we need to analyze how each point (x_i,y_i) in the image contributes to $g(a,b)$ through the model $y=ax+b$.
Step 1: Identify the Edge Points $ \label{eq:continuous} $
1. $\delta(x,y-1)\Rightarrow x=0,y=1$ 2. $\delta(x-1,y-2)\Rightarrow x=1,y=2$ 3. $\delta(x+1,y-2)\Rightarrow x=-1,y=2$
3. $\delta(x+1,y-2) \Rightarrow x = -1, y = 2$ 4. $\delta(x-2,y-3) \Rightarrow x = 2, y = 3$ 5. $\delta(x+2,y-3) \Rightarrow x = -2, y = 3$
Step 2: Compute Hough Lines for Each Edge Point For each point (x_i,y_i) , the Hough transform is the set of lines $b=y_i-ax_i$. This results in
the following lines in (a,b) space: $ 1. \ \text{Point } (0,1) \colon b=1 $
2. Point $(1,2)$: $b=2-a$ 3. Point $(-1,2)$: $b=2+a$ 4. Point $(2,3)$: $b=3-2a$
5. Point $(2,3)$: $b=3+2a$ Step 3: Identify All Possible Values of $g(a,b)$
The Hough transform $g(a,b)$ is non-zero at every point (a,b) lying on any of these lines. Therefore, all possible values of $g(a,b)$ occur along these lines in (a,b) space.
Answer: (a) All possible values of the Hough transform $g(a,b)$ are at points (a,b) that satisfy any
of the following equations: $b=1$
b = 2 - a $ b = 2 + a$
ullet b = 3 - 2a $ullet b = 3 + 2a$
That is, $g(a,b)$ is non-zero along these lines in (a,b) space.
Answer the question (b) 思考 26 秒 ~
To determine how many points in the Hough transform satisfy $g(a,b)>1$, we need to find all (a,b) pairs where at least two of the lines obtained from the edge points intersect. At
these intersection points, the value of $g(a,b)$ will be greater than 1 because multiple edge points contribute to the same (a,b) . Step 1: List the Equations from Edge Points
From the given edge points, we have the following equations in (a,b) space: 1. Point $(0,1)$: $b=1$
2. Point $(1,2)$: $b=2-a$ 3. Point $(-1,2)$: $b=2+a$
4. Point $(2,3)$: $b=3-2a$ 5. Point $(-2,3)$: $b=3+2a$
Step 2: Find Intersection Points We find the intersection points by solving the equations in pairs.
1. Intersection at $a=1, b=1$: • Lines $b=1$, $b=2-a$, and $b=3-2a$ intersect here.
• Contributing Lines: Lines 1, 2, and 4 $ g(a,b) = 3 $ 2. Intersection at $a=-1,b=1$:
• Lines $b=1$, $b=2+a$, and $b=3+2a$ intersect here. • Contributing Lines: Lines 1, 3, and 5
• $g(a,b)=3$ 3. Intersection at $a=0,b=2$:
 Lines b = 2 - a and b = 2 + a intersect here. Contributing Lines: Lines 2 and 3
• $g(a,b)=2$ 4. Intersection at $a=-\frac{1}{3}, b=\frac{7}{3}$: • Lines $b=2-a$ and $b=3+2a$ intersect here.
• Contributing Lines: Lines 2 and 5 $g(a,b)=2$
5. Intersection at $a=\frac{1}{3}, b=\frac{7}{3}$: • Lines $b=2+a$ and $b=3-2a$ intersect here.
• Contributing Lines: Lines 3 and 4 $ g(a,b) = 2 $ 6. Intersection at $a=0,b=3$:
 Intersection at $a=0, b=3$: Lines $b=3-2a$ and $b=3+2a$ intersect here. Contributing Lines: Lines 4 and 5
• $g(a,b)=2$ Step 3: Count the Points Where $g(a,b)>1$
There are six unique intersection points where $g(a,b)>1$: 1. $a=1,b=1$ $\qquad (g(a,b)=3)$
2. $a=-1, b=1$ $(g(a,b)=3)$ 3. $a=0, b=2$ $(g(a,b)=2)$
4. $a = -\frac{1}{3}, b = \frac{7}{3}$ $(g(a,b) = 2)$ 5. $a = \frac{1}{3}, b = \frac{7}{3}$ $(g(a,b) = 2)$
6. $a = 0, b = 3$
(b) There are 6 points in the Hough transform where $g(a,b)>1.$
Answer the question (c)
思考 16 秒 \checkmark To determine the equation(s) of the line(s) $y=ax+b$ that have the highest number of pixels, we need to find the lines that pass through the maximum number of edge points in
the given binary image $f(x,y)$. Step 1: List the Edge Points
From the given $f(x,y)$, the edge points are: 1. $\left(0,1\right)$
2. $(1,2)$ 3. $(-1,2)$ 4. $(2,3)$
5. $(-2,3)$ Step 2: Test Lines for Maximum Edge Points
We need to find lines $y = ax + b$ that pass through as many of these points as possible.
The freed to find fines g — aa + o tride pass till ought as many of triese points as possible.
Line 1: $y=x+1$ Test each edge point:
Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark
Line 1: $y = x + 1$ Test each edge point: • $(0,1)$: $1 = 0 + 1$ \checkmark • $(1,2)$: $2 = 1 + 1$ \checkmark • $(2,3)$: $3 = 2 + 1$ \checkmark • $(-1,2)$: $2 \neq -1 + 1$
Line 1: $y = x + 1$ Test each edge point: • $(0,1)$: $1 = 0 + 1$ \checkmark • $(1,2)$: $2 = 1 + 1$ \checkmark • $(2,3)$: $3 = 2 + 1$ \checkmark • $(-1,2)$: $2 \neq -1 + 1$ • $(-2,3)$: $3 \neq -2 + 1$ Total Edge Points on Line 1: 3
Line 1: $y = x + 1$ Test each edge point: • $(0,1)$: $1 = 0 + 1$ \checkmark • $(1,2)$: $2 = 1 + 1$ \checkmark • $(2,3)$: $3 = 2 + 1$ \checkmark • $(-1,2)$: $2 \neq -1 + 1$ • $(-2,3)$: $3 \neq -2 + 1$ Total Edge Points on Line 1: 3 Line 2: $y = -x + 1$ Test each edge point:
Line 1: $y = x + 1$ Test each edge point: • $(0,1)$: $1 = 0 + 1$ \checkmark • $(1,2)$: $2 = 1 + 1$ \checkmark • $(2,3)$: $3 = 2 + 1$ \checkmark • $(-1,2)$: $2 \neq -1 + 1$ • $(-2,3)$: $3 \neq -2 + 1$ Total Edge Points on Line 1: 3 Line 2: $y = -x + 1$ Test each edge point: • $(0,1)$: $1 = -0 + 1$ \checkmark • $(-1,2)$: $2 = -(-1) + 1$ \checkmark
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Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(-2,3)$: $3\neq -2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(1,2)$: $2\neq -1+1$ • $(2,3)$: $3\neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points.
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Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2 \neq -1+1$ • $(-2,3)$: $3 \neq -2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-2,3)$: $3=-(-2)+1$ \checkmark • $(1,2)$: $2 \neq -1+1$ • $(2,3)$: $3 \neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. $\bigcirc \bigcirc \bigcirc$ Answer the question (d)
Line 1: $y=x+1$ Test each edge point: • $(0,1):1=0+1$ \checkmark • $(1,2):2=1+1$ \checkmark • $(2,3):3=2+1$ \checkmark • $(-1,2):2\neq -1+1$ • $(-2,3):3\neq -2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1):1=-0+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-2,3):3=-(-2)+1$ \checkmark • $(-2,3):3\neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. $(-1, 2): 2 \mapsto (-1, 2): 2 \mapsto $
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Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(-2,3)$: $3\neq -2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(2,3)$: $3\neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. 0 0 0 0 0 0 0 0 0 0
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Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ \bullet • $(-2,3)$: $3\neq -2+1$ Total Edge Points on Line 1: 3 Line 2 : $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(2,3)$: $3\neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. • (3)
Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1 \checkmark$ • $(1,2)$: $2=1+1 \checkmark$ • $(2,3)$: $3=2+1 \checkmark$ • $(-1,2)$: $2=-1+1$ • $(-2,3)$: $3=2+1 \checkmark$ • $(-1,2)$: $2=-1+1$ • $(-2,3)$: $3=-2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1 \checkmark$ • $(-1,2)$: $2=-(-1)+1 \checkmark$ • $(-1,2)$: $2=-(-1)+1 \checkmark$ • $(-1,2)$: $2=-(-1)+1 \checkmark$ • $(1,2)$: $2=-1+1$ • $(2,3)$: $3=-2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$: $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. © $0=0$ $0=0$ $0=0$ Answer the question (d) Edge 19 $0=0$ To determine $G(a,b)$, we need to compute the Hough transform $g(a,b)$ and then apply the condition: $\begin{cases} g(a,b), & \text{if } g(a,b) > 1 \\ 0, & \text{otherwise} \end{cases}$ Step 1: Recall the Hough Transform Lines From the given edge points in $f(x,y)$, we have the following lines in (a,b) space: 1. $b=1$ (from $(0,1)$) 2. $b=2-a$ (from $(-1,2)$) 3. $b=2-a$ (from $(-1,2)$) 4. $b=3-2a$ (from $(-2,3)$) Step 2: Identify Points Where $g(a,b)>1$ From part (b), we found six intersection points where $g(a,b)>1$: 1. At $(a,b)=(1,1)$: • Lines $b=1,b=2-a$, and $b=3-2a$ intersect.
Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2\neq -1+1$ • $(-2,3)$: $3\neq -2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-2,3)$: $3=-(-2)+1$ \checkmark • $(1,2)$: $2=-(-1)+1$ \checkmark • $(-2,3)$: $3=-(-2)+1$ \checkmark • $(1,2)$: $2\neq -1+1$ • $(2,3)$: $3\neq -2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. \emptyset : \emptyset : \emptyset : \emptyset : \emptyset : \emptyset : To determine $G(a,b)$, we need to compute the Hough transform $g(a,b)$ and then apply the condition: $\begin{cases} g(a,b), & \text{if } g(a,b) > 1 \\ 0, & \text{otherwise} \end{cases}$ Step 1: Recall the Hough Transform Lines From the given edge points in $f(x,y)$, we have the following lines in (a,b) space: 1. $b=1$ (from $(0,1)$) 2. $b=2-a$ (from $(-1,2)$) 4. $b=3-2a$ (from $(-2,3)$) Step 2: Identify Points Where $g(a,b)>1$ From part (b) , we found six intersection points where $g(a,b)>1$: 1. At $(a,b)=(1,1)$: • Lines $b=1$, $b=2-a$, and $b=3-2a$ intersect. • $g(1,1)=3$ 2. At $(a,b)=(-1,1)$:
Line 1: $y=x+1$ Test each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2=1+1$ • • $(-2,3)$: $3=2+1$ Total Edge Points on Line 1: 3 Line 2 : $y=-x+1$ Test each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(1,2)$: $2=-(-1)+1$ \checkmark • Answer than 3 edge points lying on them. Conclusion: The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (2) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (2) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. (3) : The lines w
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Line 1; $y=x+1$ Test each edge point: • $(0,1):1=0+1$ \checkmark • $(1,2):2=1+1$ \checkmark • $(2,3):3=2+1$ \checkmark • $(2,3):3=2+1$ \checkmark • $(-1,2):2\ne-1+1$ • $(-2,3):3\ne-2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1):1=-0+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-2,3):3\ne-2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1):1=-0+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2\ne-1+1$ • $(2,3):3\ne-2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2, y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. • \bigcirc
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Une 1: $y=x+1$ Test each edge point: • $(0,1):1=0+1$ \checkmark • $(1,2):2=1+1$ \checkmark • $(2,3):3=2+1$ \checkmark • $(2,3):3=2+1$ \checkmark • $(-1,2):2\ne-1+1$ • $(-2,3):3\ne-2+1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Test each edge point: • $(0,1):1=-0+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-2,3):3=-(-2)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):2=-(-1)+1$ \checkmark • $(-1,2):3=3=(-2)+1$ \checkmark • $(1,2):2\ne-1+1$ • $(2,3):3\ne-2+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2, y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. \emptyset
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Line 1: $y=x+1$ Text each edge point: • $(0,1)$: $1=0+1$ \checkmark • $(1,2)$: $2=1+1$ \checkmark • $(2,3)$: $3=2+1$ \checkmark • $(-1,2)$: $2=1+1$ \checkmark • $(-1,2)$: $2=1+1$ \checkmark • $(-1,2)$: $2=1+1$ \checkmark • $(-1,2)$: $2=x+1$ Total Edge Points on Line 1: 3 Line $2: y=-x+1$ Text each edge point: • $(0,1)$: $1=-0+1$ \checkmark • $(-1,2)$: $2=-(-1)+1$ \checkmark • $(-1,2)$: $(-1$
Line 1: $y=x+1$ Test each edge point: • $(0,1)_1=0+3$ \lor • $(1,2)_2=1+3$ \lor • $(1,2)_3=3+3+4$ \lor • $(1,2)_3=3+1+4$ \lor • $(2,3)_3=2+1+4$ • $(-2,3)_3\neq -2+1$ Total Edge Points on the 1:3 Line $2:y=-x+1$ Test each edge point: • $(0,1)_1=0+1$ \lor • $(-2,3)_3=-2+1$ Total Edge Points on the 1:3 Line $2:y=-x+1$ Test each edge point: • $(0,1)_1=0+1$ \lor • $(-1,2)_2=-(-1)+1$ \lor • $(-1,2)_2=-(-1)+1$ \lor • $(-1,2)_2=-(-1)+1$ \lor • $(-1,2)_2=-(-1)+1$ \lor • $(-1,2)_3=-(-2)+1$ \lor • $(-1,2)_3=-(-2)+1$ \lor • $(-1,2)_3=-(-1)+1$ \lor • Lines $b=1,b=2-a$ and $b=3+2a$ intersect. • $g(-1,1)=3$ \circ • Lines $b=1,b=2-a$ and $b=3+2a$ intersect. • $g(-1,1)=3$ \circ • Lines $b=2-a$ and $b=3+2a$ intersect. • $g(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-(-1,2)=-$
Line 1: $y=x+1$ Test each edge point: • $(0,1)$ 1: $1=0+1+y$ • $(1,2)$ 2: $2+1+1+y$ • $(2,3)$ 3: $3=2+1$ • $(-1,2)$ 2: $2+1+1$ • $(-2,3)$ 3: $3=2+1$ Total Edge Points on Line 1: 3 Line $2: y=-x+1$ Test each edge points • $(0,1)$ 1: $1-0+1$ • $(-1,2)$ 2: $2+-1+1$ • $(-2,3)$ 3: $3-(-2)+1$ Test each edge points on Line 1: 3 Line $2: y=-x+1$ Test each edge points on Line 1: 3 Line $2: y=-x+1$ Test each edge points on Line 1: 3 Other Possible Lines: Testing and the lines like $y=2: y=3: 0$ or $y=0$ results in fower than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass through 3 edge points which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. Of C 1: C 2: C 3: C 4: C 4: C 4: C 4: C 5: C 5: C 6: C 6: C 7: C 7: C 8: C 7: C 8:
Line 1: $y=x+1$ Test each edge point: • $(0,1):1-0+1 \lor$ • $(2,3):3-2+1 \lor$ • $(2,3):3-2+1 \lor$ • $(2,3):3-2+1 \lor$ • $(-1,2):2:4-1+1$ • $(-2,3):3:4-2+1$ Test each edge points on Line 1: 3 Time $2:y=x-1$ Test each edge points on Line 1: 3 Time $2:y=x-1$ Test each edge point: • $(0,1):1-0-0:1 \lor$ • $(-1,2):2:3-(-1)+1 \lor$ • $(-1,2):2:3-(-1)+1 \lor$ • $(-1,2):3:3-(-2)+1$ • $(-2,3):3:4-(-2)+1 \lor$ • $(-1,2):2:4-1+1$ • $(2,3):3-2-1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2:y=3$, or $y=0$ results in fewer than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x-1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: (c) The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. $G: O: O:$
Line 1: $y=x+1$ Test each edge point: • $(0,1)1-0+1+\sqrt{\cdot}$ • $(1,2):2=1+1+\sqrt{\cdot}$ • $(2,3):3-2+1+\sqrt{\cdot}$ • $(2,1):1=0-1+\sqrt{\cdot}$ • $(2,1):1=0-1+\sqrt{\cdot}$ • $(2,3):3-2+1+\sqrt{\cdot}$ • $(3,3):3-2+1+\sqrt{\cdot}$ • $(3,3):3-$
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Line 1: $y=x+1$ Test each edge point $y=x+1$ Test each edge point $y=x+1$ $y=x+1$ $y=x+1$ $y=x+1$ $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ $y=x+1$ Cot. 1: $y=x+1$ $y=x+1$ Cot. 1: $y=x+1$ $y=x+1$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other lines like $y=2$, $y=3$ or $y=0$ results in fewer than 1 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=x+1$ each pass through 3 edge points, which is the maximum possible with the given set of points. Answer: Cotherines Inc. 1: $y=x+1$ Answer the question (8) Eagl 1: $y=x+1$ Answer the question (8) Eagl 1: $y=x+1$ To determine $G(a,b)$, we need to compute the Hough transform $g(a,b)$ and then apply the condition: $\begin{cases} y(a,b), & y(a,b) > 1 \\ y(a,b$
Line 1: $y=x+1$ Test each edge point: • $(0,1) 1 - 0 - 1 = y$ • $(1,2) 2 - 1 = 1 = y$ • $(2,3) 3 - 2 - 1 = y$ • $(-1,2) 2 \neq -1 = 1$ • $(-2,3) 3 \neq -2 = 1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Lest each edge point: • $(0,1) 1 - 0 - 1 \neq y$ • $(-1,2) 2 \neq -1 - 1$ • $(-2,3) 3 \neq -2 = 1$ Total Edge Points on Line 1: 3 Line 2: $y=-x+1$ Lest each edge point: • $(0,1) 1 - 0 - 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 = -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ • $(-1,2) 2 \neq -(-1) + 1 \neq y$ Total Edge Points on Line 2: 3 Other Possible Lines: Testing other Lines: $\{g(a,b), Hg(a,b) > 1$ On therewise: Step 1: Recall the Hough Transform Lines: $\{g(a,b) > 1$ On therewise: Step 1: Recall the Hough Transform Lines: $\{g(a,b) > 1$ On therewise: Step 2: A (a) (a,b) in the section points where $g(a,b) > 1$: Total Edge Points where $g(a,b) > 1$ Total Edge Points where $g(a,b) > 1$ Total Edge Points where $g(a,b) > 1$ Total Edge Points on Lines: $\{g(a,b) > 1$ On therewise: $\{g(a,b) > 1$ On therewise: Step 3: An $\{g(a,b) > 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1$
Line 1: $y=x+1$ Lose each edge point: $y=(0,1)=0:1$ $y=(0,1)=0:1$ $y=(0,1)=0:1$ $y=(0,1)=0:1$ $y=(0,2)=1:1$ $y=(0,2)=1:1$ $y=(0,2)=1:1$ $y=(0,2)=1:1$ $y=(0,2)=2:1$ $y=(0,2)=2:1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Total Edge Points on Line 1: 3 Line 2: $y=x+1$ Line 3: $y=x+1$ Line 4: $y=x+1$ Line 4: $y=x+1$ Line 4: $y=x+1$ Line 5: $y=x+1$ Line 7: $y=x+1$ Line 1: $y=x+1$ Line 1: $y=x+1$ Line 1: $y=x+1$ Line 2: $y=x+1$ Line 3: $y=x+1$ Line 3: $y=x+1$ Line 3: $y=x+1$ Line 4: $y=x+1$ Line 4: $y=x+1$ Line 4: $y=x+1$ Line 5: $y=x+1$ Line 4: $y=x+1$ Line 5: $y=x+1$ Line 6: $y=x+1$
The test edge point $v_1(x_1) = 0$ if $v_2(x_1) = 0$ if $v_2(x_2) = 0$ if $v_2(x_1) = 0$ if $v_2(x_1)$
Limit it $y=x+1$ Lose each wide point: (0,1): $1=0-1 \lor \lor$ (1,2): $2-1-1 \lor \lor$ (2,3): $3-2-1 \lor \lor$ (2,3): $3-2-1 \lor \lor$ (2,3): $3-2-1$ Total Edge Points on Line 1: 3 Limit $2: y=-x+1$ Total Edge Points on Line 1: 3 Limit $2: y=-x+1$ Total Edge Points on Line 1: 3 Limit $2: y=-x+1$ Total Edge Points on Line 1: 3 Limit $2: y=-x+1$ Total Edge Points on Line 1: 3 Other Possible Line: Total Edge Points on Line 2: 3 Other Possible Line: Teating other lines like $y=2$: $y=3$, or $y=0$ results in fever than 3 edge points lying on them. Conclusion: The lines $y=x+1$ and $y=-x+1$ each pass drough 3 edge points, which is the maximum possible with the highest number of pixels are $y=x+1$ and $y=-x+1$. Go The lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. In the lines with the highest number of pixels are $y=x+1$ and $y=-x+1$. Step 1: Recall the Hough Transform Line: $\begin{cases} g(a,b): \ y: g(a,b) > 1 \\ 0, \text{solutions} \end{cases}$ To the deforming $G(a,b)$, we need to compute the Hough Transform $g(a,b)$ and then apply the condition: $\begin{cases} g(a,b): \ y: g(a,b) > 1 \\ 0, \text{solutions} \end{cases}$ Form the given edge points in $f(x,y)$, we have the following lines in (a,b) space: 1. $b=1$ — then $(a,1)$. 2. $b=2-a$ — direct $(a,3)$. 3. $b=2-a$ — direct $(a,3)$. 3. $b=2-a$ — direct $(a,3)$. 5. $b=3-2=2$ inform $(a,3)$. 5. $b=3-3=2$ inform $(a,3)$. 6. $a=3-3=3$ information. 1. $a=3-3=3$ information. 1. $a=3-3=3=3=3=3=3=3=3=3=3=3=3=3=3=3=3=3=3=$
then to $y=x+3$ Test each degree point $(0,0)$; $y=0$; $y=1$; $y=0$; $(0,0)$; $y=0$;
this $1:y-z+1$ For each region point: $(0,0):S(1-0):I=V$ $(0,0):S(1-0):I=V$ $(0,0):S(1-0):I=V$ $(1,0):S(2-1):I=V$ $(1,0):S(2-$