

Cairo, Egypt.
Date: January 5, 2024

Dear Sir,

Good day, I hope you are doing fine.

I am pleased to submit our research manuscript titled "*Leveraging Attention for Improved Discriminative Correlation Filters in Single Object Tracking*" for your consideration for publication in the valuable journal "Wireless Personal Communications". We believe that the findings presented in this manuscript contribute significantly to the field of visual object tracking and offer innovative solutions to address existing challenges.

Correlation filter-based trackers have demonstrated impressive results in the realm of visual object tracking, surpassing classical trackers in various benchmarks. Nevertheless, the accurate tracking of objects experiencing deformation, rapid motion, or occlusion remains a significant challenge. The cyclic suggestion of training samples in correlation filter tracking often results in undesirable boundary effects, leading to a reduction in tracking efficiency. To overcome such challenges, this manuscript proposes a novel hybrid attention-based correlation filter approach, referred to as Att-DCF, designed for robust object tracking. The proposed tracker involves the development of a discrimination filter and the reduction of limitations related to irrelevant features. The proposed Att-DCF tracker is rigorously evaluated using recent and standard datasets, including OTB-100, Temple-Colour128, and UAV123. Comparative analysis against the baseline DCF tracker reveals improvements in terms of both metrics area under the curve (AUC) and precision. The proposed Att-DCF tracker outperforms the recent version of the baseline tracker by an average improvement of 2.71% and 1.38% using the OTB-100 dataset, 3.99% and 3.43% using the Temple-Colour128 dataset, and 4.72% and 1.76% using the UAV123 dataset, respectively. The proposed Att-DCF tracker is also compared to the most recent trackers yielding significant enhancements.

We believe that the innovative nature of this research, along with its demonstrated improvements in tracking accuracy and efficiency, aligns well with the scope and objectives of the valuable journal "Wireless Personal Communications". The inclusion of this work in your esteemed journal would contribute valuable insights to the field of object tracking and provide a substantial step forward in addressing the challenges associated with correlation filter-based tracking methodologies.

Thank you for considering our submission. We are enthusiastic about the possibility of having that work reviewed and published in the valuable journal “Wireless Personal Communications”.

Sincerely,

Mohamed Mahmoud Fouad, Prof. Dr.

Head of Computer Science Department,

Faculty of Information Systems & Computer Science,

October 6th University, Giza, Egypt.

mmafoad.cs@o6u.edu.eg