Synthesis of a centralized adaptive power system stabilizer based on neural networks by reinforcement learning.

Belyaev A. N., Pereslytskikh O. O., Polushkin V. S.

The paper presents an algorithm for synthesis of centralized PSS based on artificial neural networks, as well as evaluates their efficiency in the four-machine Kundur power system. Test data set for training a neural network using traditional multiband PSS has been generated based on optimal parameters obtained for various operating conditions. Set of local and global adaptive control systems is obtained by reinforcement learning, and efficiency of proposed approaches is shown by calculating transient processes under finite disturbances.