Abstract

In this paper, we consider an experimental study of an adaptive fuzzy control for a class of single input single output nonlinear systems. A Takagi Sugeno (TS) fuzzy inference system (FIS) is used to approximate the feedback linearization law. The adaptation mechanism is based on an estimate of the error between the ideal unknown control signal and the actual control signal. This estimate is provided by a Mamdani fuzzy system whose rule base is constructed using simple expert reasoning. The parameters of the (TS) controller are updated using the gradient descent law based on the estimated control error. The experiment is carried out on a three tanks system with the objective of controlling the level of one tank. The results compare favorably with those obtained using a PI controller