

Review of: "Undefinable True Target Learning"

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Potential competing interests: No potential competing interests to declare.

The paper provides an in-depth exploration of the concept of UTTL, highlighting the limitations of existing ML frameworks when dealing with tasks where the true target is inherently undefinable. While the work introduces novel perspectives and methodologies, several aspects could be improved for better clarity and impact.

1. The introduction of UTTL is significant, but the problem definition could benefit from more illustrative examples. For instance, while the histopathology image segmentation task is mentioned, a more detailed case study would help readers grasp the nuances of the problem more effectively. Including visual aids or detailed comparisons between LWNs and UTTL in specific use cases could also enhance understanding.
2. While the paper draws distinctions between UTTL and LWNs, the analysis could be strengthened by providing a more comprehensive comparison with other weakly supervised learning approaches. Highlighting specific limitations of existing methods in dealing with undefinable targets and how UTTL provides a superior solution would provide a stronger justification for the proposed approach.
3. The explanation of the OSAMTL and its extensions (OSAMTL-DiDP and OSAMTL-DiTl) could be more structured. It is recommended to use flowcharts or diagrams that outline each step of the methodology, including the input, process, and output for each component. This would help readers visualize the workflow more intuitively.
4. The mathematical notations and formal definitions in the paper are comprehensive but can be overwhelming. It would be beneficial to include a separate section or appendix summarizing all the notations used throughout the paper. This would serve as a quick reference for readers and improve the paper's readability.
5. The evaluation section provides some insights into the performance of the proposed methods, but it would be helpful to include a more detailed experimental setup and quantitative results. Comparisons with baseline models using standard metrics could provide a clearer picture of the effectiveness of UTTL in real-world applications.
6. The discussion on the implications of UTTL and its potential applications is well-articulated. However, expanding on the limitations and challenges faced during the implementation of the proposed methods would add depth to the discussion. This could include computational complexity, potential biases in the knowledge base, or scalability issues.
7. There are instances where the language could be refined for better clarity and precision. Consider simplifying complex sentences and reducing redundancy to make the content more accessible. Additionally, ensuring consistent formatting throughout the paper, especially in tables and figures, would enhance the overall presentation.