

- 399 (a) Did you include the full text of instructions given to participants and screenshots, if
400 applicable? [N/A]
401 (b) Did you describe any potential participant risks, with links to Institutional Review
402 Board (IRB) approvals, if applicable? [N/A]
403 (c) Did you include the estimated hourly wage paid to participants and the total amount
404 spent on participant compensation? [N/A]

405 A Appendix

406 A.1 Technical Appendix

407 A.1.1 UEA multivariate dataset

408 As mentioned in the introduction, we have also performed a benchmark analysis for the UEA dataset.
409 It is a benchmark dataset used for time series classification, and there are 25 datasets with different
410 characteristics, number of cases, dimensions, and series lengths. Thus, we can justify that the library
411 can be used to perform benchmarks on other forms of time series data. Predefined training and testing
412 split, mentioned in the UEA dataset (6), is used for model training. No preprocessing has been
413 performed on these datasets.

414 Link: <https://www.timeseriesclassification.com/> Licence : MIT Licence

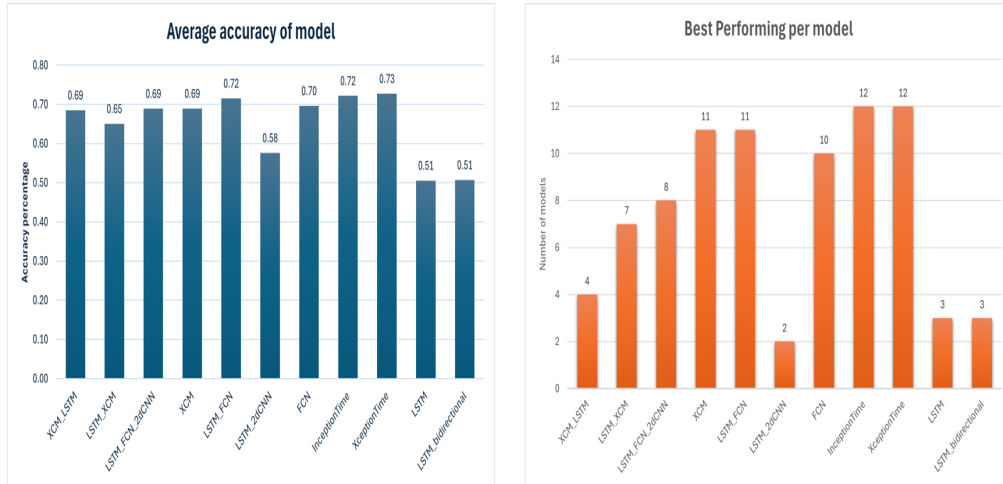


Figure 9: Benchmark results on UEA dataset.

415 Figure 9 represents a box plot summarizing the benchmark results for the UAE dataset. Figure 9a
416 displays the average accuracy of the models over all datasets, and Figure 9b presents the total number
417 of datasets for which the particular model performed best. The LSTM-FCN, XCM, Inception time,
418 and Xception time models perform better. Still, it isn't easy to generalize the best model, as it depends
419 on the dataset's attributes. We also observe that most models' accuracy is quite close to each other.
420 Thus, we must look into the time cost of these models. Figure 10a displays the average computation
421 time required by the models, and Figure 10b shows the models performing the fastest per dataset.
422 It can be seen that the LSTM-FCN and the FCN models are more rapid than the rest of the models.
423 Upon further analysis, we could understand the dataset parameters that affect the time consumption
424 of the models. The Inception time and Xception time models are affected by the number of samples
425 in the training dataset but not by the sequence length or number of features(in multivariate). The
426 LSTM models are highly affected by sequence length, while the XCM and LSTM-XCM models are
427 affected by the number of features.

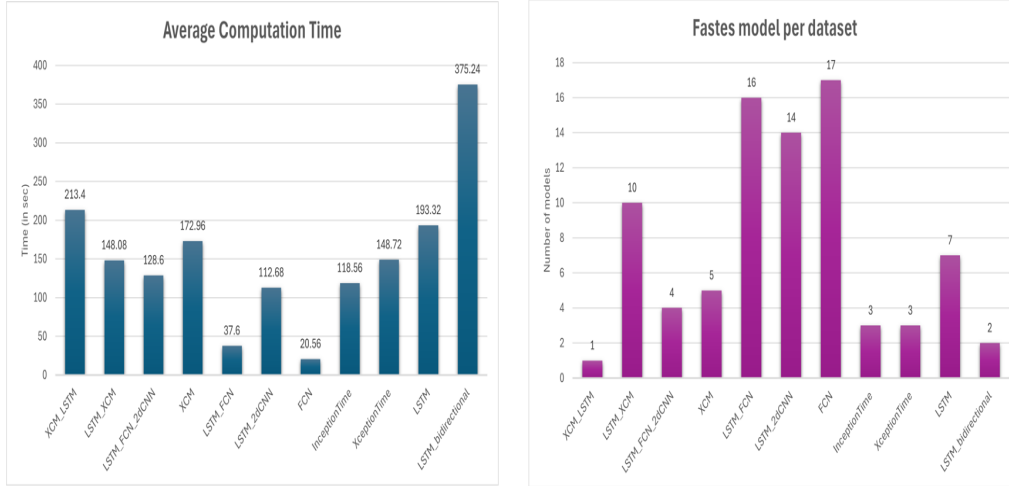


Figure 10: Time comparison on Benchmark result for UEA dataset.

A.1.2 Wyoming dataset

Data source: <https://pipeline.wyo.gov/wellchoiceMenu2.cfm?oops=ID88107&Skip=Y>

Usage licence: USE IS AT YOUR OWN RISK AND SUBJECT TO THE FOLLOWING: The authorized use of this data is limited to informational and educational purposes only, and NOT for operational or commercial purposes. Licence link: <https://pipeline.wyo.gov/wellchoiceMenu2.cfm?oops=ID88107&Skip=Y>

A.1.3 Colorado dataset

Data source: <https://ecmc.state.co.us/data.html#/cogis> Access to individual well files with formation and logs, thus it requires some data formatting. Need to download the LAS file for the gamma rays. We provide with the well names list for which we need to extract the files for as part of training, testing and validation.

Licence link: No licence found (Can be downloaded without any restrictions)

B Appendix

Include extra information in the appendix. This section will often be part of the supplemental material. Please see the call on the NeurIPS website for links to additional guides on dataset publication.

- For benchmarks, the supplementary materials must ensure that all results are easily reproducible. Where possible, use a reproducibility framework such as the ML reproducibility checklist, or otherwise guarantee that all results can be easily reproduced, i.e. all necessary datasets, code, and evaluation procedures must be accessible and documented.
- Information related to the dataset is provided in the Technical appendix.
- The geox-main is a zip folder of the git hub repository. This repository contains functions and final tutorials demonstrating results.
 - Before running all the code, please make sure to check the Install.ipynb
 - For clustering results please check the data_preprocessing.ipynb file.
 - For Industrial baseline results please check the Industrial_baseline.ipynb file.
 - For Benchmark results of classification models on well log data please check the Benchmark_Colorado.ipynb file.

- 455 (e) For a detailed evaluation with plots of the predicted marker depth (marker event) please
456 refer to Marker_propagation.ipynb file.
- 457 (f) For the benchmark results on UEA dataset please check the UCR_tutorial.ipynb file.
- 458 (g) For the Grad-cam implementation and visualisation shown in the paper, please refer to
459 the Gradcam_tutorial.ipynb file.
- 460 4. The repository is currently private, will be later made public, with a library in pip called
461 "geoxts" (provided the name would be available)
- 462 5. The zip folder also contains the data folder required to run the scripts.