**DATA AVAILABILITY STATEMENT**

The MP-IDB (Malaria Parasite Image Database) dataset used in this study is publicly available at https://github.com/andrealoddo/MP-IDB-The-Malaria-Parasite-Image-Database-for-Image-Processing-and-Analysis under MIT license [19, 20]. Our trained models, complete source code, experimental results, and analysis scripts are available at [GitHub repository - to be added upon acceptance]. All experiments were conducted using publicly available deep learning frameworks (PyTorch 2.0+, Ultralytics YOLO) and can be fully reproduced following the documentation in our repository.