Deep Learning Lab

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Exercise 6

In this exercise we optimize hyperparameters in the configuration space of a fully connected neural network in MNIST. In comparison to exercise 5, here we have discrete and categorical hyperparameters.

In Figure 1 we can see the performance of the incumbent against the wall clock time in SMAC.

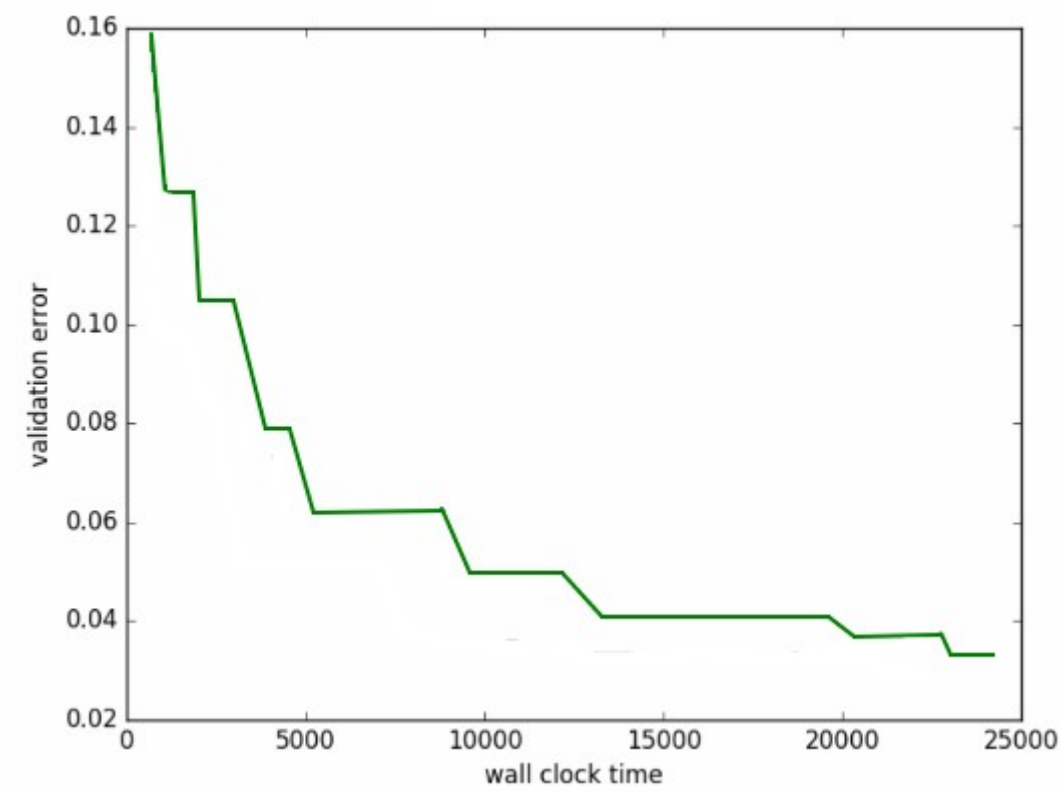

Figure 1
SMAC

In Figure 2 we have the same plot for Hyperband.

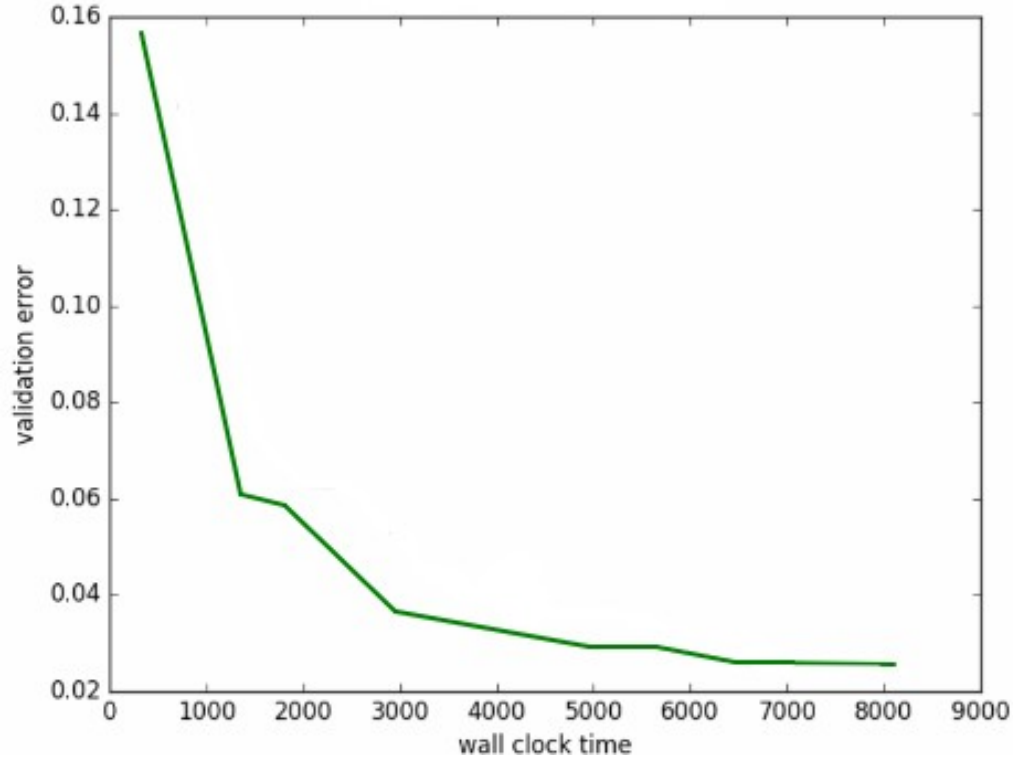

Figure 2
Hyperband

Hyperband takes less time to reach the lowest validation error than SMAC. This is because the hyperband algorithm exploits the intuition that if a hyperparameter configuration is destined to be the best after a large number of iterations, it is more likely to perform in the top half configurations after a small number of iterations.