

1138-37-72

Yinshu Wu* (yinshu.wu@aamu.edu), Math department, 4900 Meridian Street North, Normal, AL 35762. *The SIR Modeling for the Biological Flu using Artificial Neural Network.*

Millions of people in the United States get the flu each year. About 36,000 people die each year of problems from the flu. The biological flu is a disease spread by contact with infected individuals. Individuals recover from the disease and gain further immunity from it. For this work, the SIR (Susceptible, Infected, and Recovered) model is utilized. Weekly data of 2012-2017 in USA from Centers for Disease Control and Prevention was used to estimate the groups of population for the next year by Artificial Neural Network (ANN). Machine learning is the general method for artificial neural networks which is based on the concept of self-adjustment of internal control parameters. The prediction from previous simulation demonstrates ANN is very effective. The predicted infection rate for the future provides an effective way to estimate the spread of the flu. (Received January 29, 2018)