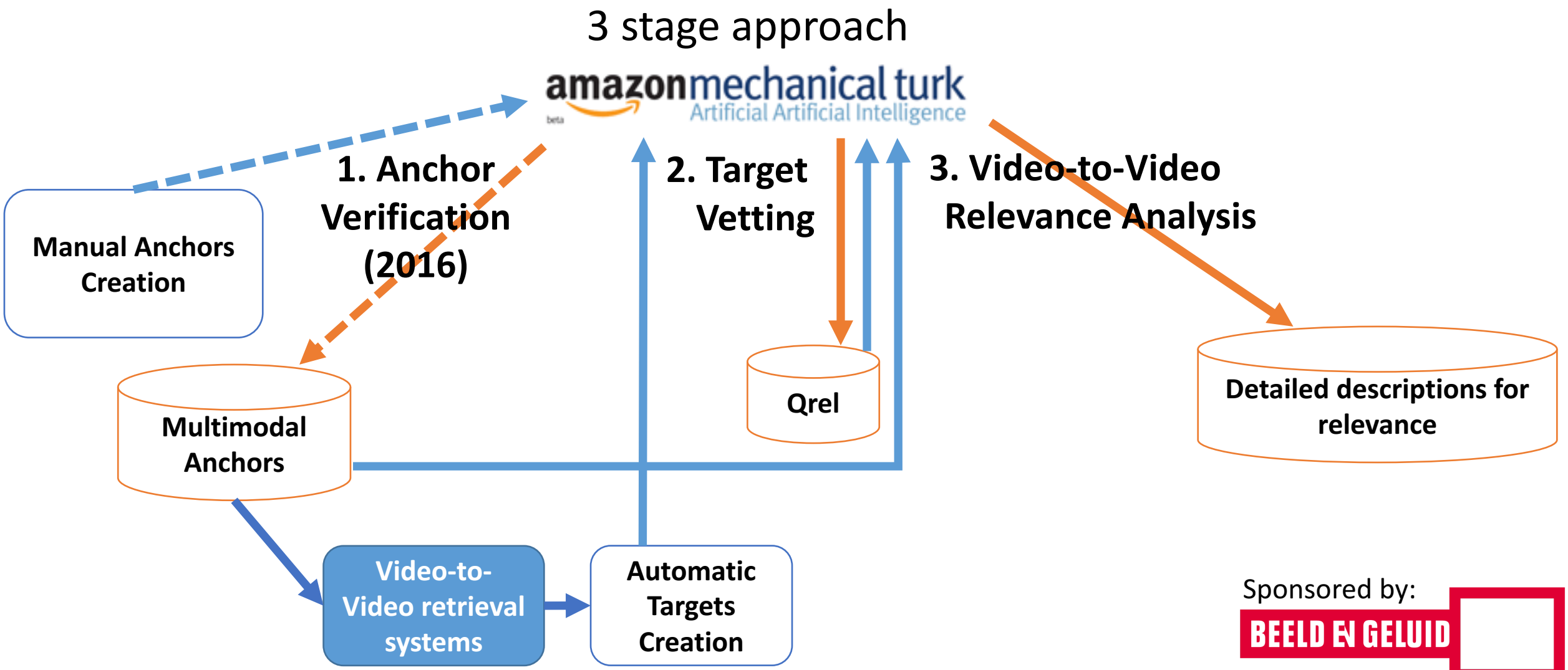
Anchor Example



```
<anchor>
    <anchorId>anchor_126</anchorId>
    <itemId>item_7</itemId>
    <title>Fixing a bike</title>
    <description>I'm looking for other videos that show how to fix a bike</description>
    <characteristic>Both</characteristic>
    <refId>592496f643316916996d91f7</refId>
    <video>vid07338</video>
    <startTime>53.17</startTime>
    <endTime>53.34</endTime>
</anchor>
```

Relevance assessment

Crowd for Insight and Evaluation



Sponsored by:

BEELD EN GELUID

Target Vetting: Forced choice

amazonmechanical turk
Artificial Artificial Intelligence

1) Please make sure that you read all of the descriptions below and then choose the description that you find would be the best match with this video. Note: You might feel your best match is a good or even an excellent match. It is also possible that this question is difficult to answer because none of the choices is a particularly good match. If there is no particular good match, please make a choice the best you can.

- *${}{DescriptionOption1}*
- *${}{DescriptionOption2}*
- *${}{DescriptionOption3}*
- *${}{DescriptionOption4}*
- *${}{DescriptionOption5}*

2) This question allows us to gather feedback on whether the question was difficult to answer.

- I felt the video I chose was a relatively good match. The question was easy to answer.
- I felt that the video I chose was the best possible in the list. It wasn't a particularly good match, and for this reason the question was not easy to answer.

3) Please write 2-3 sentences in the box below to explain your decisions.

1. Choose a description that fits

"I'm looking for other videos that show how to fix a bike"

2. Was it difficult to find a fit?

Case ID	Choice of target description	Feedback on decision making process	Relevance decision
1	Correct	Positive	Relevant
2	Correct	Negative	Manual Check
3	Other	Positive	Non-Relevant
4	Other	Negative	Non-Relevant

Target vetting: details

Case ID	MTurk worker's choice of target description	MTurk worker's feedback on decisionmaking process	Relevance decision	Number of cases
1	Correct	Positive	Relevant	547
2	Correct	Negative	Relevant	3849
3	Other	Positive	Non-relevant	1021
4	Other	Negative	Non-relevant	864

Participants

- Number of registrations : 16
- Number of finishers: 3 (12 runs)

- Minimizing risk in video hyperlinking (**VIREO** - City University of Hong Kong)

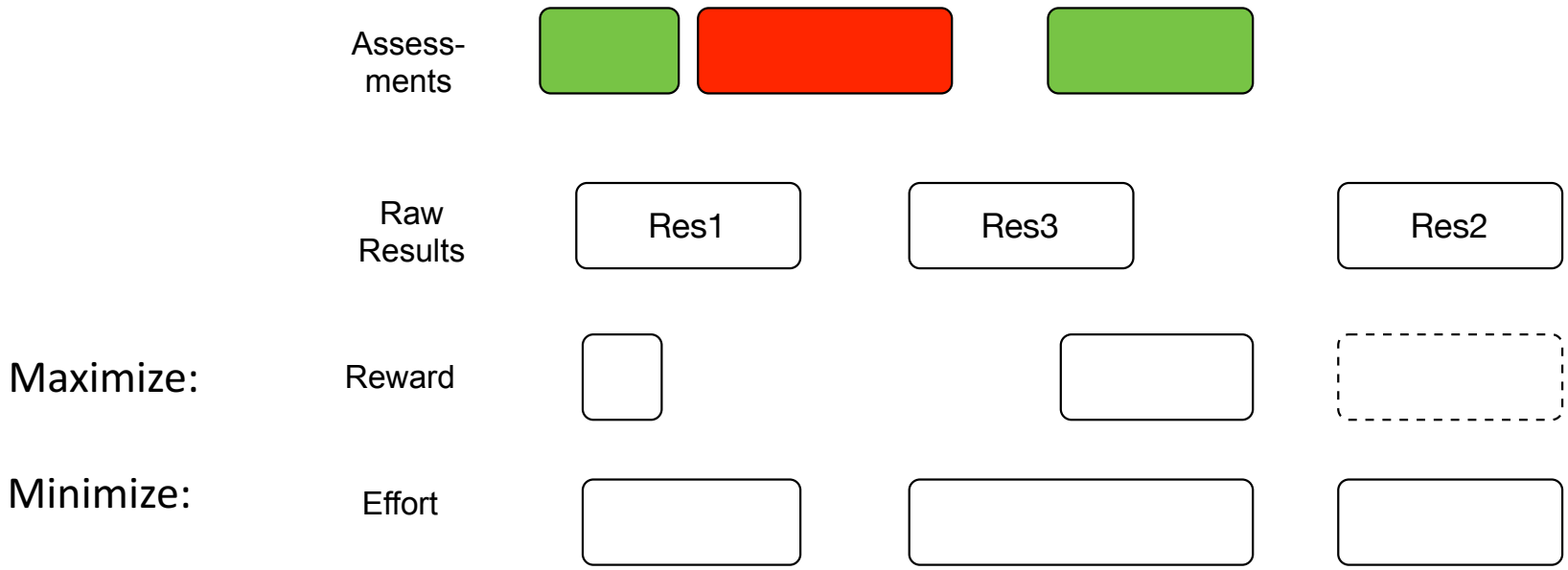
- IRISA at TRECVID2017: Beyond Crossmodal and Multimodal models for Video Hyperlinking (**IRISA** - IRISA, CNRS, INRIA & INSA Rennes, Univ. Rennes 1)

- Eurecom-Polito at TRECVID 2017: Hyperlinking task(**Eurecom-Polito**)

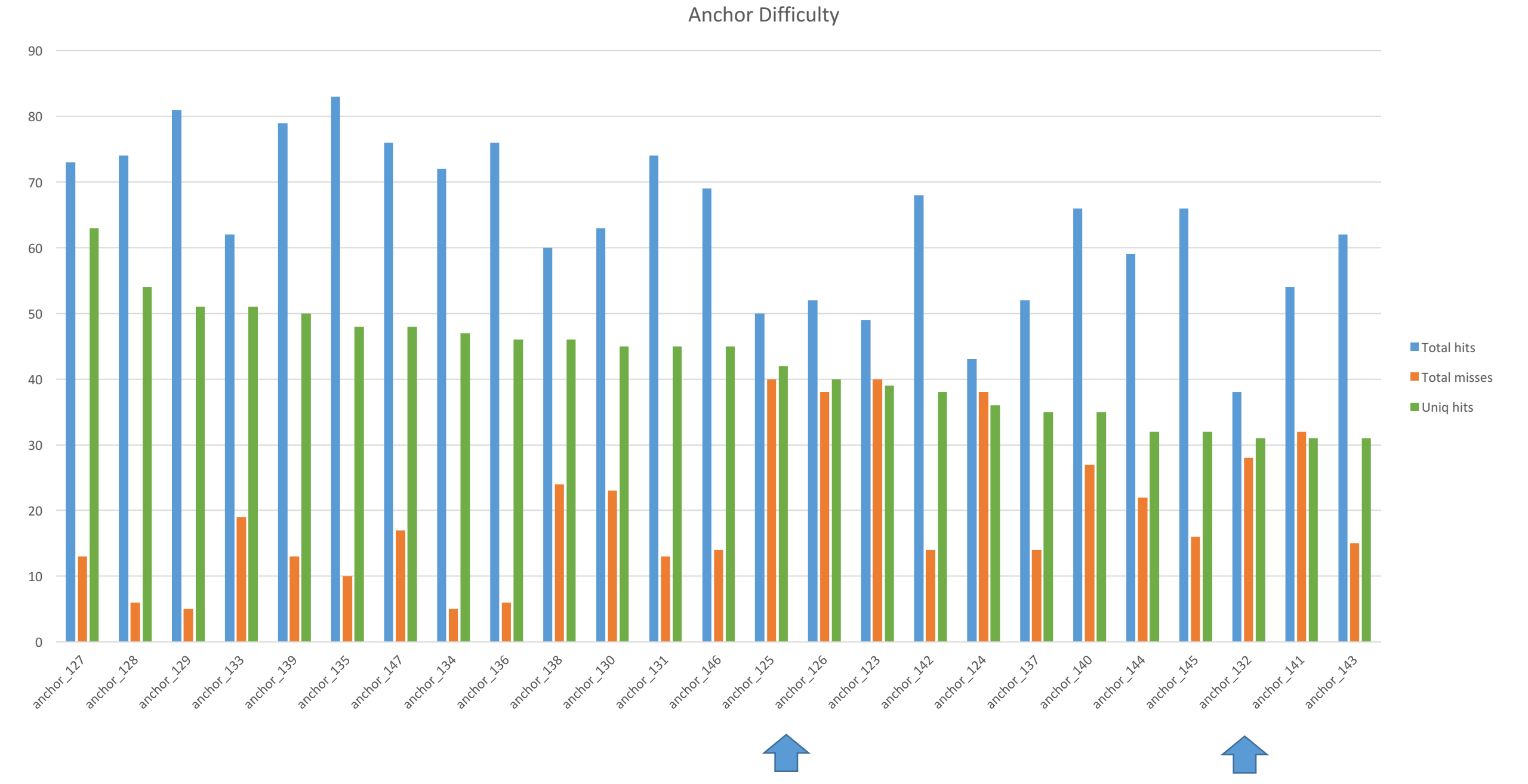
Evaluation metrics

Official metrics

- Precision at rank 5
- Mean Average *interpolated* **Segment** Precision (MAiSP)
  - User **effort**: the number of seconds they must spend auditioning content
  - User **satisfaction**: the number of seconds of new relevant content that they can watch starting from a suggested jump-in point.

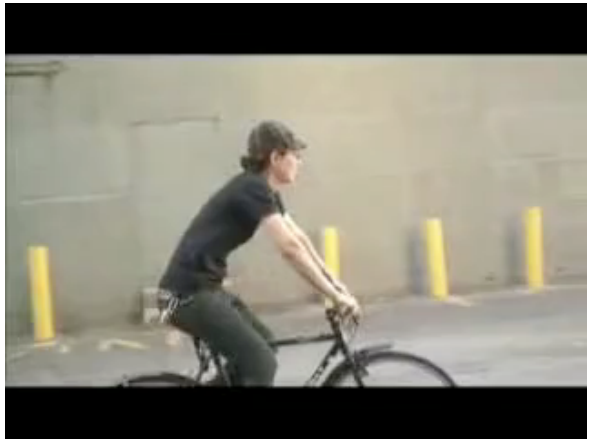


Results


Anchor Difficulty
90
80
70
60
50
40
30
20
10
0
anchor_127
anchor_128
anchor_129
anchor_133
anchor_139
anchor_135
anchor_147
anchor_134
anchor_136
anchor_138
anchor_130
anchor_131
anchor_146
anchor_125
anchor_126
anchor_123
anchor_142
anchor_124
anchor_137
anchor_140
anchor_144
anchor_145
anchor_132
anchor_141
anchor_143
Total hits
Total misses
Uniq hits

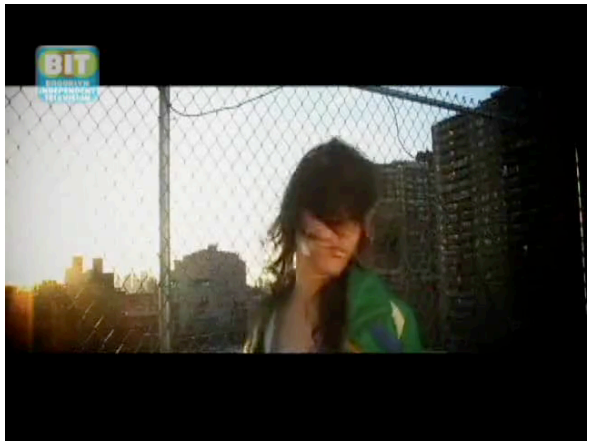
Result examples

126

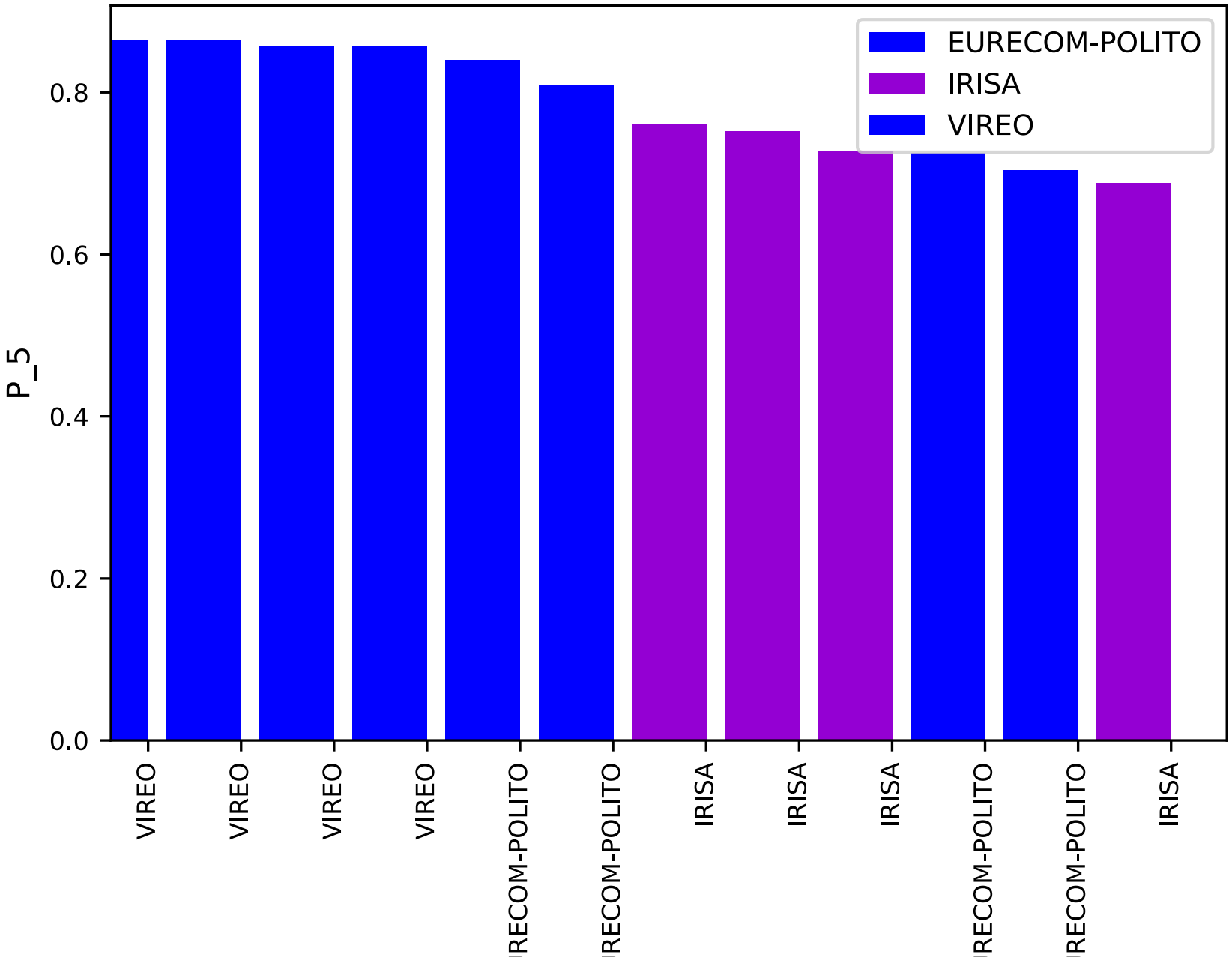


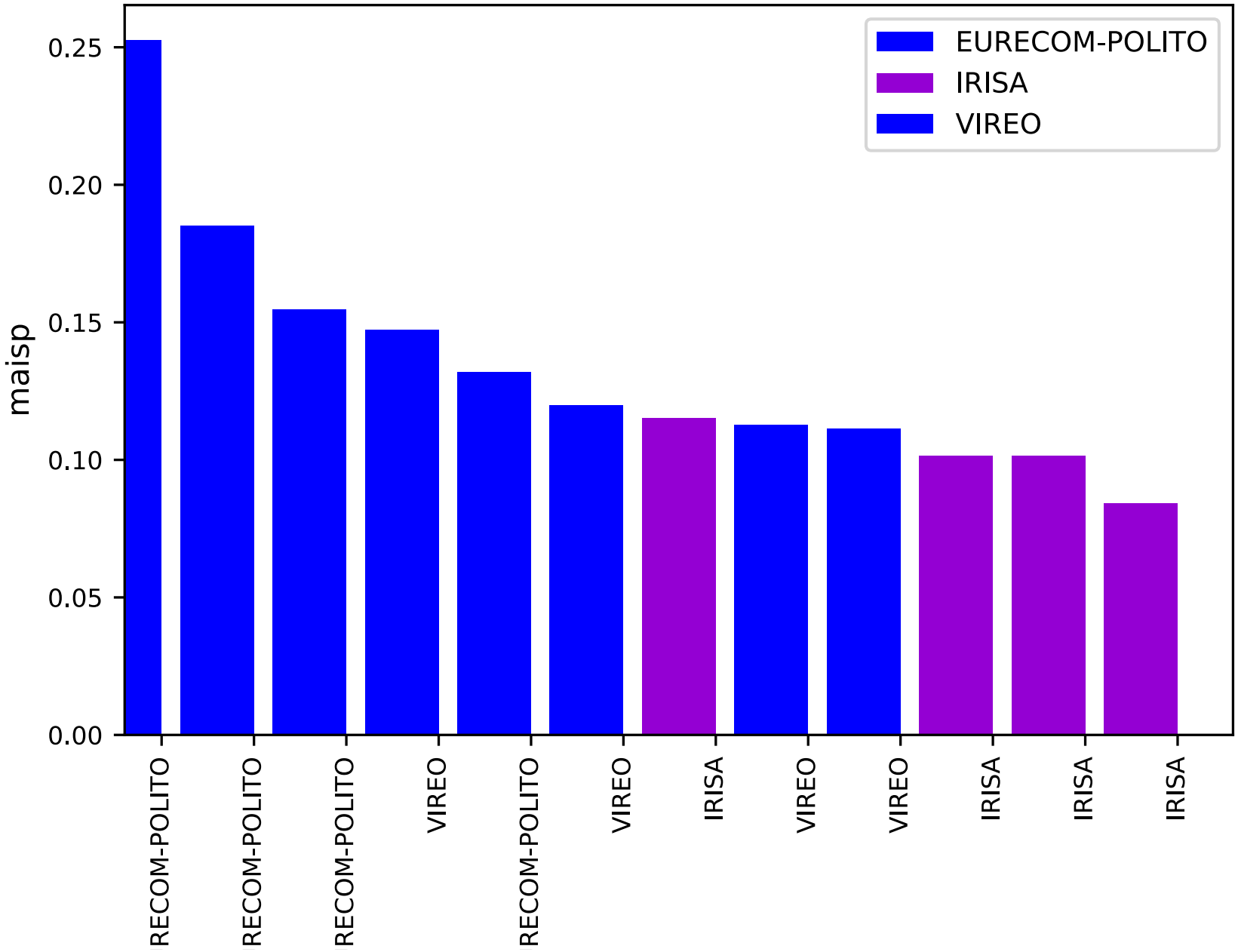
I'm looking for other videos that show how to fix a bike

132



I'm looking for other videos on martial arts


EURECOM-POLITO
IRISA
VIREO
P_5
0.0
0.2
0.4
0.6
0.8
VIREO
VIREO
VIREO
VIREO
RECOM-POLITO
RECOM-POLITO
IRISA
IRISA
IRISA
RECOM-POLITO
RECOM-POLITO
IRISA


EURECOM-POLITO
IRISA
VIREO
maisp
0.25
0.20
0.15
0.10
0.05
0.00
RECOM-POLITO
RECOM-POLITO
RECOM-POLITO
VIREO
RECOM-POLITO
VIREO
IRISA
VIREO
VIREO
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IRISA