

Solution to Homework 9

Task. Suppose that we have the following reasonableness degrees:

- for $u_1 = 0$, we have $\mu(u_1) = 0.5$;
- for $u_2 = 1$, we have $\mu(u_2) = 1$;
- for $u_3 = 2$, we have $\mu(u_3) = 0.5$.

What will be the result of centroid defuzzification?

Solution.

$$\bar{u} = \frac{u_1 \cdot \mu(u_1) + u_2 \cdot \mu(u_2) + u_3 \cdot \mu(u_3)}{\mu(u_1) + \mu(u_2) + \mu(u_3)} = \frac{0 \cdot 0.5 + 1 \cdot 1 + 2 \cdot 0.5}{0.5 + 1 + 0.5} = \frac{2}{2} = 1.$$