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Corrigendum

Corrigendum to Longitudinal machine learning modeling of MS patient trajectories improves predictions of disability progression: [Computer Methods and Programs in Biomedicine, Volume 208, (September 2021) 106180]

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The authors regret an error in the pre-processing of the dataset that went unnoticed in the extensive code used for pre-processing of the study data. As a result of this error, the last EDSS overall for each patient was included as the last EDSS in the observation period. We corrected the error and repeated all analyses. Reassuringly, the main message of the paper remains unchanged: incorporating longitudinal data is beneficial for the prediction of disability progression. Yet, the following changes are to be noted.

- The absolute performance metrics of all compared methods have dropped by about 20%. That is:
  - AUC of the static setup is 0.63
  - AUC of the dynamic setup is now 0.67
  - AUC of the longitudinal is 0.68
- The difference between the compared methods is also less pronounced but importantly, the improvement between the static and the dynamic/longitudinal methods is still substantial.
- The feature importance list has changed, with the full EDSS trajectory now becoming the most important factor, therefore strengthening one of the main findings of the study.

The AUCs and AUC-PR originally reported in Table 3 have now been updated as presented below.

Model Type	Model Name	ROC-AUC	AUC-PR
	Random Model	0.5	0.16
Random Forest	Static Feature set	0.63+-0.02	0.26+-0.01
Random Forest	Dynamic Feature set	0.67+-0.01	0.27+-0.02
BPTF	BPTF-SI-RF	**0.68**+-0.01	**0.29**+-0.01
Time-aware RNN	GRU-TA	**0.67**+-0.01	**0.29**+-0.01
ODE-RNN	GRU-ODE-Bayes	0.66+-0.02	**0.29**+-0.02

(The best results are in bold. If several values are in bold, the results are not significantly different.)
The feature importance list (Table 4) has also been updated, with the full EDSS trajectory now becoming the most important factor.

Feature	Sensitivity score (feature importance)
Full EDSS trajectory	0.115+-0.044
Max EDSS	0.011+-0.024
Previous EDSS	0.008+-0.018
Mean EDSS	0.008+-0.002
Secondary Progressive	0.008+-0.002
Others	<0.008

In the appendix, the following changes are to be noted for the comparison of MS types (table G1):

Model	MSCourse	ROC-AUC	AUC-PR
RF Static	Overall	0.63+-0.02	0.26+-0.01
	Relapsing-Remitting	0.59+-0.02	0.22+-0.01
	Primary Progressive (general)	0.47+-0.05	0.16+-0.05
	Primary Progressive	0.47+-0.09	0.16+-0.03
	Secondary Progressive	0.55+-0.05	0.19+-0.05
	Primary Relapsing	0.52+-0.25	0.17+-0.06
RF dynamic	Overall	0.67+-0.01	0.25+-0.01
	Relapsing-Remitting	0.65+-0.02	0.23+-0.01
	Primary Progressive (general)	0.52+-0.09	0.16+-0.03

(*continued on next page*)

Model	MSCourse	ROC-AUC	AUC-PR
	Primary Progressive	0.52+-0.09	0.16+-0.04
	Secondary Progressive	0.56+-0.07	0.19+-0.06
	Primary Relapsing	0.55+-0.14	0.17+-0.02
BPTF-SI-RF	Overall	0.68+-0.01	0.29+-0.01
	Relapsing-Remitting	0.66+-0.01	0.27+-0.01
	Primary Progressive (general)	0.55+-0.09	0.21+-0.05
	Primary Progressive	0.54+-0.09	0.20+-0.05
	Secondary Progressive	0.54+-0.04	0.22+-0.07
	Primary Relapsing	0.57+-0.16	0.18+-0.07
GRU-ODE	Overall	0.66+-0.02	0.29+-0.02
	Relapsing-Remitting	0.64+-0.02	0.26+-0.02
	Primary Progressive (general)	0.56+-0.13	0.24+-0.09
	Primary Progressive	0.57+-0.15	0.26+-0.10
	Secondary Progressive	0.60+-0.05	0.29+-0.10
	Primary Relapsing	0.59+-0.19	0.19+-0.07
Time-aware GRU	Overall	0.67+-0.01	0.29+-0.01
	Relapsing-Remitting	0.65+-0.02	0.26+-0.02
	Primary Progressive (general)	0.48+-0.09	0.20+-0.05
	Primary Progressive	0.45+-0.09	0.16+-0.04
	Secondary Progressive	0.68+-0.09	0.27+-0.07
	Primary Relapsing	0.58+-0.13	0.18+-0.11

In the discussion, setting the sensitivity at 70% for a cohort of 1000 patients results in 421 false positives in the static case versus 354 false positives in the dynamic case.

The authors apologize for any inconvenience caused.