In this exercise we consider **Chapter 11** of the book 'Deep Learning' (Practical Methodology), focusing on Hyperparameter Optimization (HPO).

1. **Random Search**
   (a) Define a hyperparameter space and a configurable model. (2)
   (b) Run multiple models with random hyperparameter configurations. (2)
   (c) Evaluate the runs with plots and answer the questions. (3)
   (d) For course improvements, we would like your **feedback about *this* question**. At least tell us how much time **(hours)** you did invest, if you had major problems and if you think it's useful.

Points for Question 1: 7

2. **BOHB**
   (a) Implement a worker with hyperparameter space, model and model training/evaluation. Run worker with BOHB. (4)
   (b) Evaluate the runs with plots and answer the questions. (5)
   (c) For course improvements, we would like your **feedback about *this* question**. At least tell us how much time **(hours)** you did invest, if you had major problems and if you think it's useful.

Points for Question 2: 9

You can achieve a total of **16 points** for this exercise. Additionally you can achieve **1 bonus point** for answering the feedback questions.

Please send the **solution *notebook* and the *bohb_result.pkl* of your group of three** via ILIAS until **03.12.2018 12 pm (noon)**.

Note: Jupyter notebooks will be executed **from top to bottom**. To **avoid point deduction** check your notebook by the following steps: 1. Use the python 3 kernel (`Kernel > Change kernel > Python 3`), 2. Run the full notebook (`Kernel > Restart & Run All`), 3. Save (`File > Save and Checkpoint`).