View Reviews

Paper ID
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Paper Title
Exploration of Structural-Textural Line Segment Classification

Reviewer #1

Questions

3. Quality of Paper
6.0
I think you did a great job during the project. Furthermore, I hope you explore this idea further, and you should consider publishing it. I hope my comments are helpful in improving your work.

The report is nicely written and, for the most part, easy to follow. However, some things were a bit confusing. For example, the threshold for classifying line segments changes (45 degrees in 3.3 to 40 degrees in 4.1/Figure 2) or how you transform between pseudoGT and model outputs. Furthermore, for Figures 2 and 4, more extensive captions or some legends would have made it easier to understand.

Your literature review is well done. Furthermore, you clearly highlight your contribution and put it nicely into context.

4. Execution of Idea
6.0
You build a great dataset that others can use to benchmark different approaches.

You logically structured your experiments. I like that you started from the “obvious” (estimating surface normals from the 2D image with Omnidata and classifying line segments by the computed pseudo-GT based on the estimated angles), and you then significantly improved on this baseline by using more “involved” methods such as U-Net and FPN. Furthermore, the end-to-end approach is appealing.

Despite the lack of computational resources, the comparisons of different approaches are well done, and I understand there was not enough time to fully benchmark the end-to-end approach.

I do not understand why you used sigmoid instead of tanh as an activation function. This would have potentially saved you the mapping from [0, 1] to [-1, 1]. This part of the report is also a bit confusing.

The threshold of 45 degrees for classifying line segments should probably be discussed in more detail. For example, showing multiple images with different thresholds would have been nice. In Figure 2d, the lines inside of the window cutouts seem to be potentially misannotated. It would be interesting to see how this changes with a different threshold.

5. Creativity

6.0

You examined an intriguing and novel idea with real-world applications.

Reviewer #2

Questions

3. Quality of Paper

6.0

Write-up is well-structured and nicely written. Relevant literature is addressed, motivation and contribution is clear, methods and experiments are discussed at sufficient depth.

4. Execution of Idea

6.0

Idea is well-executed and evaluated. Submitted code is clean and structured. Proposed method seems to have a big potential of making the difference in different downstream CV applications. Eager to see the future of this work!

5. Creativity

6.0

Idea is novel and certainly non-trivial to come up with.