

Assignment #3

ECE449, Intelligent Systems Engineering
Department of Electrical and Computer Engineering, University of Alberta

No late assignments accepted!

Fall 2019
Dr. Petr Musilek

Points: 10

Due: Thursday, October 3, 2019, 3:30 PM,
in the assignment box in the ETLC atrium

Note: Show your work! Marks are allocated
for technique and not just the answer.

Student Name:

ID Number:

1. [4 marks] Classify the following as fuzzy relations or relations:

	Classification {relation, fuzzy relation}
student – grade	
inflation level - interest rate	
phone brand – phone price	
apple color – apple ripeness	
salary – age	
programming language – programming effort	
husband – wife	
season – temperature	

Show another example of each (1 relation and 1 fuzzy relation).

2. [6 marks] Let

$$R = \begin{bmatrix} 0.5 & 0.3 & 0.2 \\ 0.8 & 0.7 & 0.3 \end{bmatrix} \quad S = \begin{bmatrix} 0.4 & 0.7 \\ 0.7 & 0.8 \\ 0.5 & 0.2 \end{bmatrix}$$

be matrix representations of binary fuzzy relations. Calculate the following max-min compositions:

$$R \circ S, \bar{R} \circ \bar{S}, S^T \circ R^T$$