

Single Image Segmentation with Estimated Depth (Supplementary materials)

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Japan

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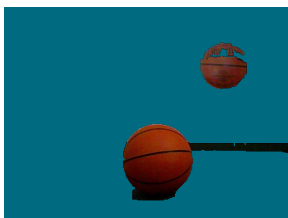
Legends

Input image



Input image with
controlled/complex
background

Mc

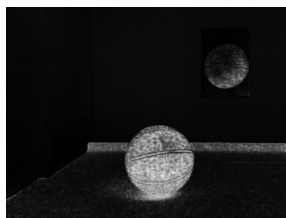


Segmentation results using
the baseline method (left) and
the proposed method (right)

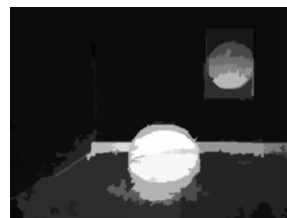
Mcd



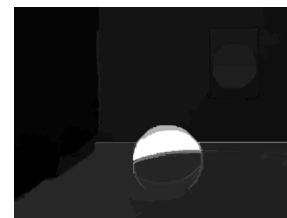
FT



RC



CB



Output of saliency computation using FT [Achanta et al., 2009] (left),
RC [Cheng et al., 2011] (middle), and CB [Jiang et al., 2011] (right)
(The brightness at each pixel corresponds to the level of saliency.)

Images with controlled backgrounds (additional results to Figure 5) [1 - 3/ 27]

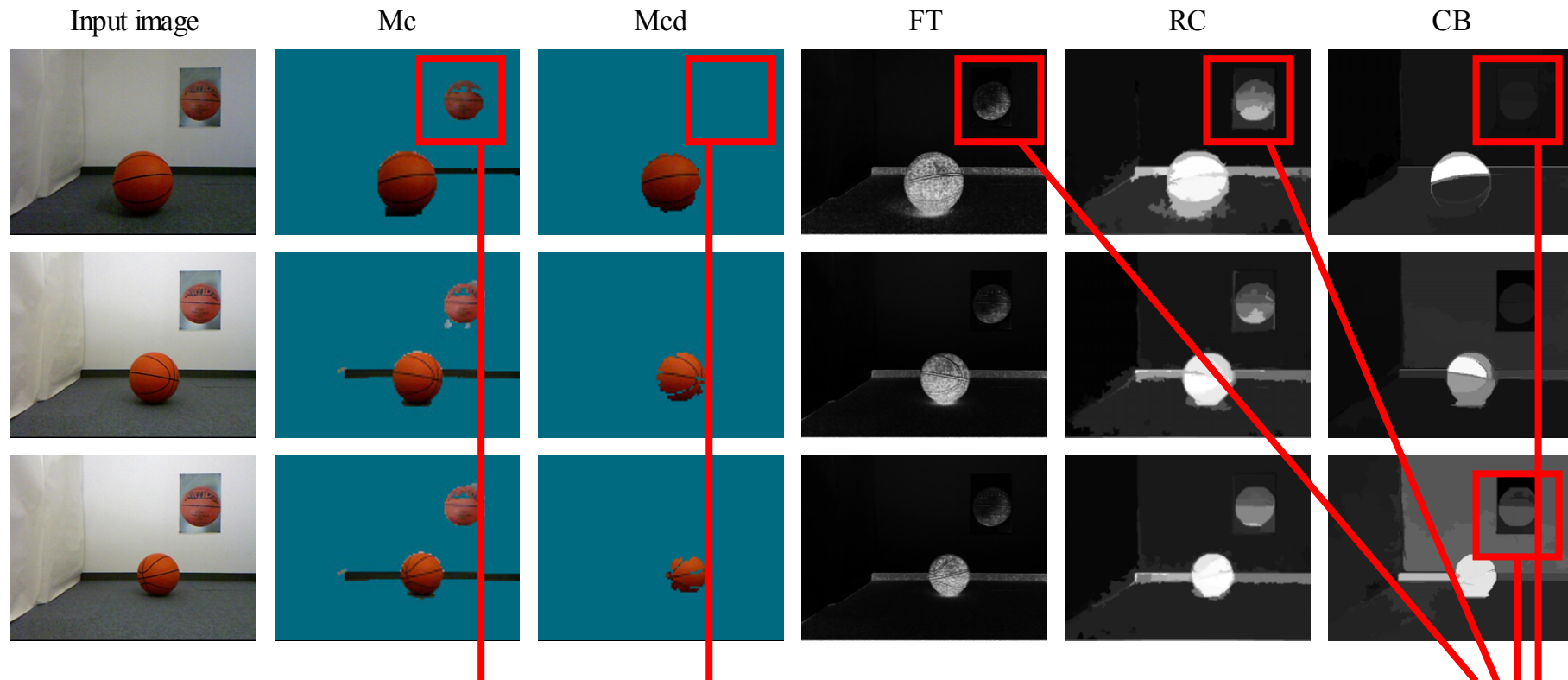
Mc: segmentation results using only color (baseline, F-measure: 0.61)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.80)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



The baseline method detects mimics incorrectly.

The proposed method can eliminate the incorrect detection.

Salient region detections are unstable with regard to the elimination of mimics.

Images with controlled backgrounds (additional results to Figure 5) [4 - 6/ 27]

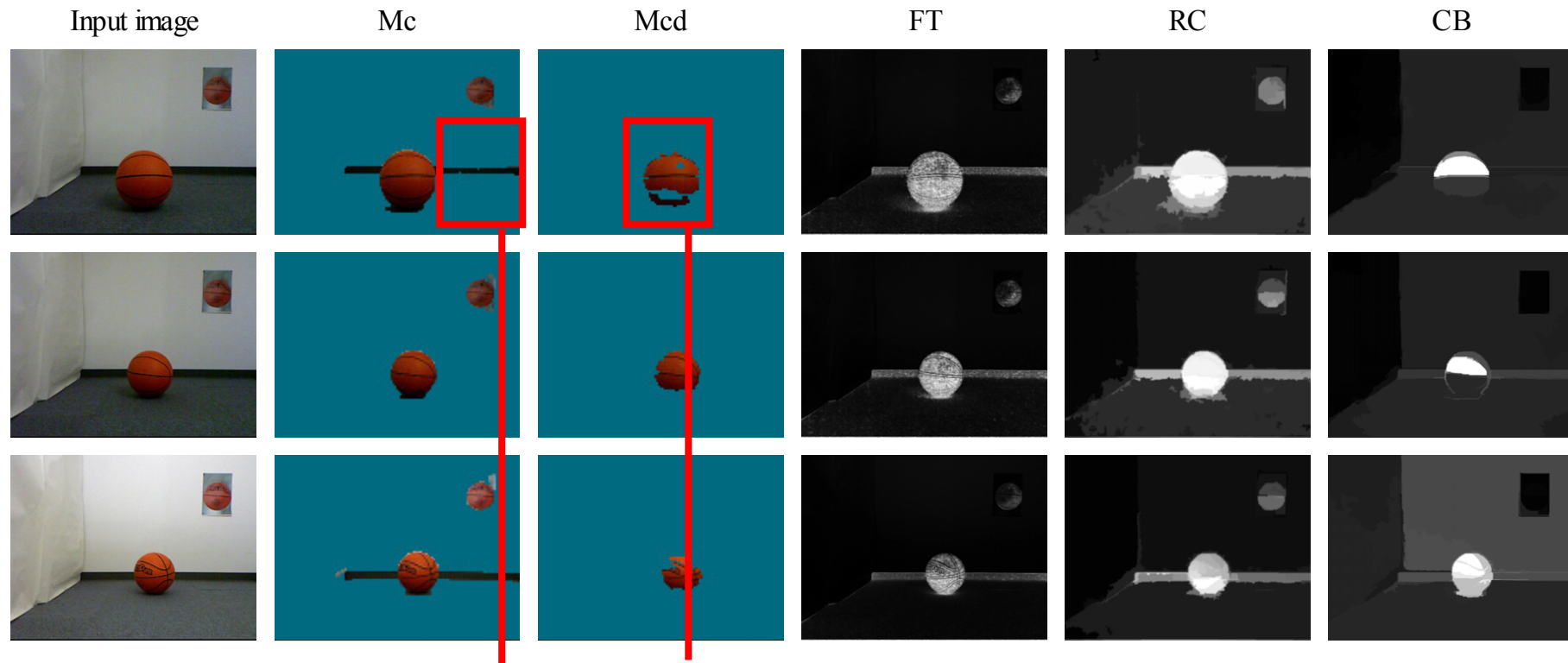
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RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



The baseline method often detects non-mimic backgrounds incorrectly.

The proposed method often fails to extract the boundaries of objects, which results in over-segmentation.

Images with controlled backgrounds (additional results to Figure 5) [7 - 9/ 27]

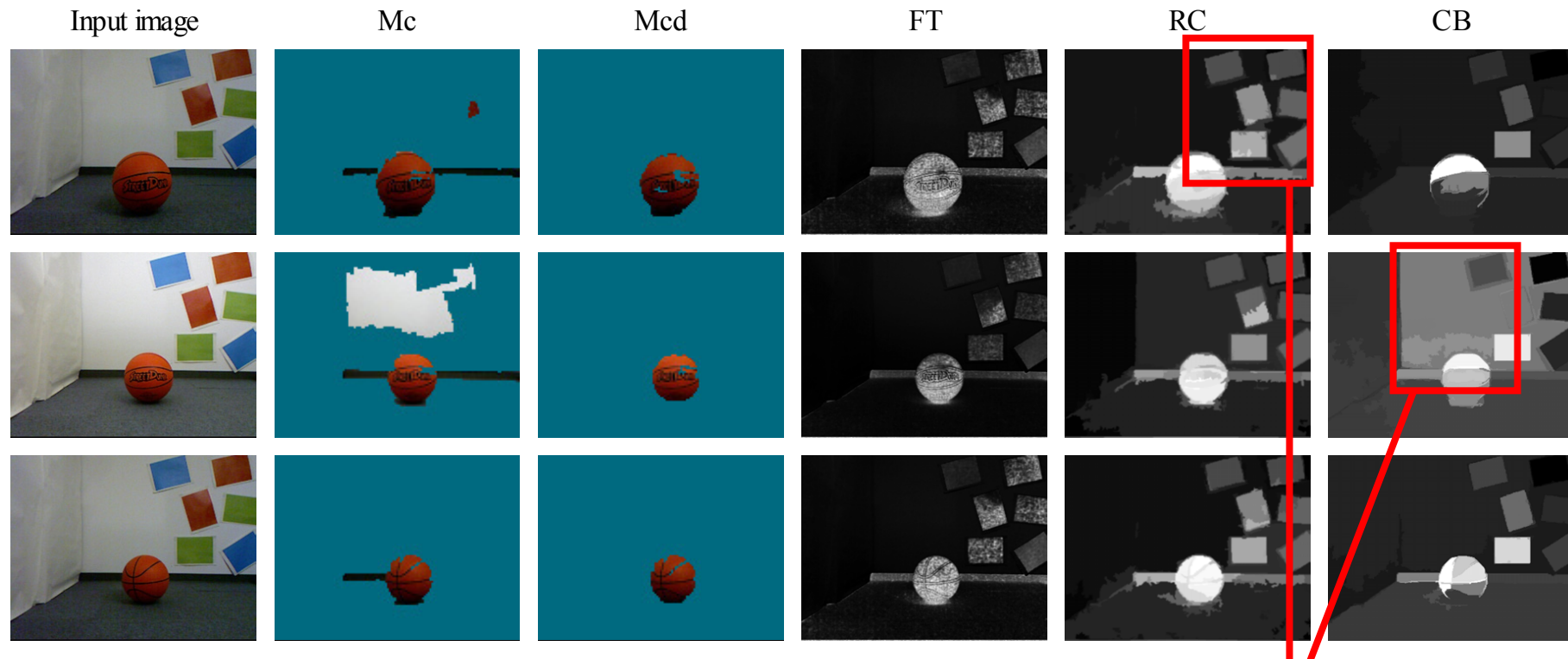
Mc: segmentation results using only color (baseline, F-measure: 0.61)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.80)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Non-object regions are sometimes regarded as salient when using the salient region detection methods.

Images with controlled backgrounds (additional results to Figure 5) [10 - 12/ 27]

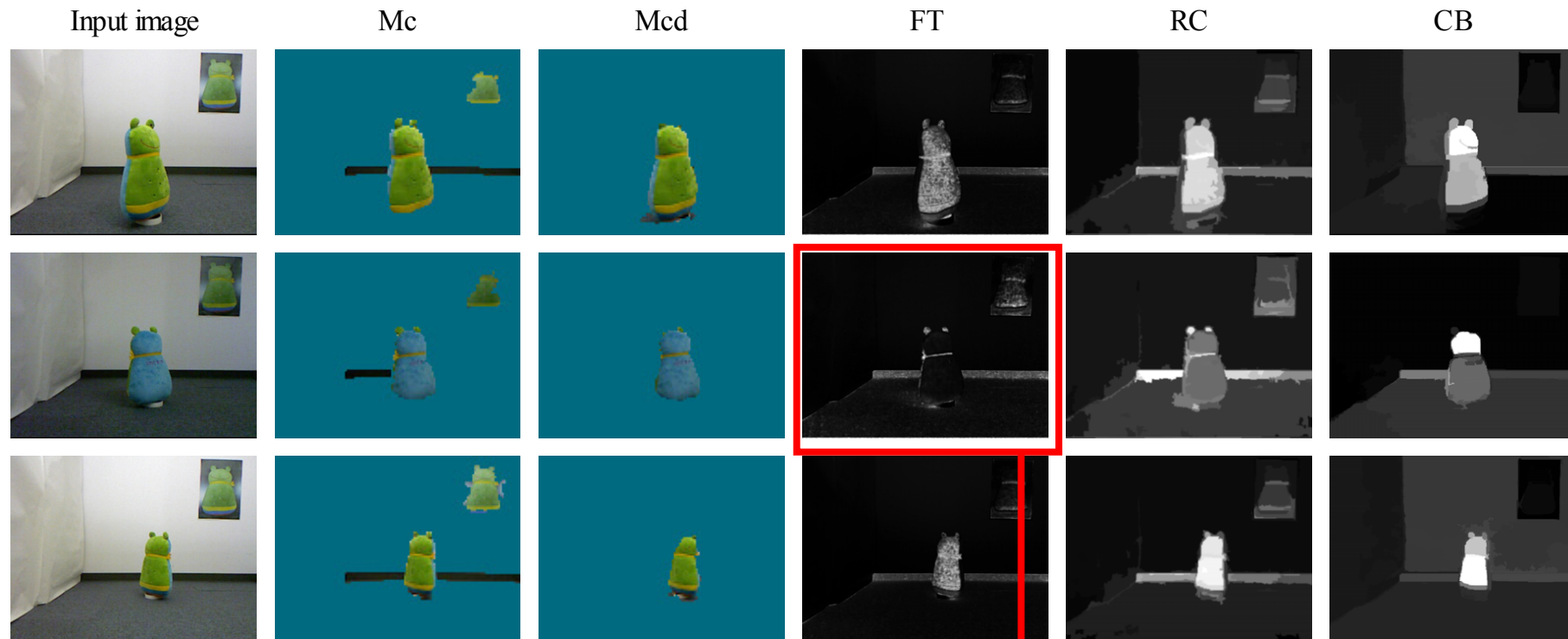
Mc: segmentation results using only color (baseline, F-measure: 0.61)

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FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

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CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Salient region detection proposed in [Achanta et al., 2009]
sometimes fails to specify objects.

Images with controlled backgrounds (additional results to Figure 5) [13 - 15/ 27]

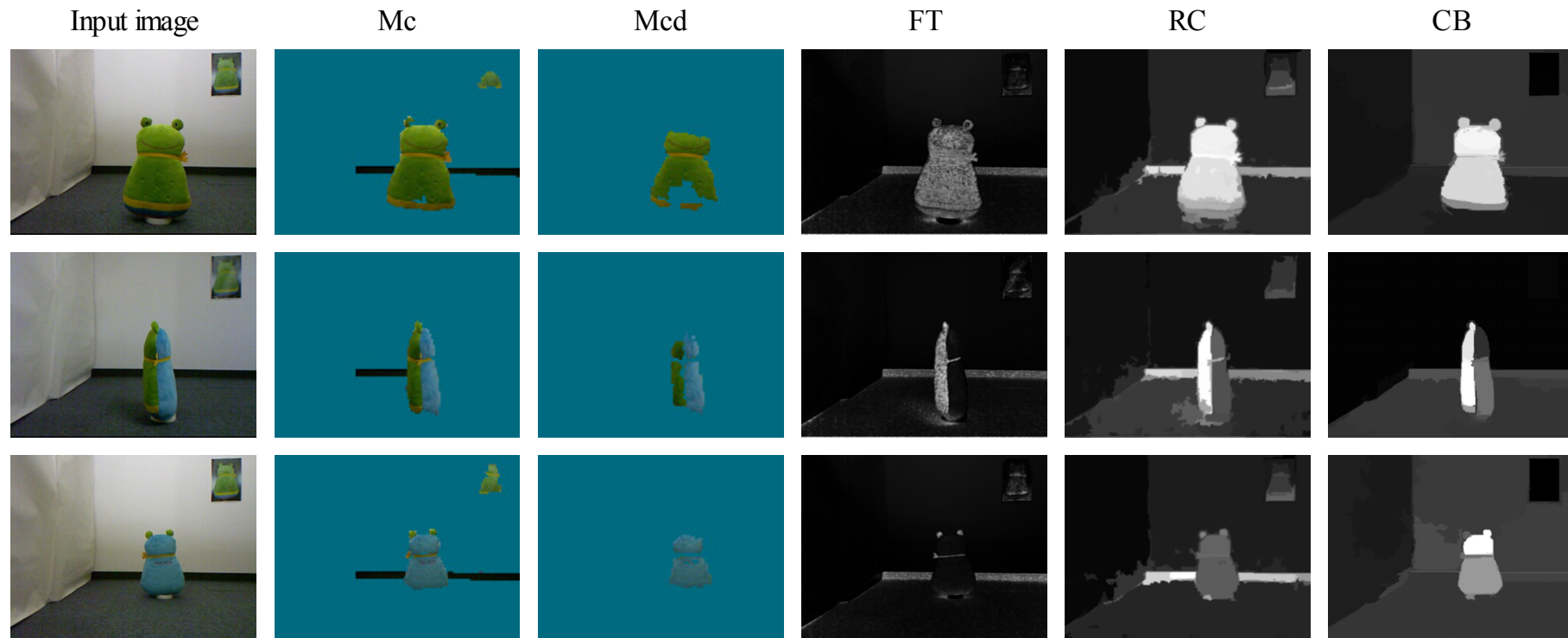
Mc: segmentation results using only color (baseline, F-measure: 0.61)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.80)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Images with controlled backgrounds (additional results to Figure 5) [16 - 18/ 27]

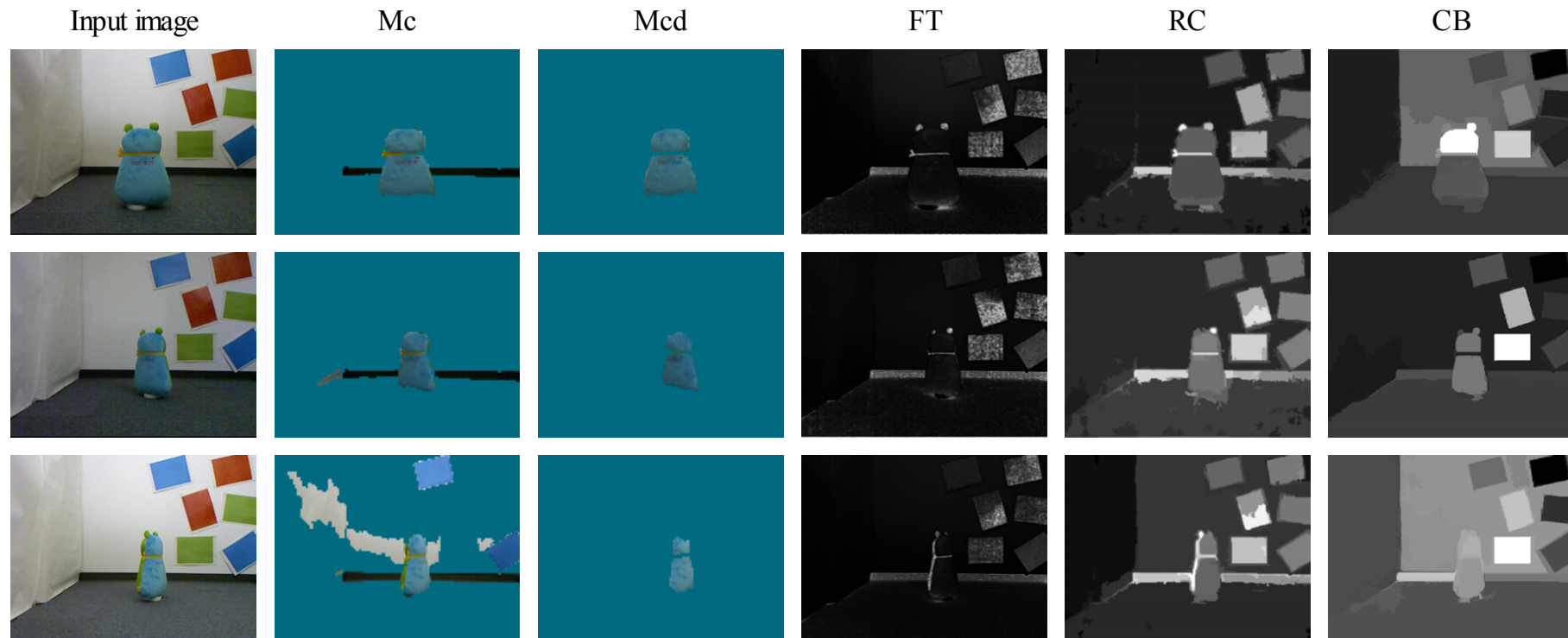
Mc: segmentation results using only color (baseline, F-measure: 0.61)

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CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Images with controlled backgrounds (additional results to Figure 5) [19 - 21/ 27]

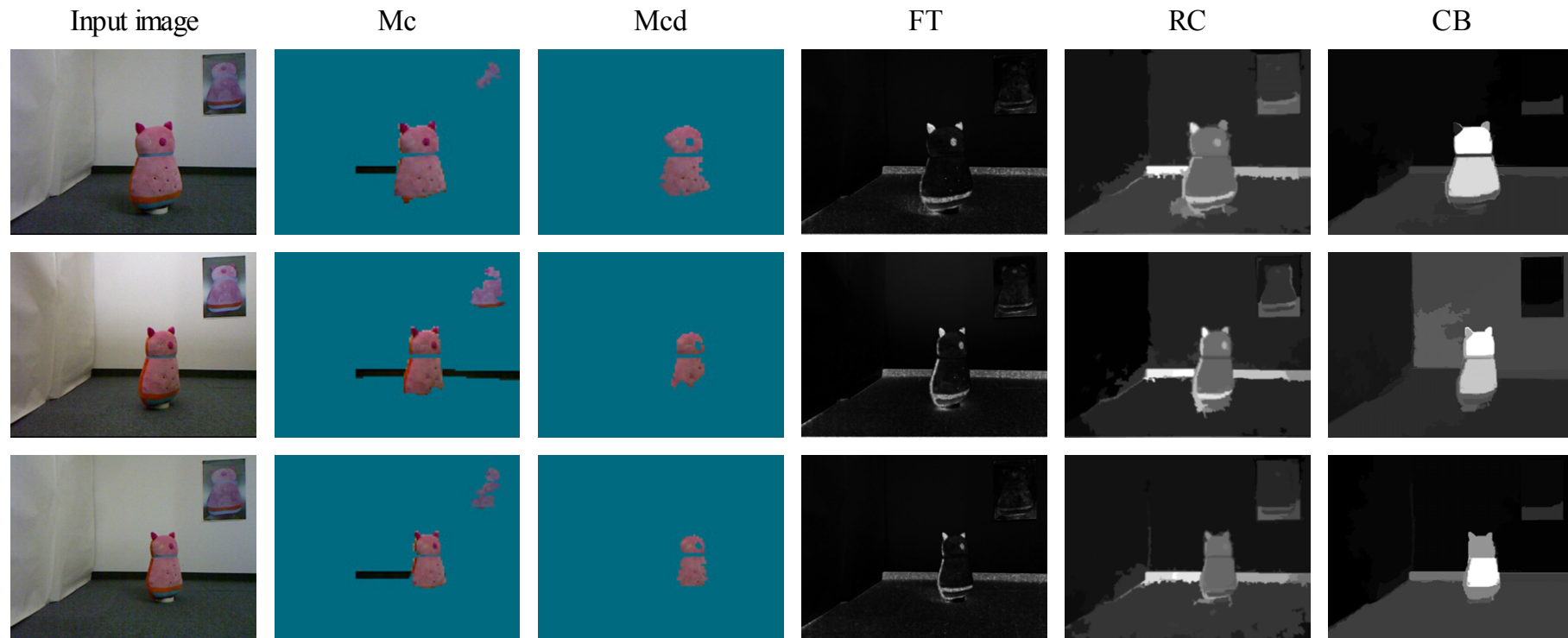
Mc: segmentation results using only color (baseline, F-measure: 0.61)

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FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

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CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Images with controlled backgrounds (additional results to Figure 5) [22 - 24/ 27]

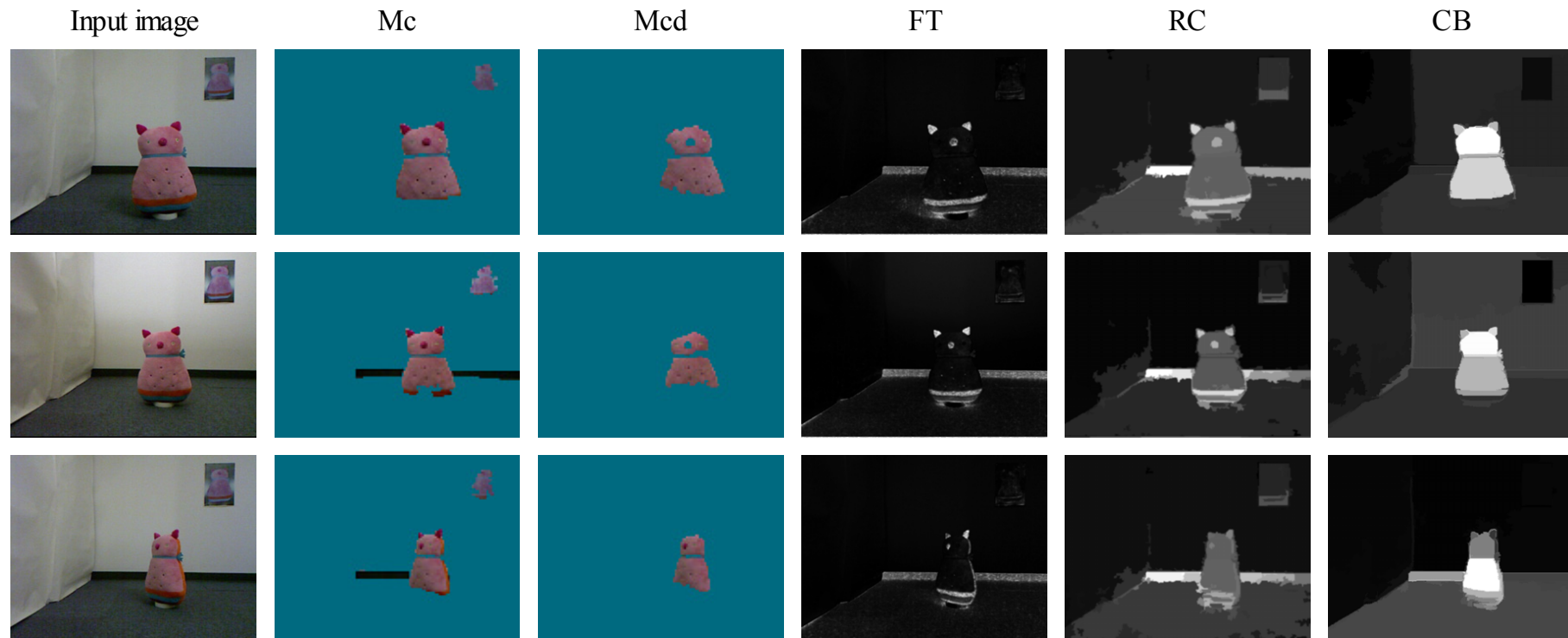
Mc: segmentation results using only color (baseline, F-measure: 0.61)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.80)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Images with controlled backgrounds (additional results to Figure 5) [25 - 27/ 27]

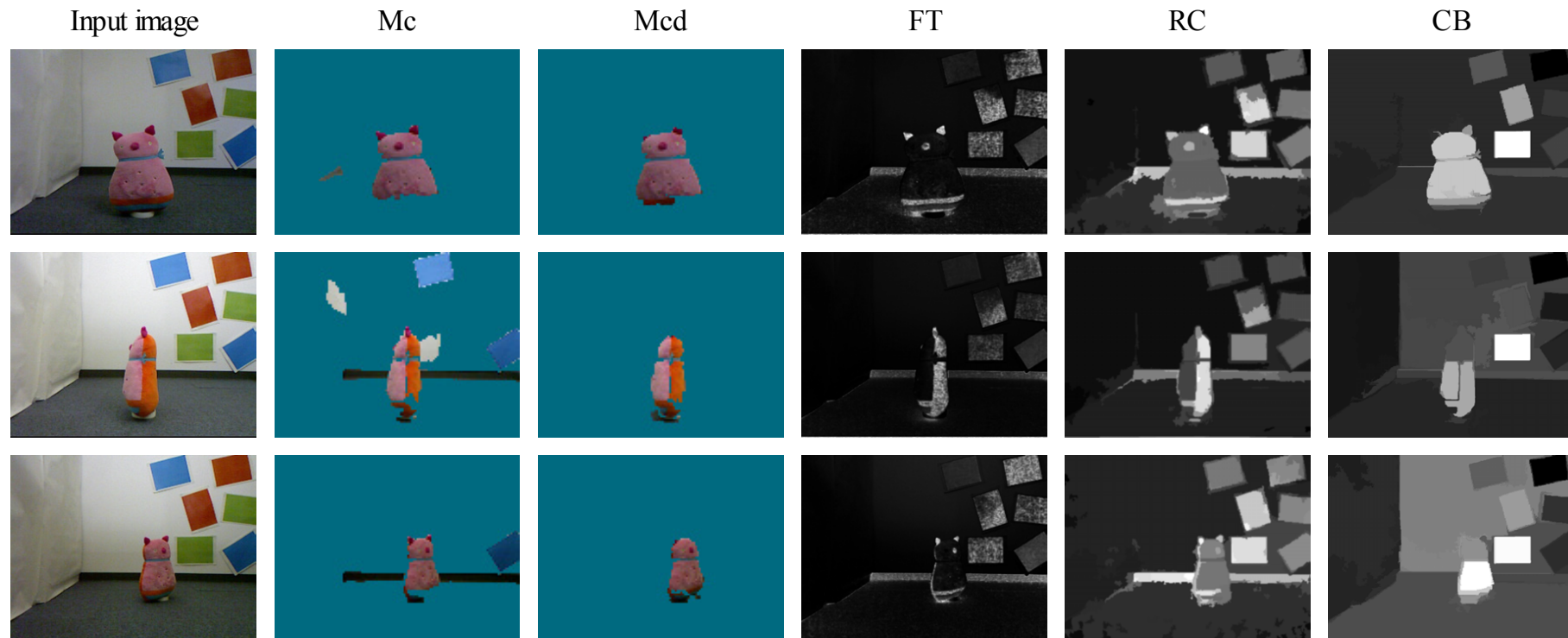
Mc: segmentation results using only color (baseline, F-measure: 0.61)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.80)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.46)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.62)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.60)



Images with complex backgrounds (additional results to Figure 8) [1 - 3/ 22]

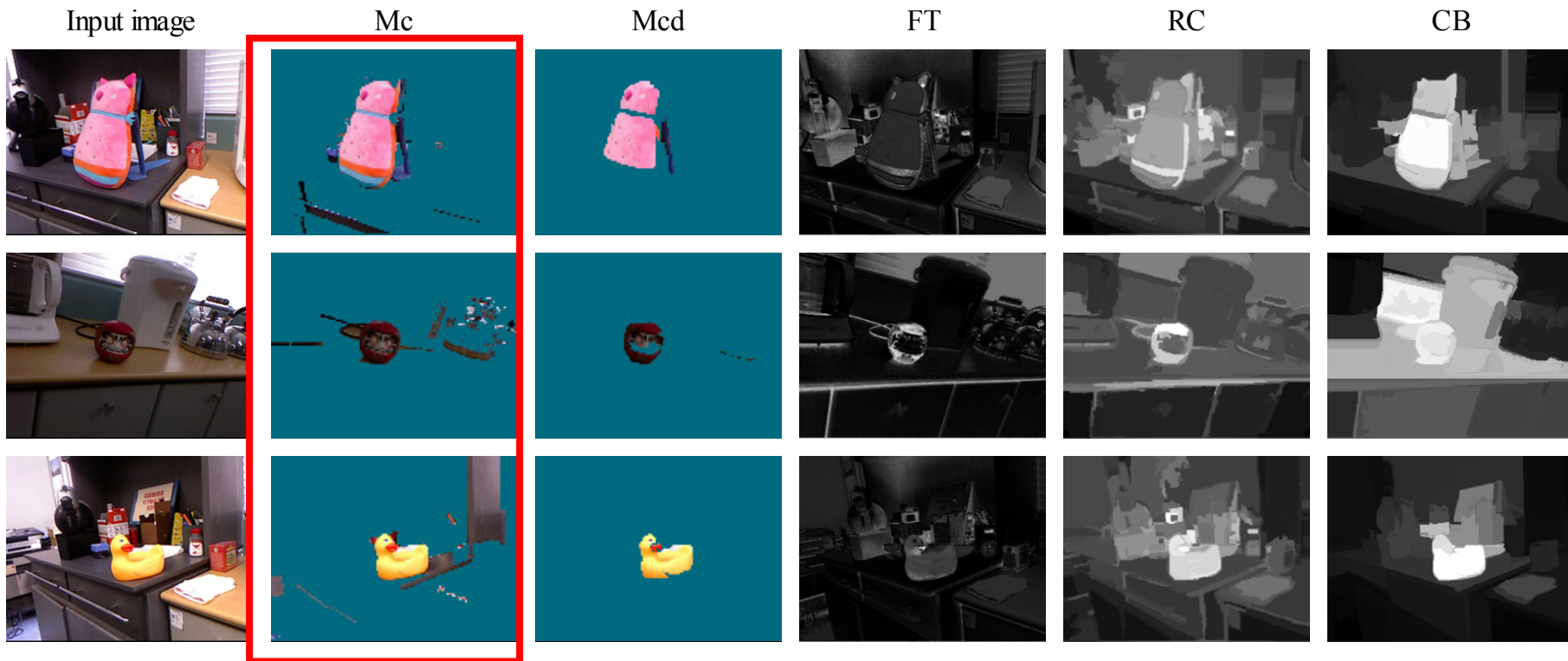
Mc: segmentation results using only color (baseline, F-measure: 0.57)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.74)

FT: Saliency-computation results using [Achanta et al., 2009] (F-measure: 0.51)

RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.65)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.74)



The baseline method often detects non-mimic backgrounds incorrectly.

Images with complex backgrounds (additional results to Figure 8) [4 - 6/ 22]

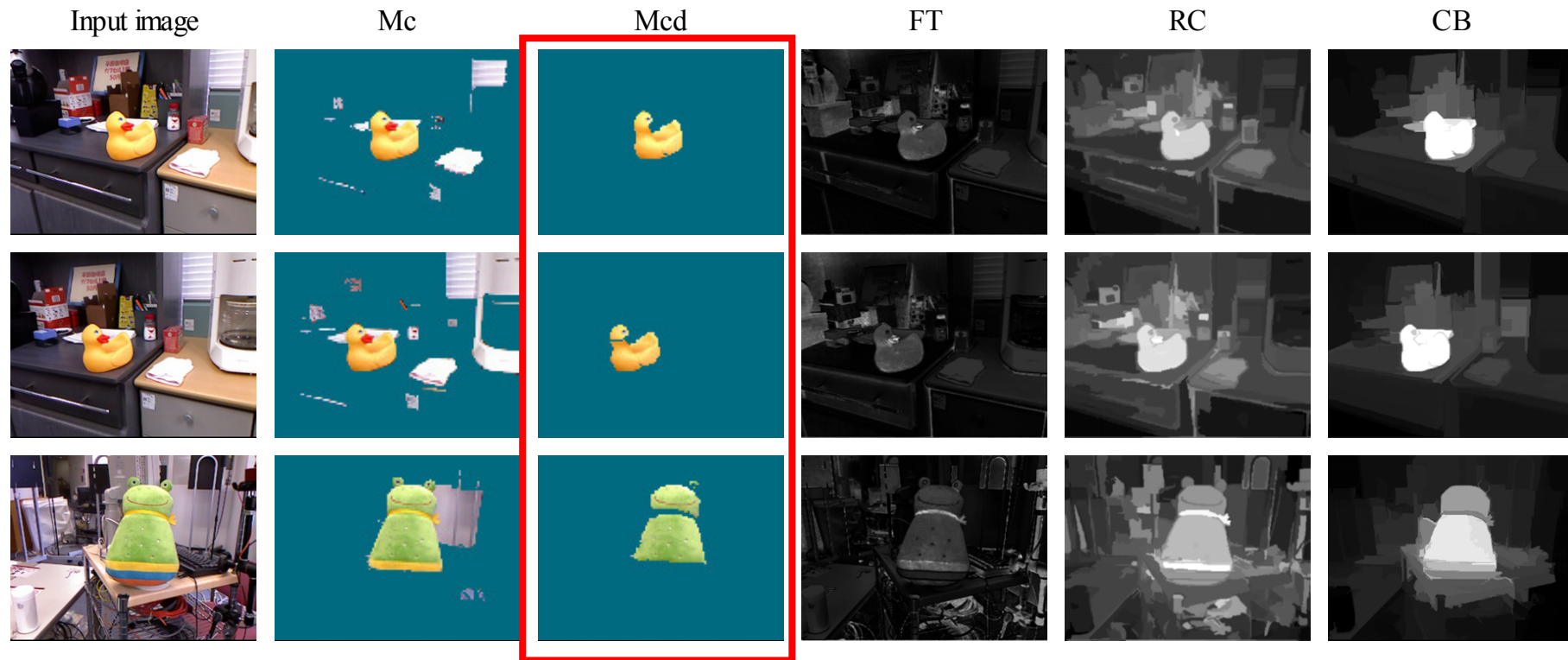
Mc: segmentation results using only color (baseline, F-measure: 0.57)

Mcd: segmentation results using color and depth (proposed method, F-measure: 0.74)

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RC: Saliency-computation results using [Cheng et al., 2011] (F-measure: 0.65)

CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.74)



The proposed method can suppress the incorrect detection of backgrounds while it might over-segment the object region.

Images with complex backgrounds (additional results to Figure 8) [7 - 9/ 22]

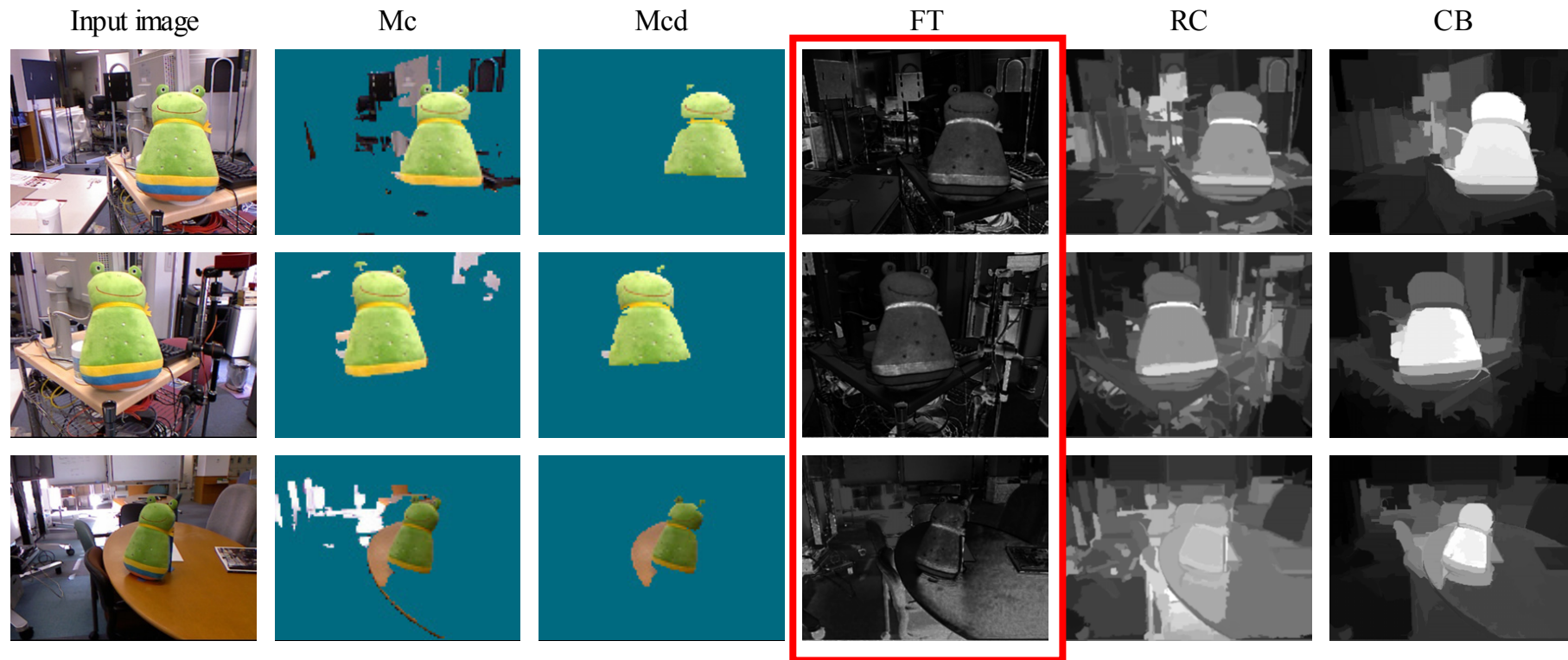
Mc: segmentation results using only color (baseline, F-measure: 0.57)

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CB: Saliency-computation results using [Jiang et al., 2011] (F-measure: 0.74)



Compared with the other 2 salient region detection, [Achanta et al., 2009] tends to fail to specify the object regions.

Images with complex backgrounds (additional results to Figure 8) [10 - 12/ 22]

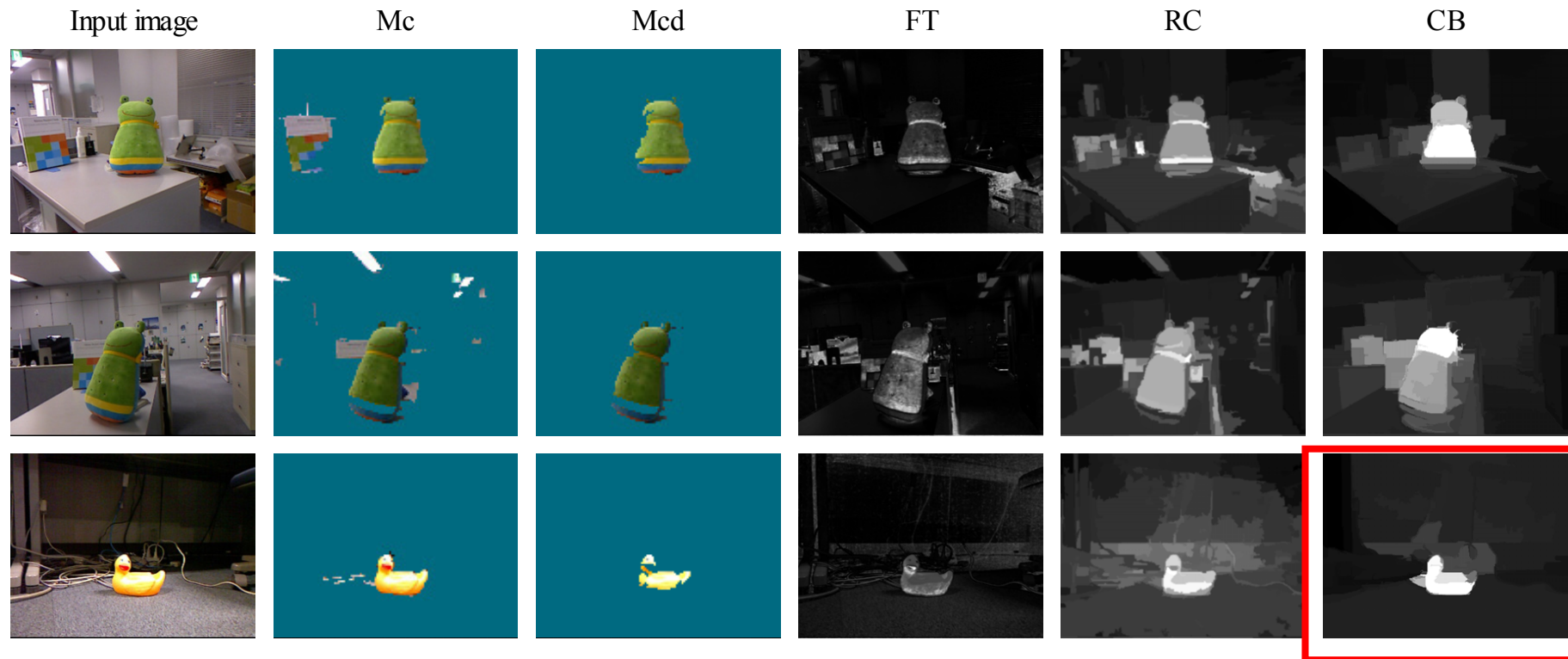
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For relatively simple scenes, [Jiang et al., 2011] can detect the object appropriately.

Images with complex backgrounds (additional results to Figure 8) [13 - 15/ 22]

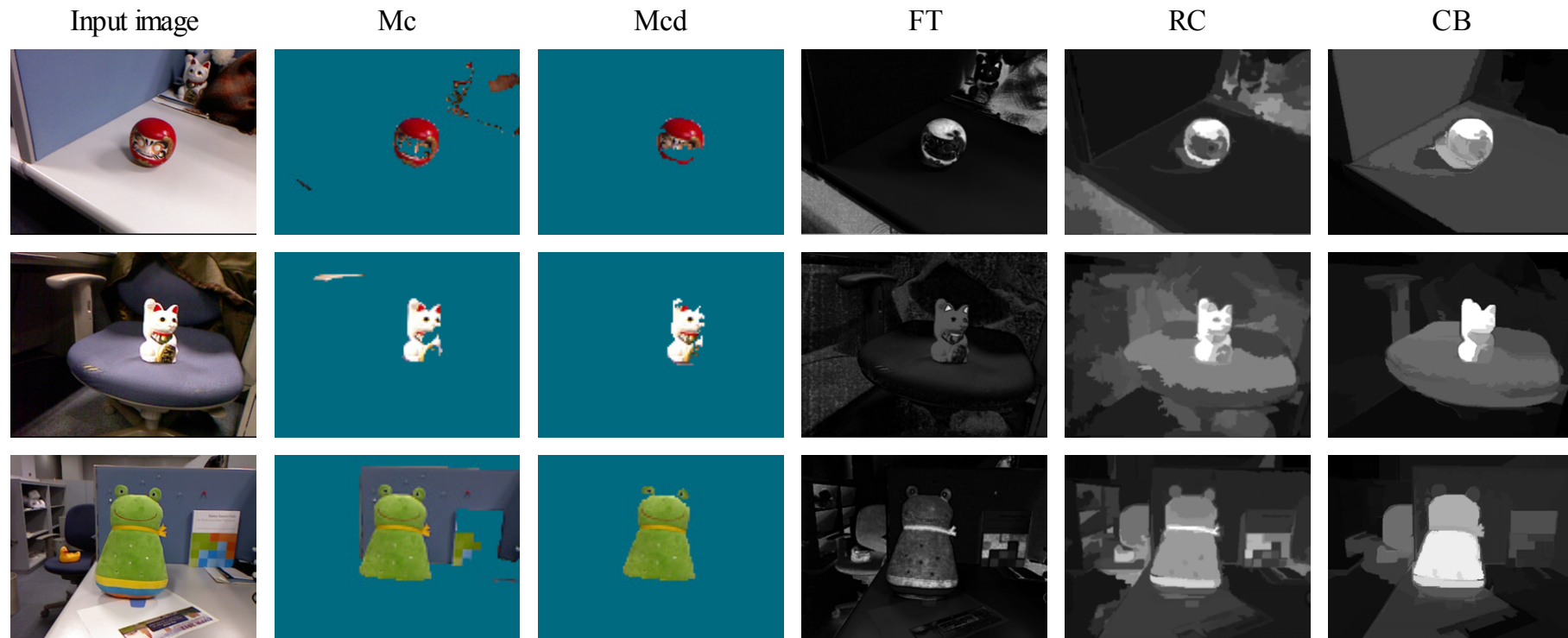
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Images with complex backgrounds (additional results to Figure 8) [16 - 18/ 22]

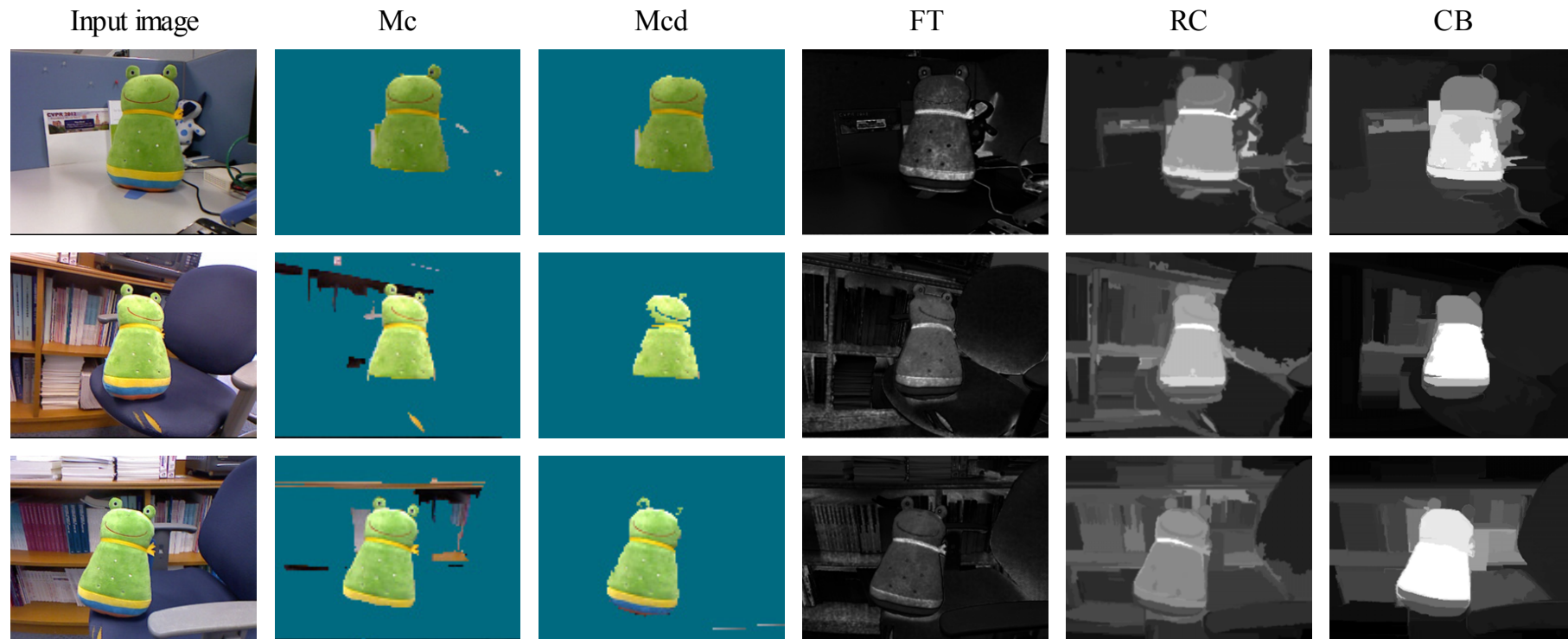
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Images with complex backgrounds (additional results to Figure 8) [19 - 21/ 22]

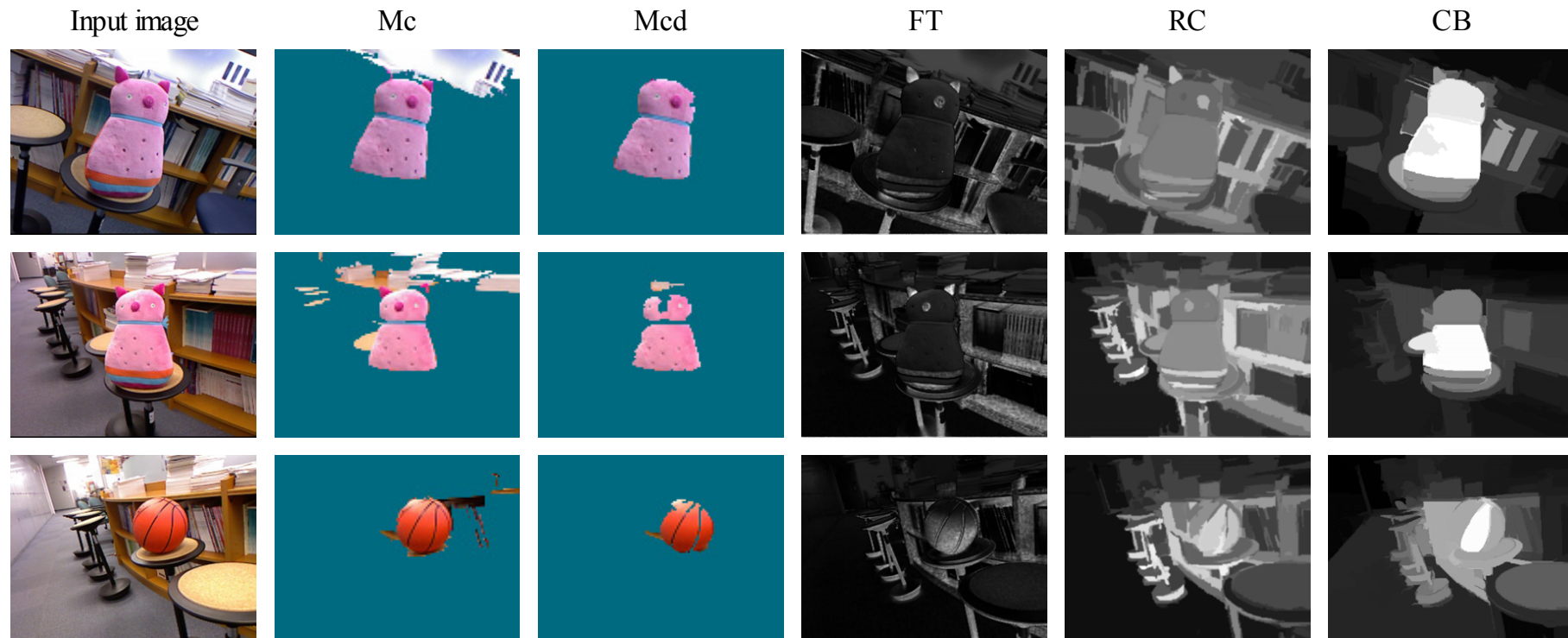
Mc: segmentation results using only color (baseline, F-measure: 0.57)

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