A ZOOM FILTER FOR APPLAUSE AND LAUGHTER

Meeting 17.11.21

Where we left off

Parameters:
threshold:
- minimum probability to classify frame as laughter
minimum length:
- minimum length of laughter segment to be identified

Meetings Evaluated: 75
thresholds tried: 4
Experiments with outcome: 1475

threshold	precision	recall
0.2	14.88 %	31.53%
0.4	33.26%	17.85%
0.6	49.81%	8.05%
0.8	63.08%	3.01%

- 29 of 1475 have a precision over 80%
- TODO: plot a distribution
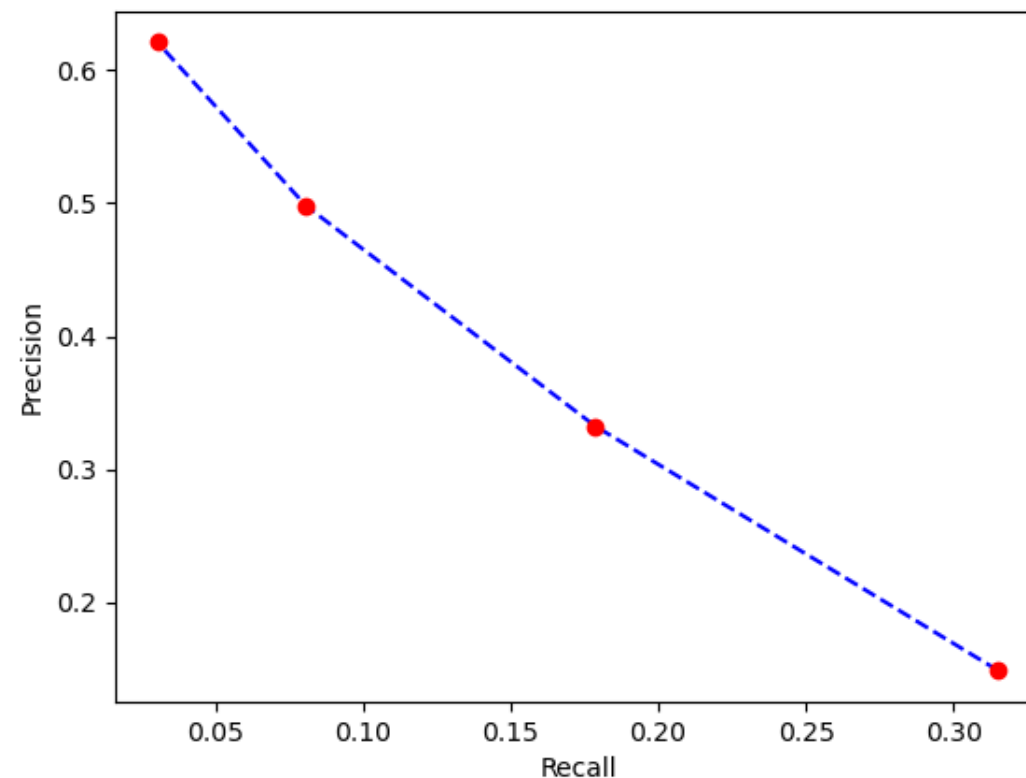
Define the scope

- Thorough evaluation and investigation of Gillick et.
  - Try to understand why recall is quite low for ICSI corpus
  - Possibly retrain on ICSI and evaluate performance
  - Possibly tweak model to achieve better performance on ICSI corpus

- Practical real-time laughter detector
  - First version in python
  - Final version possibly in JavaScript?
    - I don't see myself working with clowdr

Evaluation Findings

- Discarding laughter next to speech segments
  - Significantly improved precision
  - minor improvement in recall

threshold	original method		new method	
	precision	recall	precision	recall
0.2	14.88 %	31.53%	20.44%	37.40%
0.4	33.26%	17.85%	53.84%	20.68%
0.6	49.81%	8.05%	79.68%	8.92%
0.8	63.08%	3.01%	90.44%	3.22%

Practical Example Findings

- average meeting length: 56min

- average laughter length during meeting: 2:06 min

	new method		Laughter in [min:sec]		
threshold	precision	recall	predicted	actual laughter	noise
0.2	20.44%	37.40%	5:03 min	1:08 min	3:55 min
0.4	53.84%	20.68%	1:00 min	0:33 min	0:27 min
0.6	79.68%	8.92%	0:14 min	0:11 min	0:03 min
0.8	90.44%	3.22%	0:04 min	0:04 min	0:00 min

Evaluation Questions

- What's the precision if predicted positives = 0
  - 0/0 is undefined
  - Precision=1 -> one end of the precision-recall curve

- Should I use mean or median?

Real-time/Latency - Factors

- Frame- and Window-size
  - if window=1s we need to wait 0.5s before we start prediction

- Model complexity (includes preprocessing)
  - the more complex the function to calculate the probability the higher the latency

- Computational power of device
  - Feature should be used by end-user -> cannot require GPU

- Programming language

- *Addition by Ondrej: min_length parameter of the model*