

# Contemporary Data Processing Technology (CCOD)

## Lab 7 (October 15, 2016)

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Table of rules:

if x1	and x2	and x3	and x4	Then
medium	large	small	very small	Setosa
large	medium	medium	medium	Versicolor
very large	large	very large	very large	Virginea

Membership Function for Very Small:  $e^{\frac{-(x-0.143667)^2}{0.00385}}$

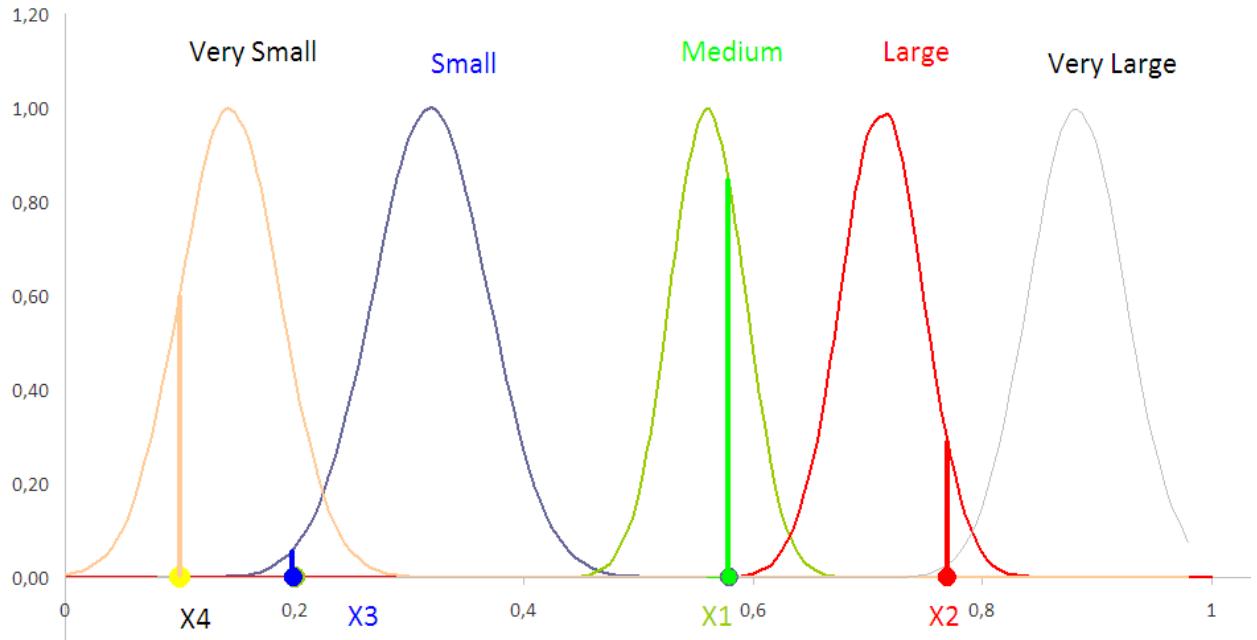
Membership Function for Small:  $e^{\frac{-(x-0.318571)^2}{0.005069}}$

Membership Function for Medium:  $e^{\frac{-(x-0.560488)^2}{0.002102}}$

Membership Function for Large:  $e^{\frac{-(x-0.712558)^2}{0.002626}}$

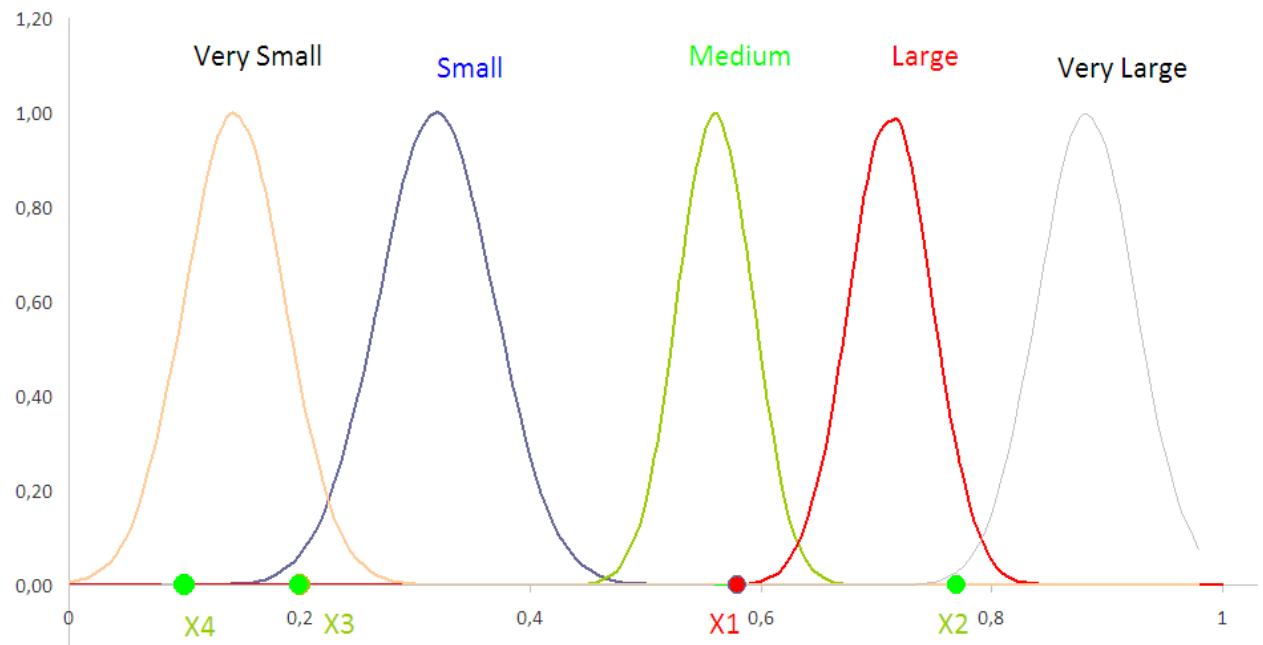
Membership Function for Very Large:  $e^{\frac{-(x-0.88275)^2}{0.003615}}$

**Rule 1:** if x1 = medium, if x2 = large, if x3 = small, if x4 = very small then Setosa



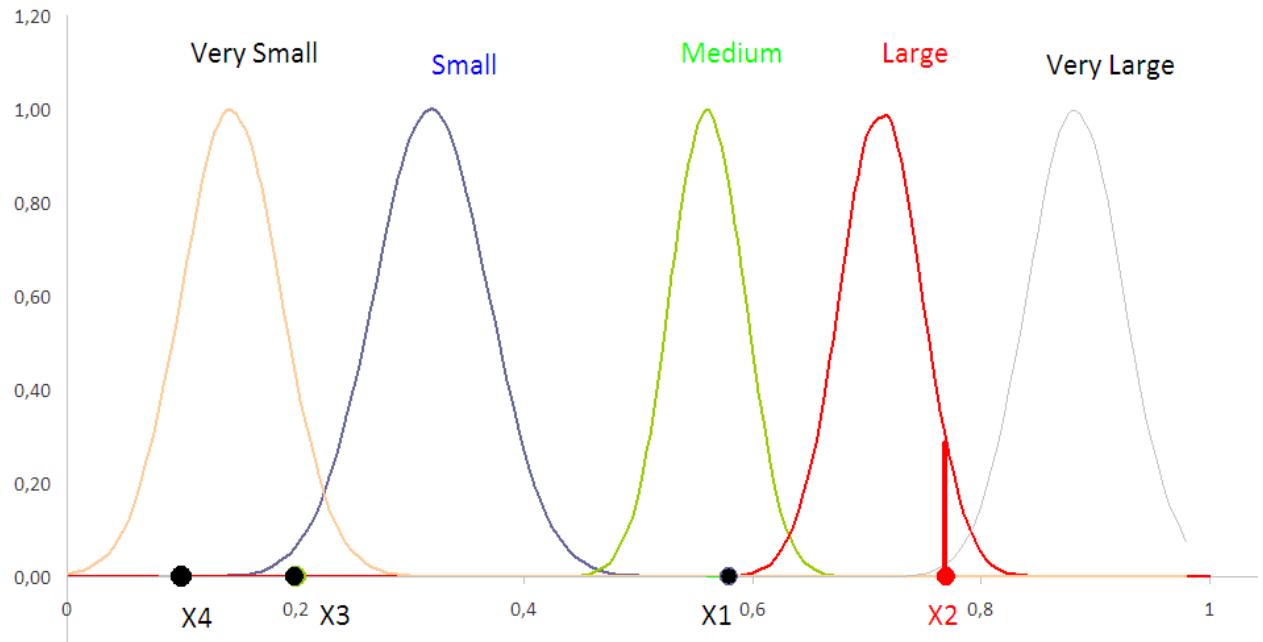
$$M = 0.834 \times 0.284 \times 0.062 \times 0.864 = 0.0128$$

**Rule 2:** if  $x_1 = \text{large}$ , if  $x_2 = \text{medium}$ , if  $x_3 = \text{medium}$ , if  $x_4 = \text{medium}$  then **Versicolor**



$$M = 0.001 \times 8.54e^{-10} \times 1.42e^{-27} \times 8.229e^{-42} = 1.242e^{-79}$$

**Rule 3:** if  $x_1 = \text{very large}$ , if  $x_2 = \text{large}$ , if  $x_3 = \text{very large}$ , if  $x_4 = \text{very large}$  then **Virginea**



$$M = 9.735e^{-12} \times 0.284 \times 9.94e^{-57} \times 1.272e^{-70} = 3.50e^{-138}$$

$$y = 0.012823 / 0.012823 = 1$$