THE STUDY ON PITCH CONTROL OF PITCHING MACHINE BY ARTIFICIAL NEURAL NETWORK

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Abstract

In this study, we investigate the correlative between human adjustment factors and the accuracy of the position of the baseball when the pitching machine is pitched. In this paper, we plan five human adjustment factors which are the speed(X1), the angle between palm and pollex(X2), the dry ball or wet ball(X3), the spacing distances of catch ball(X4) and the tilt angles of the catch ball's disk(X5) as independent variables respectively, and two responses of the point group dispersion which are the horizontal maximum dispersal distance (Y1) and the vertical maximum dispersal distance (Y2) as dependent variables respectively. By changing one of independent variables each time, we use the Swing Arm type Pitching Machine as the experimental platform. Experimental data showed that the palm catch the ball within one~two second is crucial for stability of catch ball. The experimental data are analyzed by statistics. Simultaneously, we also use Artificial Neural Network to train these data, it show that the Neural Network and the Statistical analysis has high accuracy predictive ability. Five human adjustment factors and point accuracy are highly correlative.

Key Words：pitching machine, neural network, Matlab, precision

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