Review of: "Enhancing Dataset Distillation via Label Inconsistency Elimination and Learning Pattern Refinement"

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Potential competing interests: No potential competing interests to declare.

The proposed work, M-DATM, enhances dataset distillation by building upon and addressing key limitations of the DATM method.

The paper is generally well-written and easy to follow. However, the authors are encouraged to replace informal expressions such as “we seek to reduce” with more formal academic language and correct minor typographical errors. Besides, restructuring the methodology section by separating the background into a dedicated section would enhance clarity and make the contributions more prominent.

The authors present their work primarily as a report, which results in a limited focus on highlighting the broader research contributions and theoretical implications of their approach.

The authors should move detailed discussions about dataset distillation (DD) techniques from the Methodology section to a new Background section. Then, clearly distinguish them from the novel contributions of M-DATM.

The paper would benefit from a pseudocode representation of the overall algorithm to provide a high-level view of M-DATM’s flow.

A dedicated section on the computational complexity and scalability of the proposed approach should be included to provide a clearer understanding of its practical feasibility and efficiency.

Parts of the explanation remain abstract. Formal guarantees or theoretical justifications for why removing soft labels and adjusting matching ranges improve performance are missing or unclear. The authors should address this to strengthen the methodology.

The evaluations, while demonstrating improvements, lack comparisons against more recent benchmarks and baseline methods beyond DATM. The authors are encouraged to include results against other DD techniques and consider more datasets for comparison.

There should be further discussions on the robustness of the proposed work. The authors can extend the ablation study to include detailed parameter sensitivity analyses for hyperparameters.

The authors are encouraged to elaborate more on the implications of the findings with a clear roadmap for future work.

The figure quality should be improved.