Analysis of TRANSFOR19 forecasting competition

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This transportation forecasting competition was organized by ABJ70 Artificial intelligence and advanced computing applications, supported by IEEE ITSS technical activities sub-committee 'smart cities and smart mobility' and sponsored by DiDi Chuxing. The idea was for participants to develop a traffic forecasting algorithm predicting the average speed of a road every five minutes. Roads had two direction and predictions should be made between 6.00-11.00 and 16.00-21.00 on the final day of the DiDi data set. All GPS-traces flowing through this road between the mentioned time interval were removed. Participants had one month to develop the algorithm. The average RMSE is evaluated during the first round of the competition and the best five algorithms proceed to the next round.

Figure 1 shows the top 6 classified in round one[1]. In the second round, the scoring of the participants was based on accuracy (50%), novelty (25%), quality of code (10%) and a presentation at the TRB 2019 Annual Meeting conference (15%)[2]. The proposal done by the University of Deusto scored fifth in the first round, ending up in third place during the second round. Given the promising results, we realized some programming mistakes and neglecting the removed data on the prediction day, lowered our performance drastically. With our streamlined models the RMSE for both segments improved from 5.11 to 2.35 north (segment 2748) and 4.3596 to 2.36 south (segment 160) resulting in an overall score of 2.36. This new RMSE for the north-bound segment and south-bound segment is shown in Figure 2 and Figure 3 respectively together with a 4h prediction coming from the multistep model. We expanded our model

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[1] https://github.com/TRANSFORABJ70/TRANSFOR19

[2] https://sites.google.com/site/trbcommitteeabj70/abj70s-latest-news/another-successful-trb-for-abj70?authuser=0

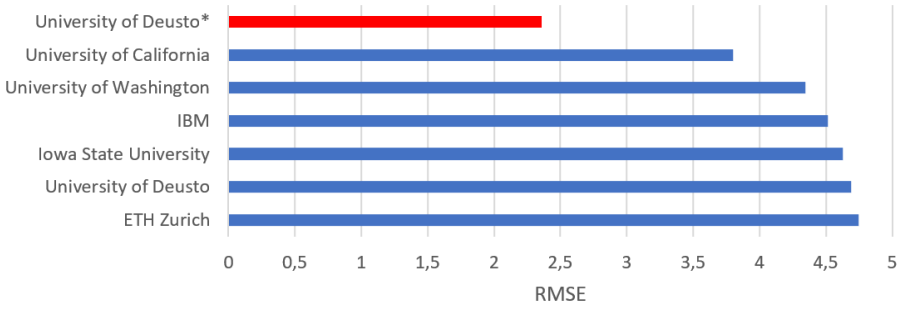

Figure 1: Average RMSE obtained in the TRANSFOR19 forecasting competition, * model presented in this work.

to predict for four hours in multistep to show the potential of our model.

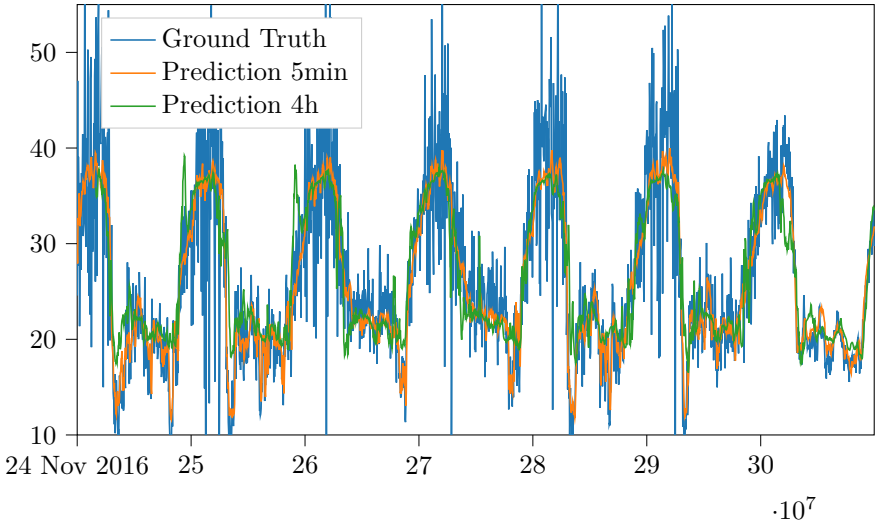

Figure 2: Predictions on test set, segment north-bound.

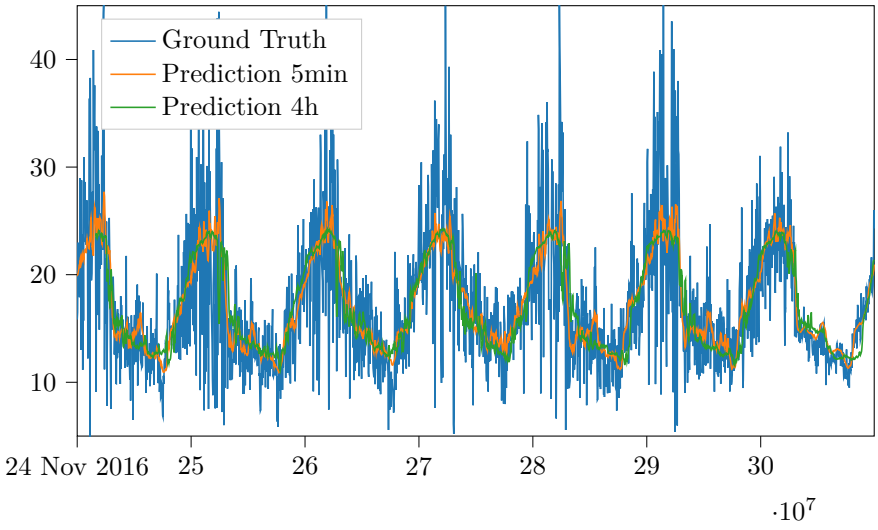

Figure 3: Predictions on test set, segment south-bound.