TITLE OF YOUR EXTENDED ABSTRACT

Author, A[1], Author, B[2], and Author, C[3]

[1]Institution 1(if applicable)
[2]Institution 2 (if applicable)
[3]Institution 3 (if applicable)
E-mail (corresponding author - mandatory)

1. ABSRACT / INTRODUCTION (mandatory – max. 2000 words)

We thank all the challenge participants for the amazing engagement and great results! To be eligible for the monetary prize, challenge participants need to submit an extended abstract, 2 – 4 pages long, and a training script. The script will be used for results validation purpose only. The extended abstracts of the best 3 submissions will be posted on the workshop website. If you are not among the winning submissions and would like to have your abstract posted, please let us know (we will post selected abstracts). The code will NOT be published. If you would like to make your code publicly available, please arrange a public GitHub repository and reference it in your abstract, e.g., the baseline code can be found on https://github.com/amazon-research/siam-mot

The abstract/ introduction paragraph will typically outline your solution. **For example:** *Our solution is based on SIAM-MOT baseline [1], we further experiment with several hyperparameters such as number of iterations (longer training), range filtering strategies (filtering frames with planned airborne objects above certain range), maximum number of dormant frames (after which a lost track can be re-instantiated), detection score threshold and training from scratch vs. finetuning. Surprisingly, we found that the most effective way to improve the results is to finetune the provided baseline model for additional10K iterations and adjust the detection score threshold to get the maximum HFAR allowed.*

2. METHODS (mandatory)

The methodology must be clearly stated and described in sufficient details and with sufficient references to GitHub repositories and (if applicable) additional datasets you used. Start with the steps in your solution that influenced the performance the most, next describe other things you tried. When writing this part put on a hat of some not familiar with your technique. **Make sure that someone unfamiliar with your technique, but in general familiar with the challenge and deep learning, can reproduce your solution (including retraining the model)**. Please include details of the hardware you used, including the number of GPUs etc. **For example**:

In our experiments, we used the same code as the baseline and only changed the config file (https://github.com/amazon-research/siam-mot/blob/main/configs/dla/DLA_34_FPN_EMM_AOT.yaml). We used only the dataset provided by the challenge (specifically we attached the provided EFS - airborne-challenge-efs-internal-9e16b9ce36b6beef.elb.us-west-1.amazonaws.com) and performed all our experiments on a single AWS p3.x8large ec2 instance. Due to the memory constraints of the 4GPU instance, we set the number of images per batch (SOLVER.VIDEO_CLIP_PER_BATCH) to 4, and adjusted the learning rate to 0.005. … <ADDITIONAL DETAILS MIGHT FOLLOW HERE>… *For fine-tuning we initialized the training with the provided model trained on the AOT dataset and for training from scratch we used the model pretrained on COCO (see https://github.com/amazon-research/siam-mot/blob/main/readme/model_zoo.md for details). …* <ADDITIONAL DETAILS MIGHT FOLLOW HERE>…

3. RESULTS (mandatory)

The findings and arguments of your solution should be explicitly described and supported with appropriate figures and tables (and possibly images). Please include all the relevant parameters that influenced the performance along with a reference to the specific submission you are referring too (i.e., submission ID and URL). **For example:** *Table 1 below includes all the parameters which were altered during the experiments (along with submission ID and URL) and illustrates the conclusion that simple finetuning and score threshold adjustment yields the best performance***.**

Table 1 – ***Tracking performance benchmarking*****. Best** EDR @ HFAR < 0.5 is highlighted with **bold**

Submission ID	EDR	HFAR	Max Dormant Frames	Filter	Iterations Trained	Nms Thresh	Min Score	Trained From Scratch	Url
149878	0.70874	4.40506	3	1200	10K	0.1	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/149878
149143	0.69903	0.68354	3	1200	10K	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/149143
149142	**0.69903**	0.37975	0	1200	10K	0.5	0.98	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/149142
148705	0.71845	1.67089	3	1200	10K	0.5	0.975	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/148705
148427	0.71845	2.88608	2	1200	10K	0.5	0.975	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/148427
148094	0.69903	0.75949	2	1200	10K	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/148094
148006	0.70874	1.59494	0	700	25K	0.5	0.985	Yes	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/148006
147999	0.68932	0.22785	0	1200	10K	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/147999
147564	0.70874	6.83544	2	1200	10K	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/147564
147198	0.69903	0.68354	3	1200	10K	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/147198
145077	0.6699	0.4557	0	1200	0 (Baseline)	0.5	0.985	No	https://www.aicrowd.com/challenges/airborne-object-tracking-challenge/submissions/145077

4. CONCLUSION (NOT mandatory)

If you would like to summarize your work, you may include this additional section. Conclusions might include the principles and generalisations inferred from the results, any (if applicable) exceptions to, or problems with these principles and generalisations, other implications of the work, and conclusions drawn.

5. ACKNOWLEDGMENT (NOT mandatory)

This section allows the authors to express appreciation for sponsors / resources used. **For example:**
This abstract is based on Extended Abstract Template https://swat.tamu.edu.
The experiments and results mentioned above are contributed by the challenge participant, Kat He.

6. REFERENCES (recommended)

Beyond mentioning your resources in the text, it is recommended to include those in a specific Reference section. References will list all the resources (e.g. papers, GitHub respositories) in the alphabetical order. The papers will begin with the authors' names and initials, followed by the paper's title and the name of the conference/ journal. **For example**:

[1] B Shuai, A Berneshawi, X Li, D Modolo, J Tighe. *SiamMOT: Siamese Multi-Object Tracking;* In CVPR 2021

[2] Official implementation of SIAM-MOT https://github.com/amazon-research/siam-mot

7. APPENDINX - POSSIBLE COMPONENTS IN YOUR TEXT (FYI)

4.1 Equations

Equations should be ideally centered and numbered consecutively, as in Eq. [1]. An alternative method is given in Eq. [2] for long sets of equations where only one referencing equation number is wanted.

$$F((A-b_n)^2, c_n^2, D) = \frac{1}{(23\pi)^{1/3}} \int \frac{d^3 b_n}{3\omega_i} \delta^4 (A - b_n - D + c_n) \quad [1]$$

where,

$$A = \left[E_{11} E_{12}{}^* E_{21}{}^* E_{22} \right] - \left[E_{12} E_{13}{}^* E_{22}{}^* E_{23} \right] \quad [2]$$

7.2 Tables and figures

Tables and figures should ideally appear in one column of a page and be numbered consecutively. Figures and texts may appear on the same page, and a caption should appear directly beneath the figure. **On figures showing graphs, both axes must be clearly labeled (including units if applicable)**. Please make sure that pictures are sharp enough (clearly understood).

7.3 Footnotes

Footnotes are denoted by a character superscript in the text [b].

[b] Just like this one.