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UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

FIME
FACULTAD DE INGENIERÍA MECÁNICA Y ELÉCTRICA

Universidad Autónoma de Nuevo León

Facultad de Ingeniería Mecánica y Eléctrica

Examen de Medio Curso

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Grupo: 001

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Examen de Medio Curso

Temas Selectos de Inteligencia Artificial

Pregunta 1:

A [-2, 3] → Saturación derecha
B [-0.0005, 0.009] → Saturación izquierda
C [-1720, 9560] → Triángulo
D [-1, 1] → Trapecio

Objeto 1

A

$x_{min} = -2$
$x_{max} = 3$
$x = 2$
} Saturación derecha.

$$Y = \frac{1}{x_{max} - x_{min}}(x) - \frac{x_{min}}{x_{max} + x_{min}} = \left(\frac{1(2)}{3-(-2)} - \frac{-2}{3+2}\right)$$

$$Y = 0.8$$

B

$x_{min} = -0.0005$
$x_{max} = 0.009$
$x = 0$
} Saturación izquierda

$$Y = \frac{1}{x_{max} - x_{min}}(x) + \frac{x_{max}}{x_{max} - x_{min}} = \frac{1}{0.009 - (-0.0005)}(x) \ldots$$

$$\ldots + \frac{0.009}{0.009 + (-0.0005)} = 0.9473$$

C

$x_{min} = -1720$
$x_{max} = 9560$
$x = 1800$
} Saturación Triángulo

$$Promedio = \frac{x_{max} - x_{min}}{2} = \frac{9560 + 1720}{2} = 3920$$

$1800 < 3920$

$$Y = \frac{2}{x_{max} - x_{min}}(x) - \frac{2x_{min}}{x_{max} - x_{min}}$$

$$Y = \frac{2(1800)}{9560 - (-1720)} - \frac{2(-1720)}{9560 - (-1720)} = 0.6241$$

D $x_{max} = 1$, $x_{min} = -1$, $x = 0.5$ } Saturación Trapecio.

$0.5 < 1 \rightarrow$ Ecuación ↗

$$Y = \frac{4x}{x_{max} - 5x_{min}} - \frac{4x_{min}}{x_{max} - 5x_{min}} = \frac{4(0.5)}{1 - 5(-1)} - \frac{4(-1)}{1 - 5(-1)}$$

$Y = 1$

Objeto 2

A $x_{max} = 3$, $x_{min} = -2$, $x = -0.02$ } Saturación Derecha

$$Y = \frac{-1(x)}{x_{max} - x_{min}} - \frac{x_{min}}{(x_{max} - x_{min})}$$

$$Y = \frac{-1(-0.02)}{3 - (-2)} - \frac{-2}{3 - (-2)}$$

$Y = 0.396$

B $x_{min} = -0.0005$, $x_{max} = 0.009$, $x = 0.001$ } Saturación Izquierda

$$Y = \frac{-1(x)}{x_{max} - x_{min}} + \frac{x_{max}}{x_{max} - x_{min}}$$

$$Y = \frac{-1(0.001)}{0.009 - (-0.0005} + \frac{0.009}{0.009 - (-0.00$$

$Y = 0.8421$

C $x_{min} = -1720$, $x_{max} = 9560$, $x = 4661$ } Saturación Triángulo

$$Promedio = \frac{x_{max} - x_{min}}{2} = \frac{9560 - (-1720}{2}$$

$Promedio = 3920 < 4661$ ↗

$$Y = \frac{2x_{max}}{x_{max} - x_{min}} - \frac{2(x)}{x_{max} - x_{min}} = \frac{2(9560)}{11280} - \frac{2(4661)}{11280}$$

$Y = 0.86$

1) $x_{max} = 1$, $x_{min} = -1$, $x = -0.8$ } Trapecio $-0.8 < 1 \rightarrow$ Ecuación ↗

$$y = \frac{4x}{x_{max} - 5x_{min}} - \frac{4(x_{min})}{x_{max} - 5x_{min}}$$

$$y = \frac{4(-0.8)}{1-5(-1)} - \frac{4(-1)}{1-5(-1)} = 0.1333\ldots$$

$$\tilde{A} = \left\{ \frac{0.8}{x_1} + \frac{0.94}{x_2} + \frac{0.62}{x_3} + \frac{1}{x_4} \right\}$$

$$\tilde{B} = \left\{ \frac{0.39}{x_1} + \frac{0.84}{x_2} + \frac{0.86}{x_3} + \frac{0.13}{x_4} \right\}$$

$$\tilde{\bar{A}} = \left\{ \frac{0.2}{x_1} + \frac{0.06}{x_2} + \frac{0.38}{x_3} + \frac{0}{x_4} \right\}$$

$$\tilde{\bar{B}} = \left\{ \frac{0.61}{x_1} + \frac{0.16}{x_2} + \frac{0.14}{x_3} + \frac{0.87}{x_4} \right\}$$

} Negados

a) $\tilde{A} \cap \tilde{B} = \left\{ \frac{0.39}{x_1} + \frac{0.84}{x_2} + \frac{0.62}{x_3} + \frac{0.13}{x_4} \right\}$

b) $\tilde{\bar{A}} \cup \tilde{\bar{B}} = \left\{ \frac{0.61}{x_1} + \frac{0.16}{x_2} + \frac{0.38}{x_3} + \frac{0.87}{x_4} \right\}$

Problema 2

$A(x_1) = 5/7 =$

$A(x_2) = 6/7 =$

$A(x_3) = 11/7 =$

$A(x_4) = 8/7 =$

$A(x_5) = 4/7 =$

$A(x_6) = 6/7 =$

$A(x_7) = 4/7 =$

$\frac{5/7}{7/7}$	$\frac{5/7}{6/7}$	$\frac{5/7}{11/7}$	$\frac{5/7}{8/7}$	$\frac{5/7}{4/7}$	$\frac{5/7}{6/7}$	$\frac{5/7}{4/7}$
$\frac{6/7}{5/7}$	$\frac{6/7}{6/7}$	$\frac{6/7}{11/7}$	$\frac{6/7}{8/7}$	$\frac{6/7}{4/7}$	$\frac{6/7}{6/7}$ 1	$\frac{6/7}{4/7}$
$\frac{11/7}{5/7}$	$\frac{11/7}{6/7}$	$\frac{11/7}{11/7}$	$\frac{11/7}{8/7}$	$\frac{11/7}{4/7}$	$\frac{11/7}{6/7}$	$\frac{11/7}{4/7}$
$\frac{8/7}{5/7}$	$\frac{8/7}{6/7}$	$\frac{8/7}{11/7}$	$\frac{8/7}{8/7}$	$\frac{8/7}{4/7}$	$\frac{8/7}{6/7}$	$\frac{8/7}{4/7}$
$\frac{4/7}{5/7}$	$\frac{4/7}{6/7}$	$\frac{4/7}{11/7}$	$\frac{4/7}{8/7}$	$\frac{4/7}{4/7}$	$\frac{4/7}{6/7}$	$\frac{4/7}{4/7}$ 1
$\frac{6/7}{5/7}$	$\frac{6/7}{6/7}$ 1	$\frac{6/7}{11/7}$	$\frac{6/7}{8/7}$	$\frac{6/7}{4/7}$	$\frac{6/7}{6/7}$	$\frac{6/7}{4/7}$
$\frac{4/7}{5/7}$	$\frac{4/7}{6/7}$	$\frac{4/7}{11/7}$	$\frac{4/7}{8/7}$	$\frac{4/7}{4/7}$ 1	$\frac{4/7}{6/7}$	$\frac{4/7}{4/7}$

1's fuera de la diagonal: 4

Los datos **NO** son válidos

Problema 3 (Búsqueda por Profundidad)

S	Q
1	SS
	BS B
	CBS BS
	CBS DBS DBS DBS
	CBS MDBS
	CBS PMDBS
	CBS PMDBS QMDBS
	CBS PMDBS QMDBS ÑMDBS DD

Incluso :)