

## **Prediction of Student Academic Performance Using an ANFIS Approach**

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### **Abstract**

Admission is one of the key administrative branches in a university. Regarding the admission process, the issue of whether a candidate is suitable for an academic program is of importance. This raises the need to propose a model that predicts the student's future academic performance. This study presents an approach to the prediction of student academic performance based on the Adaptive Neuro-Fuzzy Inference System (ANFIS). We have used previous exam results as input variables, and then predicted the students' expected performances. Due to a large number of input variables, only the most influential ones affecting student academic performance were selected. We also identified the most influential input variables by analyzing their influence on expected academic performance. The ANFIS model was then parameterized using these input variables to predict student performance. The results showed that the proposed model achieved a high reliability. These results were also compared with those obtained from the Multiple Linear Regression (MLR) and the Artificial Neural Network (ANN) approaches. The comparative analysis indicated that the proposed approach performed better than the others. It is expected that this work may be used as a tool to support student admission procedures.

*Keywords:* Adaptive Neuro-Fuzzy Inference System, prediction, student admission, higher education