View Meta-Reviews

Paper ID
1384

Paper Title
Auditing saliency cropping algorithms

Track Name
Applications - Round 2

META-REVIEWER #1

META-REVIEW QUESTIONS

1. [Meta Review] Please enter your meta-review here. Your report should address the key points brought up by the reviewers, and summarize any ensuing discussion. You should provide enough information that the authors understand the reasons for the recommendation. Particularly if there are split reviews, explain how you made your decision by pointing to specific comments by the reviewers.
The paper received three reviews: Weak Reject, Strong Accept, and Borderline. All reviewers see strengths of the paper, but reviewers disagreed as to the significance of the contribution. The ACs discussed the paper at length and decided that the paper was an interesting contribution suitable for WACV.

2. [Recommendation] Please make a recommendation for the paper based on the discussion in the AC-Triplet meeting.
Accept

META-REVIEWER #2

View Reviews

Paper ID	1384
Paper Title	Auditing saliency cropping algorithms
Track Name	Applications - Round 2

Reviewer #1

Questions

1. PAPER SUMMARY What is the paper about? Please, be concise (2 to 3 sentences).
This paper audits saliency cropping algorithms from three prominent technology platforms—Twitter, Google and Apple—focusing on two areas of inquiry; male-gaze-like artifacts, and racial and gender-based biases observed in post-cropped images. This study aims to provide a systematic framework for assessing the risks of the afore-mentioned bias and a new dataset was curated for the purpose of this study. Findings showed that all three saliency cropping frameworks exhibit racial and gender biases while Twitter's saliency cropping framework uniquely elicits high male-gaze cropping prevalence rates.

1. PAPER STRENGTHS Please discuss, justifying your comments with the appropriate level of details, the strengths of the paper (i.e. novelty, theoretical approach and/or technical correctness, adequate evaluation, clarity, etc).
1) A dataset was curated for the purpose of studying the risk of race and gender bias and MGL artifacts in the saliency algorithms.
2) An interesting discovery is that all the three saliency frameworks exhibit significant racial and gender biases and this findings can be useful to prompt researchers to look into reducing this bias for future research on image saliency.

1. PAPER WEAKNESSES Please discuss, justifying your comments with the appropriate level of details, the weaknesses of the paper (i.e. lack of novelty – given references to prior work-, lack of novelty, technical errors, or/and insufficient evaluation, etc). Note: If you think there is an error in the paper, please explain why it is an error.
1) There is little novelty and technical contribution from the computer vision aspect. The contribution is more from the analytics aspect of the saliency algorithm, which I think may be more suited for more general AI / Analytics conferences.
2) Besides, from my opinion, the findings on the MGL artifacts are not quite insightful, to be of interest to the computer vision community. For example, the finding on "male-gaze cropping phenomenon" in Twitter's but not in Google's or Apple's cropping method is quite expected because Twitter uses DeepGaze for its saliency algorithm which is trained based on human gaze data.
3) For the fourth criterion used for the dataset curation, it is not clearly stated why an image should contain a background littered with corporate and event logos. The purpose of this criterion is likely to ensure it's taken in a consensual public setting. However, this may be a drawback since the saliency mechanism will likely detect the background logos as salient objects (as in the presented results) and that might interfere with the study on the bias.
4) From the analysis provided to answer questions Q1 and Q2, it is still not clear what are the underlying explanation for the male-gaze-like (Q1) artifacts and whether these MGL cropping observations on Twitter is just artifact of sampling bias.

1. RECOMMENDATION
Weak Reject

1. JUSTIFICATION Justify your recommendation based on the strengths and weaknesses. Please be considerate to the authors and provide constructive feedback.
The contribution of this paper is more on the analytics of the saliency algorithm and there is little novelty and technical contribution from the computer vision aspect. While some of the findings on the bias can be interesting, it's not exactly new and insightful, particularly the MGL artifacts. For a computer vision conference, I believe readers would be more interested in in-depth findings that can provide insights on the actual cause of the bias and how the bias can be reduced in saliency algorithms. Hence, I'm of the opinion that the contribution of this work is not so well-suited and significant for a computer vision conference, and that it may be more suited for a more general AI or Analytics conferences.

Reviewer #2

Questions

1. PAPER SUMMARY What is the paper about? Please, be concise (2 to 3 sentences).
This paper addresses the analysis of saliency cropping algorithm used by tech-giants (i.e. Apple, Google, & Twitter). To address the issue, the author uncovers the cropping algorithm to exhibit racial and gender biases. Together with solid experiments and a strong evaluation of the framework and datasets, the provided analysis will be a major contribution to the computer vision community.

1. PAPER STRENGTHS Please discuss, justifying your comments with the appropriate level of details, the strengths of the paper (i.e. novelty, theoretical approach and/or technical correctness, adequate evaluation, clarity, etc).
++ Novelty

-- The task formulation is concise, convincing, and novel. A seemingly reasonable approach has been proposed in this manuscript for the analysis of the cropping algorithm.
-- To the best of my knowledge, the incorporation of unfolding the saliency cropping algorithm on this level is a good contribution for the computer vision community as it helps to understand where the algorithms are failing/working well.

++ Clarity

-- The manuscript is written in an excellent way to provide a brief insight into how racial and gender biases come into effect when the algorithms are operating. Especially Section 3 & 4 completely provides a good in-depth description of how the algorithm works and what are the dominant regions for crops.
-- The manuscript also clearly describes the improvements and adequately contextualizes the contributions in such a way that it makes a good starting point for a novice reader.

++ Evaluation

-- The experiments are sufficient and convincing. The analysis provides a piece of in-depth knowledge for all the algorithms.
-- The experimental evaluations demonstrate the effectiveness of the proposed analogy and showcase their practical value.
-- Also, an ablation analysis demonstrates to gain an understanding of where the racial and gender biases come into effect.

1. PAPER WEAKNESSES Please discuss, justifying your comments with the appropriate level of details, the weaknesses of the paper (i.e. lack of novelty – given references to prior work-, lack of novelty, technical errors, or/and insufficient evaluation, etc). Note: If you think there is an error in the paper, please explain why it is an error.
To be honest, after carefully reading the paper over and over again, to be honest, this is the first time, I notice that the author tried their best and left no mistakes to point out in the complete analysis. However, the important concern to note down here is that the computer vision community knows about the issue of racial and gender biases yet such analyses are the main contributions that the community should see to make it in consideration for AI Algorithmic development. Also, looking at the author's result in the actual manuscript and supplementary material (inc. PDF document visual results and submitted code), I do not have any major weakness issues/concerns. Detailed literature review, a complete overview of each component, and detailed experiments and ablation studies help to give a good insight into the manuscript.

1. RECOMMENDATION
Strong Accept

1. JUSTIFICATION Justify your recommendation based on the strengths and weaknesses. Please be considerate to the authors and provide constructive feedback.
Overall, happy with the current version of the manuscript. As mentioned earlier, I like the simplicity and wide applicability of the proposed analysis, and the analysis conducted in such a manner that it is very easy to understand how the cropping algorithm works for the big-techs. Detailed literature review, a complete overview of each component, and detailed experiments and ablation studies help to understand the author's work. Finally, I think the paper is pretty solid and thus I prefer to give a strong acceptance at the current stage.

Reviewer #3

Questions

1. PAPER SUMMARY What is the paper about? Please, be concise (2 to 3 sentences).
The purpose of this paper is to audit the saliency cropping algorithms used by Twitter, Google, and Apple in order to investigate issues related to male-gaze cropping and race gender biases that emerge in the post-cropping survival ratios of face-images constituting images.

1. PAPER STRENGTHS Please discuss, justifying your comments with the appropriate level of details, the strengths of the paper (i.e. novelty, theoretical approach and/or technical correctness, adequate evaluation, clarity, etc).
1. Dataset & algorithms involve several companies
2. Image and visualization to help understand the purpose of the paper

1. PAPER WEAKNESSES Please discuss, justifying your comments with the appropriate level of details, the weaknesses of the paper (i.e. lack of novelty – given references to prior work-, lack of novelty, technical errors, or/and insufficient evaluation, etc). Note: If you think there is an error in the paper, please explain why it is an error.
1. The lack of formal proof of the important ratio: MGL ratio
2. The lack of human feedback or user study case to fix the computed result

1. RECOMMENDATION
Borderline

1. JUSTIFICATION Justify your recommendation based on the strengths and weaknesses. Please be considerate to the authors and provide constructive feedback.
The paper presented a novel audit comparing the SIC frameworks of various IT companies. Numerous clear visualizations are included in the paper to help the reader in comprehending the method and result. The absence of formal proof for the most important MGL ratio, on the other hand, yields the convincement of the paper. Additionally, the topic itself includes a lot of subject information, and the results should be examined and feedbacked by humans but not only pure computing, to ensure that it is sufficiently solid.

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