Ahmedabad University

Report 3

CSE523 Machine Learning Section-1

Group members:

Kushalkumar Suthar (AU2140122)

Dhruvin Prajapati (AU2140064)

Rohit Rathi (AU2140023)

Krutarth Trivedi (AU2140141)

# Problem Statement :

Fuzzy Logic for Vehicle Motion Direction Detection

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**Choosing best membership function:**

It becomes essential to choose the membership function based on the dataset and requirement. Gaussian membership function can accurately represent data distributions with a clear central tendency and gradual decay towards the edges. However, it may be more computationally intensive than the triangular or trapezoidal functions. Trapezoidal membership function works similarly as triangular membership function and it works accurately when input data belongs to a particular fuzzy set.

Triangular membership function is suitable for datasets having well defined peak and linear boundaries. It is less computationally intensive and also predicts the direction of motion for our vehicle accurately. Hence, triangular membership function best suits our dataset to predict the direction.