

# Paper Validation Report

## for [DS2025\\_diff](#)



---

**Correspondence: No**  
**Percentages: 0.0%**

---

### **Conclusion:**

The repository code is focused on scientific machine learning, symbolic regression, neural networks, gradient and integration methods, and benchmarking on PDE datasets (Burgers, KdV, Laplace, Wave equations, etc.). However, there is no evidence in the code of any implementation of datasets, models, or experiments relating to dissolved oxygen (DO) prediction, water quality, or the specific ML models (Elastic Net, SVR, LGBM) and optimization approaches (genetic algorithm with CV) discussed in the paper. The described environmental sensor dataset, cleaning methods, and evaluation metrics ( $R^2$ , RMSE, MAE, etc.) do not appear in the code. Therefore, the code does not match or reproduce the experimental workflow or results of the paper.