



DESIGN OF AN ARTIFICIAL CENTRAL PATTERN GENERATOR WITH FEEDBACK CONTROLLER

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ABSTRACT—This paper proposes an approach to design of an artificial central pattern generator (CPG) with a feedback control loop. CPG is the biological neural network that generates rhythmic movements for locomotion of animals. A crucial point in designing of an artificial CPG controller is how to deal with sensory information on surrounding environments. Hence, we investigated the properties of an artificial CPG controller including sensory feedback. First, we analyzed the stability of the CPG controller, and then how a sensory feedback influences to the output of the controller. The results provide a realistic approach to design of an artificial CPG controller.

Key Words: Central pattern generator, feedback control loop, biologically-inspired walking robot.