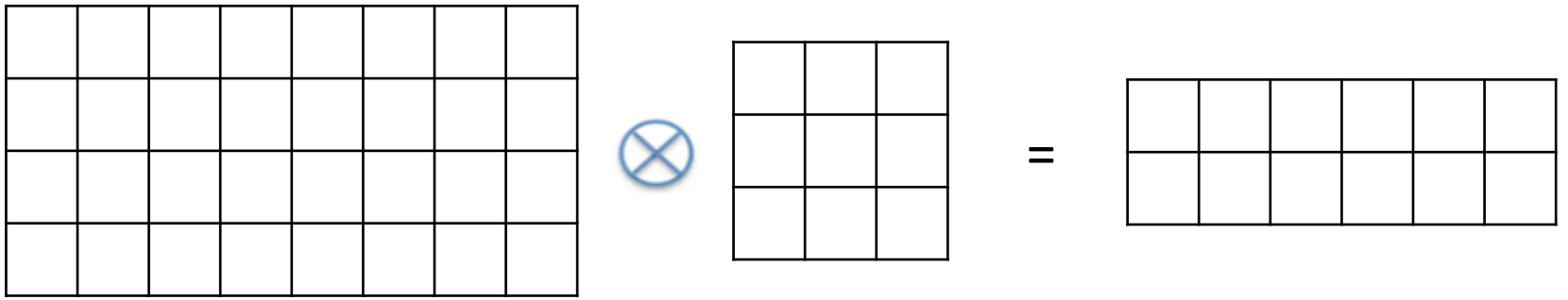
Research of AI accelerator

Con2d Transformation



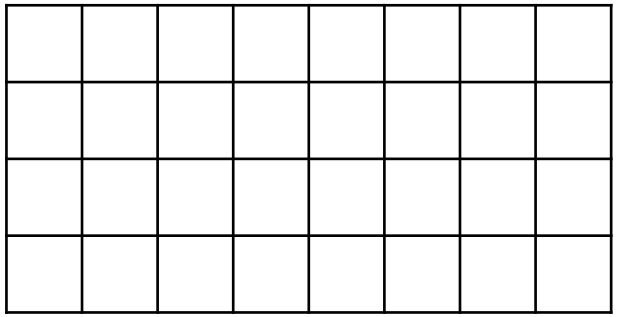
Input Image
(4*8)

Feature
Detector
(3*3)

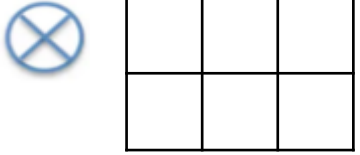
Feature Map
(2*6)

Split input image with weight

To split input image to fit hardware resource constraints

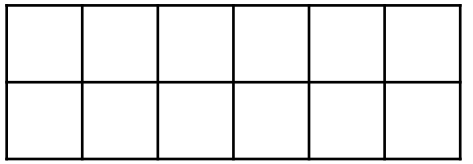


Input Image
(4*8)



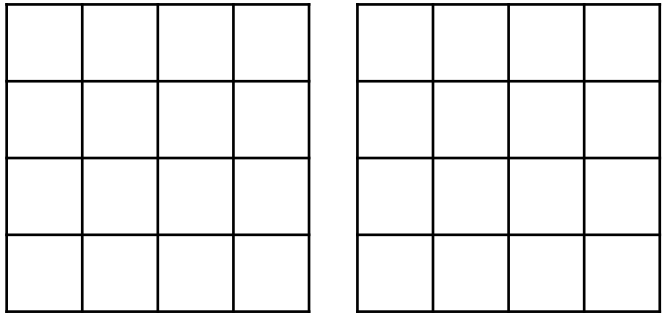
Feature
Detector
(3*3)

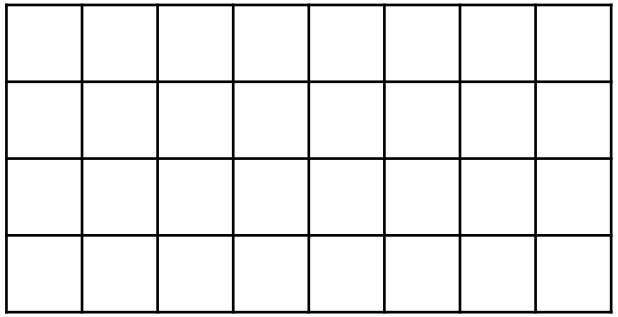
=



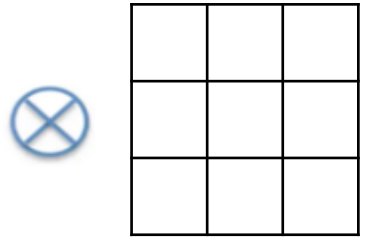
Feature Map
(2*6)

Split image



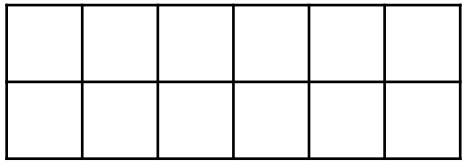


Input Image
(4*8)



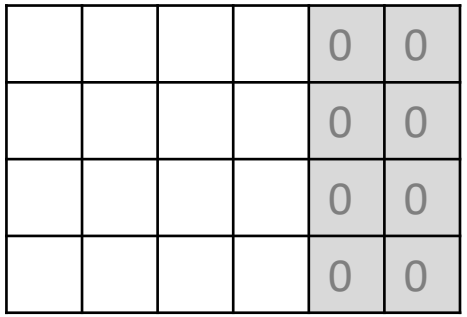
Feature
Detector
(3*3)

=



Feature Map
(2*6)

Split image



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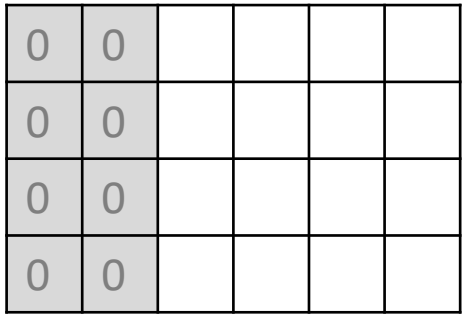

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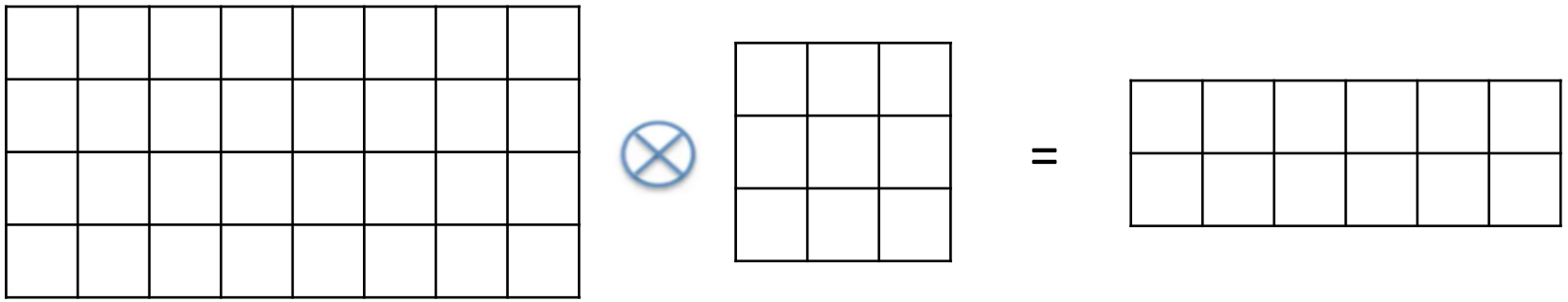
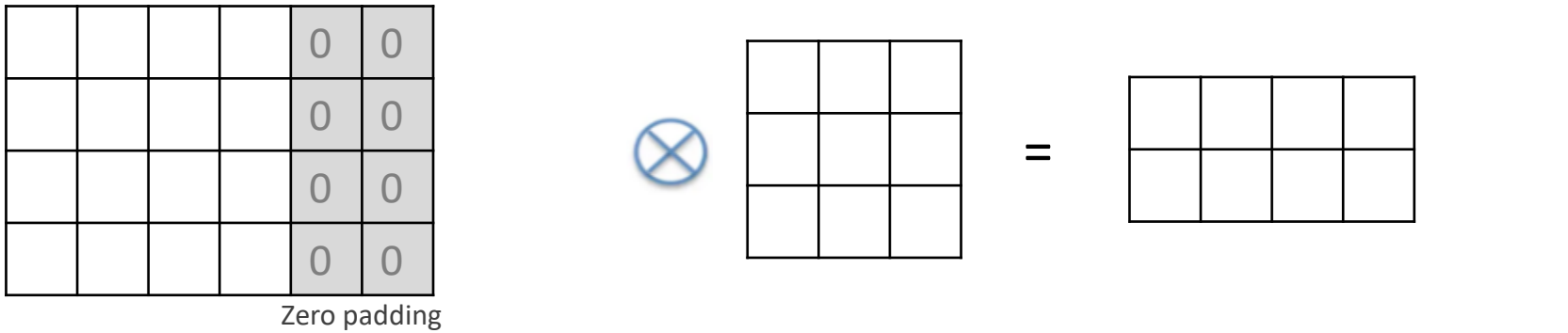


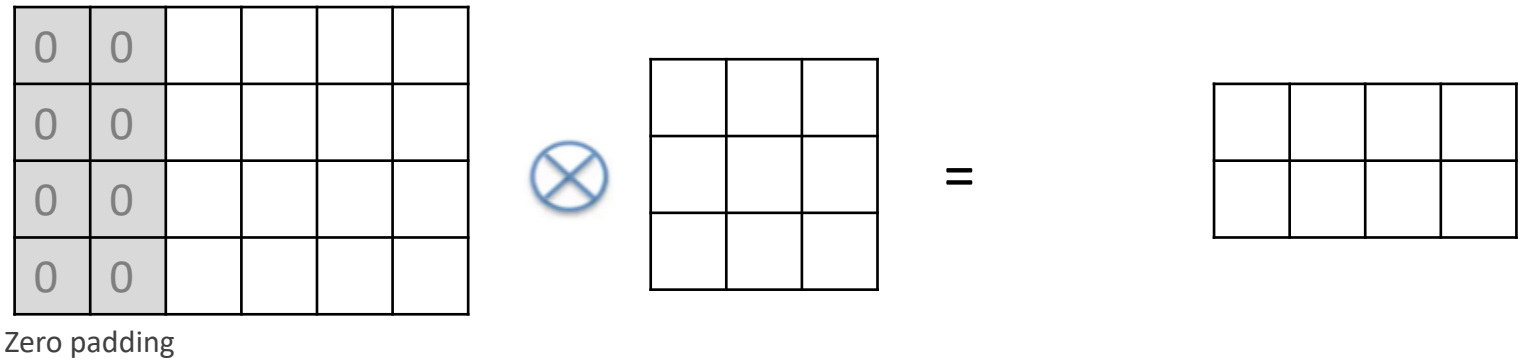
Input Image
(4*8)

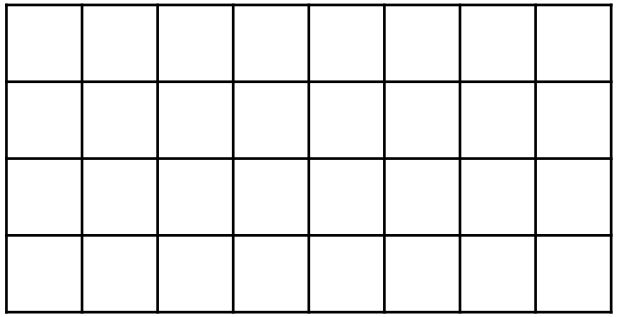
Feature
Detector
(3*3)

Feature Map
(2*6)

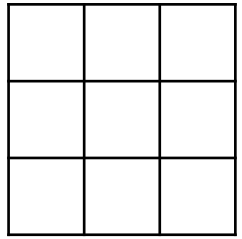
Split image





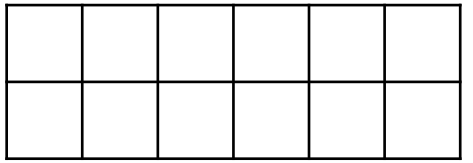


Input Image
(4*8)



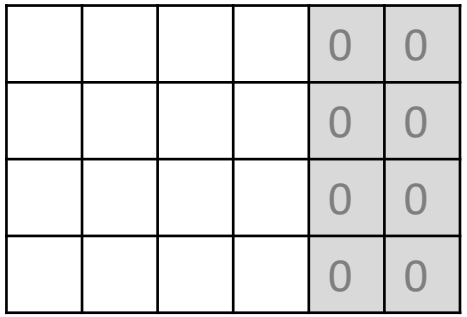
Feature
Detector
(3*3)

=



Feature Map
(2*6)

Split image



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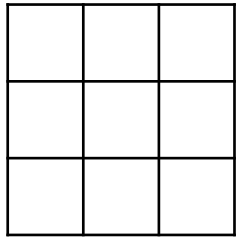

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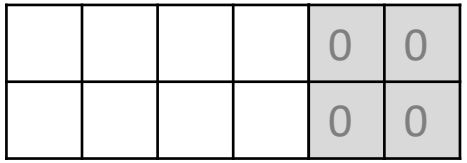

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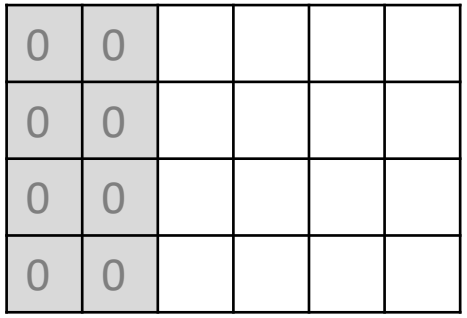

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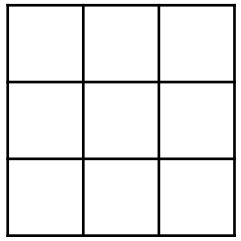

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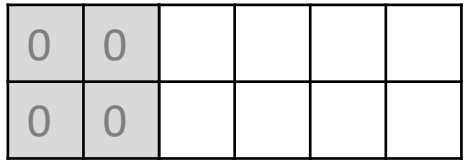

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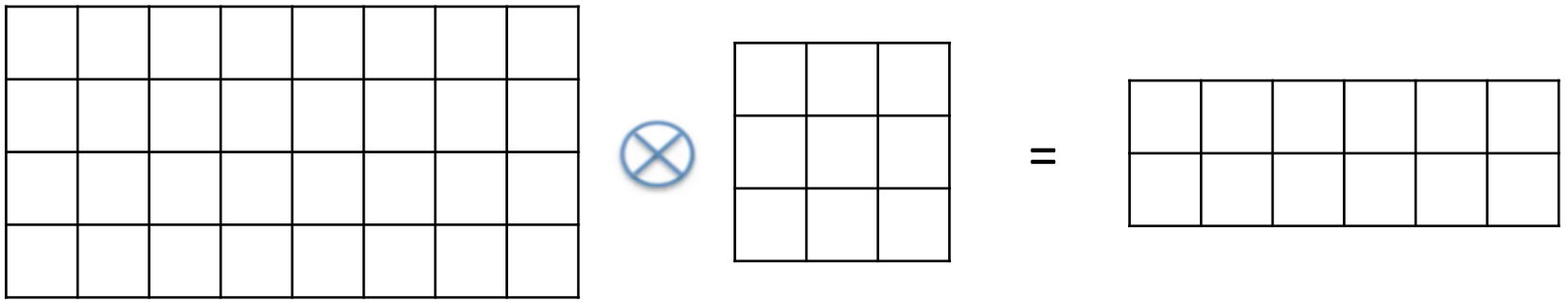
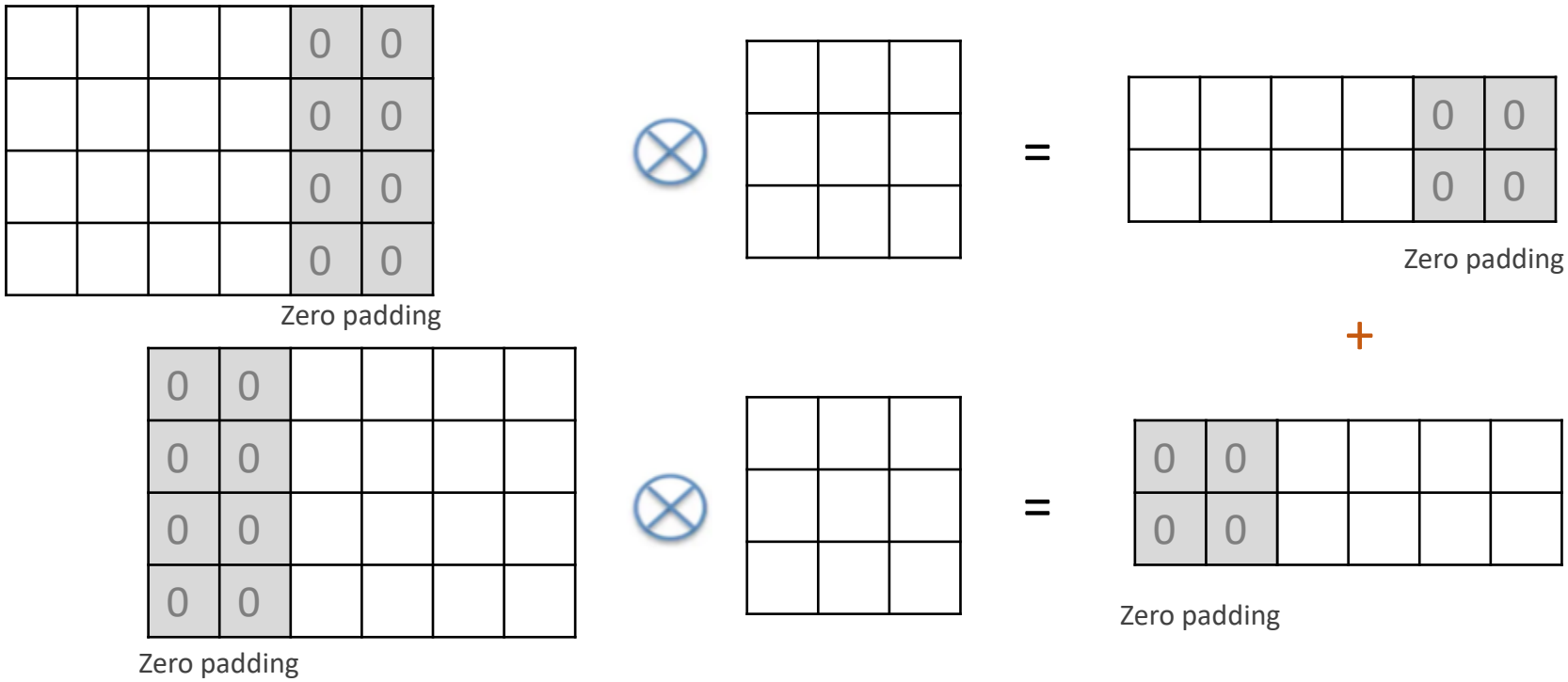

Input Image
(4*8)
Feature
Detector
(3*3)
Feature Map
(2*6)

Split image

(=)


0
Zero padding
Zero padding
+
Zero padding

Follow up

1. If the output size is 2 (2*3), how to split the input image to get the result ?
2. To consider input s/ weight and output stationary to do the optimization.
3. Split input image along height and dimension.