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Homework 4

(1) Motivation – Why do the authors want to work on this problem

The authors are motivated to work on this problem because multiple object tracking accuracy has only improved 2.4% in the last two years[1]. In their paper they demonstrate that one can achieve state-of-the-art tracking results with only a detection task. As a result of providing better results than complicated tracking specific algorithms the authors allow the research community to better focus on the unsolved challenges in multi-object tracking.

(2) Contributions – What are the accomplishments they achieved in this paper (others did not achieve)?

The authors achieve the following,

- Achieve state-of-the-art tracking results using only a detection task on known datasets.
- None of the dedicated tracking methods specifically targets challenging tracking scenarios thus warranting consideration of the approach being a starting point for a new research direction.

(3) Formulations – How do they solve the problems as mentioned/discussed in the introduction or related literature?

The author use established architectures of Faster R-CNN with ResNet-101 and Feature Pyramid Networks (FPN) on the MOT17Det. By systematically comparing their network to the established ones the authors show none of the dedicated tracking methods perform substantially better than their regression approach. .

(4) Justification – Do the experiments/simulations support their claimed accomplishments?

Yes, their use of known research to achieve leading results along with systematically reviewing existing research and showing how it does not solve MOT problems as effectively warrants their proposal for Tracktor being a starting point for a new research paradigm.

(5) Your Own Thoughts – What are you most impressed with in this paper?

What I found most impressive overall was the authors achieving state-of-the-art results with simpler, yet known, network architectures instead of being tempted to by more complicated and/specialized networks or techniques.

References

[1] Philipp Bergmann, Tim Meinhardt, Laura Leal-Taixe. Tracking without bells and whistles. 2019