Deep Learning Lab Course – Report for assignment 6

The validation error and estimated wallclock time in each iteration for SMAC and Hyperband are shown in figure 1 and 2 respectively.

Figure 1: Incumbent learning curve for SMAC

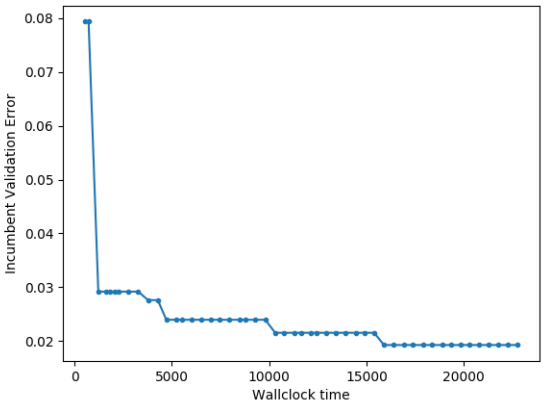
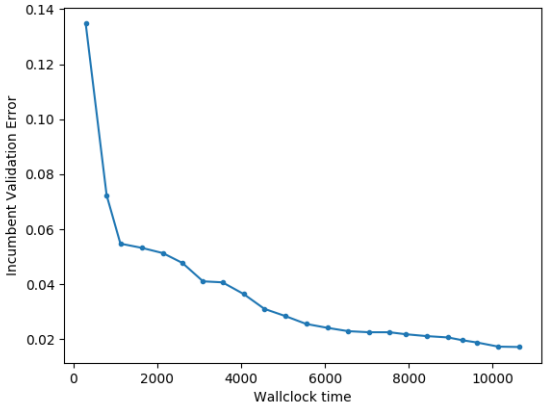


Figure 2: Incumbent learning curve for Hyperband



One can observe that the incumbent performance increases smoothly when using Hyperband. When using SMAC, it mostly stays constant and decreases abruptly at some points. The final performance is about the same for both optimization methods, but Hyperband requires less time to reach it (Hyperband takes around 11000 seconds while SMAC takes around 16000 seconds).

The learning curves for all configurations evaluated while running SMAC and Hyperband are shown in figure 3 and 4 respectively.

Figure 3: All learning curves for SMAC

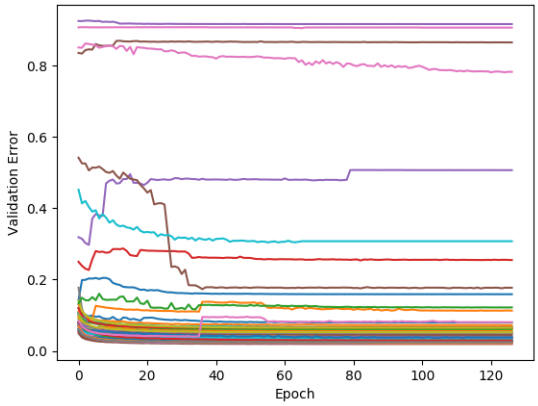
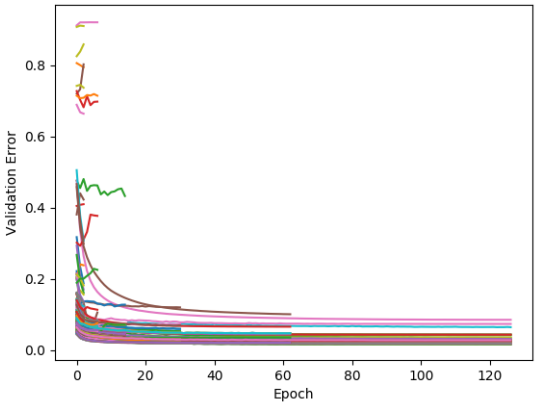


Figure 4: All learning curves for Hyperband



One can observe that SMAC evaluates every single configuration by running it for the full number of iterations. Hyperband on the other hand stops configurations early and discards less promising ones, while the better performing ones get evaluated on a larger number of iterations in later evaluations.