Model Card for LR

Model Details

- Developed by researchers at the University of Delaware, Newark, Delaware, USA, 2022, no information on version update.
- The model is part of an extensive data preprocessing pipeline for MIMIC IV.
- The model is part of a greatly customizable pipeline to extract, clean, and preprocess the data available in the fourth version of the MIMIC dataset (MIMIC-IV).
- Innovation: A standard model presented as part of an innovative end-to-end wizard-like package for predictive model creations and evaluations.
- Paper: LR

Intended Use

- Intended to extract data for risk prediction from MIMIC IV CRD.
- Particularly intended for Healthcare machine learning (HML) practitioners and hospitals.
- Not applicable for anything other than the intended use.

Experimented Factors

- The model showed varied performance across demographic groups.
- Evaluation factor is the highly correlated ethnic attribute. When the model's performance is evaluated against ethnic subgroups (White, Asian, Black, Hispanic/Latino, and others), it shows inconsistent results.
- Further factors like age, gender, insurance, and other covariates are also possible for evaluation.

Metrics

- Evaluation metrics include Receiver Operating Characteristic Area Under the Curve (ROC-AUC) and Precision-Recall Area Under the Curve (PR-AUC).
- Fairness metrics - The 'Fairness Report' provides a detailed report on HML fairness and its metrics.

Training Data

- MIMIC IV v2.0. It is available in the 'Datasheet for CRD'.

Evaluation Data

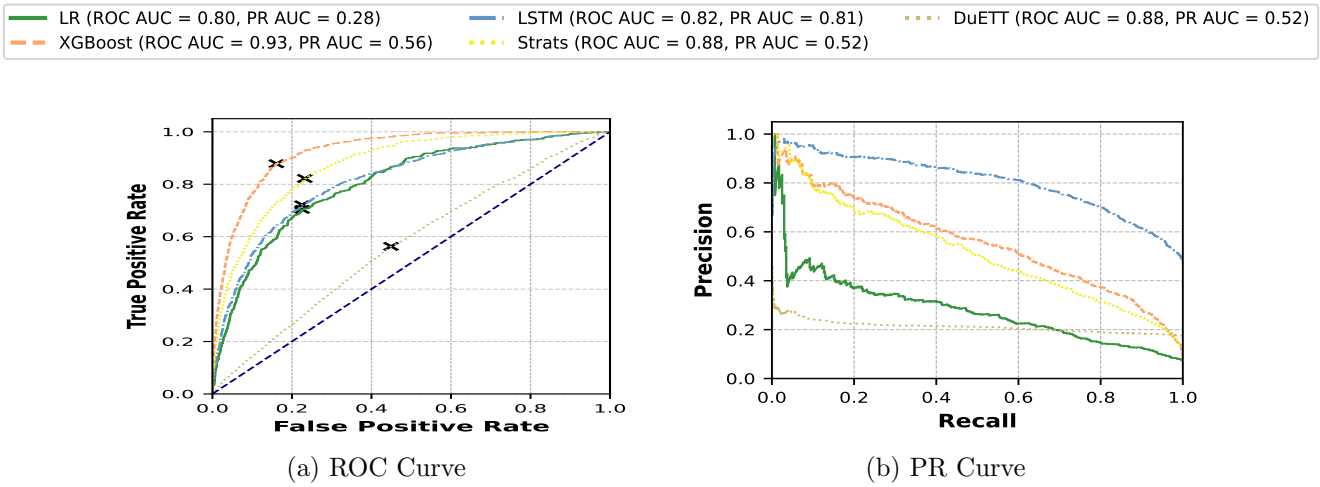
- 80:20 split for the training and test sets.
- The models were trained for up to 1000 epochs until the validation loss stopped improving for 10 continuous epochs.
- We used the same hyperparameters of the model listed in the code repository.

Ethical Considerations

- EHR data is used for evaluating the model's performance where its decision is life-altering based on the intended tasks.

Caveats and Recommendations

- Findings show that the model showed inconsistent results when tested on fairness. It is outperformed by naive baseline XGBoost.



(a) ROC Curve (b) PR Curve

Figure 1: Prediction performance analysis across static and time series models. Panels (a) and (b) show the ROC-AUC and PR-AUC of the models, respectively, and the operating points in (a).