Minutes from TRECVid 2008 Event Detection Planning Telecon
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TRECVID Event Detection 2/27 telecon agenda

- Role call
- Old business
        - Discussion of previous calls (if any)
- New business
        - Discuss the new evaluation plan
        - Discuss the "reverse direction" event.
The "reverse direction" event is of interest, however we would like your input into defining it. A discussion about this event in particular will be helpful.
- Schedule next telecon

Review old business.

Paul Over will send information (username and passwords) for each dataset.
David Eichmann -- will set up a mirror with the same username/password.

New business.

Group discussion of the new evaluation plan.
Ciarán Ó Conaire:
Regarding the derivation: there is a cost for missed detection (MD) and false alarms (FA) -
these cost values will determine how systems perform.

Jon Fiscus:
True - these parameters define the target application.
previously, we've either said that MD is worse than FA, or vice versa.
We want to choose a ratio, for example a 10 MD : 1 FA ratio, but we also want to decide this as a community (understanding that the target application is not the same as the real application).

Dave Eichmann:
Given this is an airport security scenario, if looking for weapons, etc., isn't the cost of a miss is high?
This would suggest a target application with high recall vs. high precision (perhaps we should weight MD higher).
This also has an impact depending on number of candidates we generate.
Although FAs are a nuisance, it may be the case that it is "better safe than sorry" (i.e., penalizing missed detections more).

Sadiye:
Yes, number one concern is FA rate.
Systems often do not rely on just one modality (such as video).
There is the problem with having a high FA rate and "crying wolf", which becomes annoying.

Paul:
Are the types of events such that they could be catastrophic if missed?
For example, not worrying about large crowds, rather, is the environment more constrained?

Sadiye:
The systems we have dealt with include perimeter security.
Airports have multiple security check-points, for example, where these are deployed.

Paul:
Has NIST tried to find out the target rates from DHS, etc.?
Airport settings may be different from the target application.
Need the full operating curve -- if picking one set of constants seems wrong, we may be tempted to pick two or three points.
So then what do systems to optimize to?

Jon:
Yes, NIST is investigating what are realistic FA and MD rates.
We may choose one primary characteristic point as the primary condition, and allow others to be explored as contrasts.

Paul:
Regarding the events, we expect these to have similar numbers of occurrences. How similar will these frequencies be?

Jon:
Expect to have within 2 orders of magnitude.
In STD (Spoken Term Detection), for example, there was the following:
-- high frequency vs. low frequency terms
-- bimodal distribution, and each distribution had different characteristics

Paul:
If the event distributions are different, we can analyze them separately.
Can we compare systems if we do this?

Jon:
Yes, we've developed a technique for statistical analysis of DET curves. This will appear in subsequent documentation.

Will NIST give the Beta value expressed in the metric?
Yes - plan to post this in the next couple of weeks.

Ciarán:
Regarding an earlier version of the evaluation slides (20080110-trecvid-event-plan.pdf): it states that systems would emit a confidence score (for decision-error tradeoff analysis). Will average precision still be used?

Paul/Jon:
-- we'll only define a single metric so that all systems optimize to the same error tradeoff.

Jingen Liu:
About the video:
-- can we get video with a clean background?

Jon:
-- this is not available because we are using operational data, which includes only limited calibration info, etc.

Group discussion of reverse direction event.
two problems:
- how to tell when someone reverses vs. milling around?
- how much of an angle does a person need to turn to be considered a "reverse"?

[[See below for the full discussion]]

Outcome:
The "reverse direction" event will be dropped due to the difficulty of defining it adequately. Attention will be focused instead on the event that deals with a person moving through a door opposite to the normal flow of traffic, where "normal flow" is defined.

Action items (NIST):
- Add list of things to resolve to the evaluation plan.
- Investigate the relative importance of false alarms vs. missed detections in airport security operation.
- Propose a value for Beta that weights false alarms vs. missed detections.
- Next part of evaluation plan will include details of the alignment of system output to ground truth.
- Post Corpora for download.

Action items (Participants)
- Complete evaluation data agreements to receive data.

Telecon adjourn

        Discussion of the reverse direction event

David Eichmann:
given a vector of direction, we need to detect a change:
-- how about 90 degrees?

Jon:
This may not be enough of an angle, for example, when turning to approach the elevator (as in camera 3).

Paul:
We were thinking of something similar, for example, at least 135 degree turns.

Stephanie, LDC:
Keep in mind the annotation burden here; we want to define it so there is good consistency.

Heather, LDC:
What if it's only considered a cross their path?

Dave:
Someone could simply be doing obstacle avoidance.

Sadiye:
Event is a little ambiguous; for example, diverting to go visit a shop is not necessarily going to be a "reverse".

Paul:
How long the person is moving in the opposite direction may be a factor.
Can suggest a change direction event, for example, turning away from a checkpoint.

Dave:
Not more ambiguous than "chatting", as in the event "a group forms".

Heather:
In fact, we've defined the "group forms" event to include communication.
If we define "reverse direction" as going back the way you came it would be easier.

Paul:
Also, moving away from something like a checkpoint is not supported by these camera views.
What about entering and exiting from the same entry point?

Stephanie:
Annotation burden may be difficult given the windowing needed for annotating this dataset:
-- may interact with consistency, so we need to be careful

Sadiye:
Reverse direction depends on the context:
-- there are a lot of benign examples in the middle of a terminal
-- may be more important around secure areas