**Supplementary** **Table 3** Performance metrics of the model on the external validation set

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Models** | **AUC** | **Precision** | **Accuracy** | **Recall** | **F1 score** |
| Logit | 0.720 | 0.782 | 0.626 | 0.849 | 0.814 |
| SVM | 0.713 | 0.835 | 0.669 | 0.675 | 0.746 |
| Cat | 0.805 | 0.855 | 0.724 | 0.784 | 0.818 |
| RF | 0.801 | 0.794 | 0.653 | 0.888 | 0.838 |
| XGBoost | 0.800 | 0.757 | 0.588 | 0.929 | 0.834 |
| LightGBM | 0.794 | 0.810 | 0.675 | 0.858 | 0.833 |
| AdaBoost | 0.783 | 0.826 | 0.696 | 0.840 | 0.833 |
| MLP | 0.714 | 0.788 | 0.638 | 0.858 | 0.822 |
| Multimodel | **0.802** | 0.792 | **0.715** | 0.858 | **0.834** |