Identification of Hammerstein systems with continuous nonlinearity.

Summary: This paper deals with the parameter identification problem for a Hammerstein system with continuous nonlinearity. Taking into account the unknown structure of the continuous nonlinearity, the Weierstrass approximation theorem is introduced to simplify the nonlinearity. Then a stochastic gradient algorithm and a particle swarm optimization algorithm are proposed to estimate all the unknown parameters of the Hammerstein system. The applicability of the approaches is illustrated by a simulation example.

Keywords: approximation algorithms; Hammerstein system; stochastic gradient; particle swarm optimization; continuous nonlinearity; Weierstrass approximation theorem
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