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あらまし

1

2

97%

キーワード

ITS

Quantification of the Visibility of Pedestrians Based on Image Features Loaded Global Features

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Abstract This paper proposes a method to quantify the visibility of pedestrians using in-vehicle camera. Since many driver assistance systems have been developed, various information can be presented to the drivers. If too much information is presented, their attention may decrease due to the limitation of processing ability of the driver. Therefore, mechanisms for providing appropriate information are needed. One of the solution to this problem is to present drivers only information that is difficult to recognize. And it is considered that the visibility is one of the most important factor for recognition. Therefore, we focus on estimating the visibility of pedestrians to avoid pedestrian-car accidents. In this paper, we calculate two different features based on a visual search model, then combine them to evaluate the visibility of pedestrians. And we evaluate the performance of the proposed method. The experimental result showed that the proposed method could obtain 97 percent at maximum in coincidence rate.

Key words Quantification of the visibility, Pedestrian, In-vehicle camera, Image feature, Saliency map, ITS

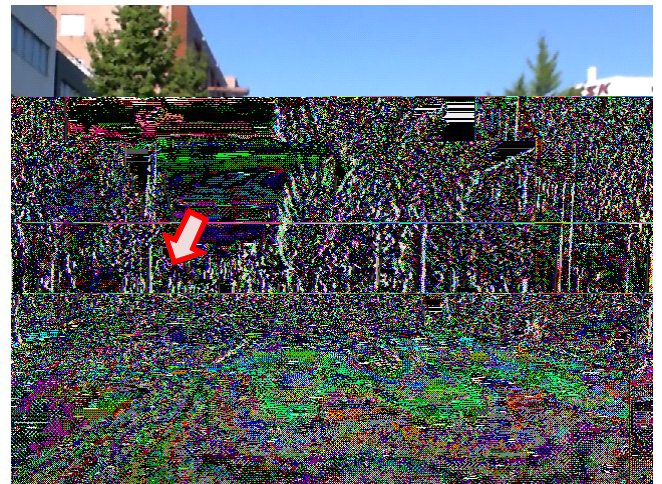
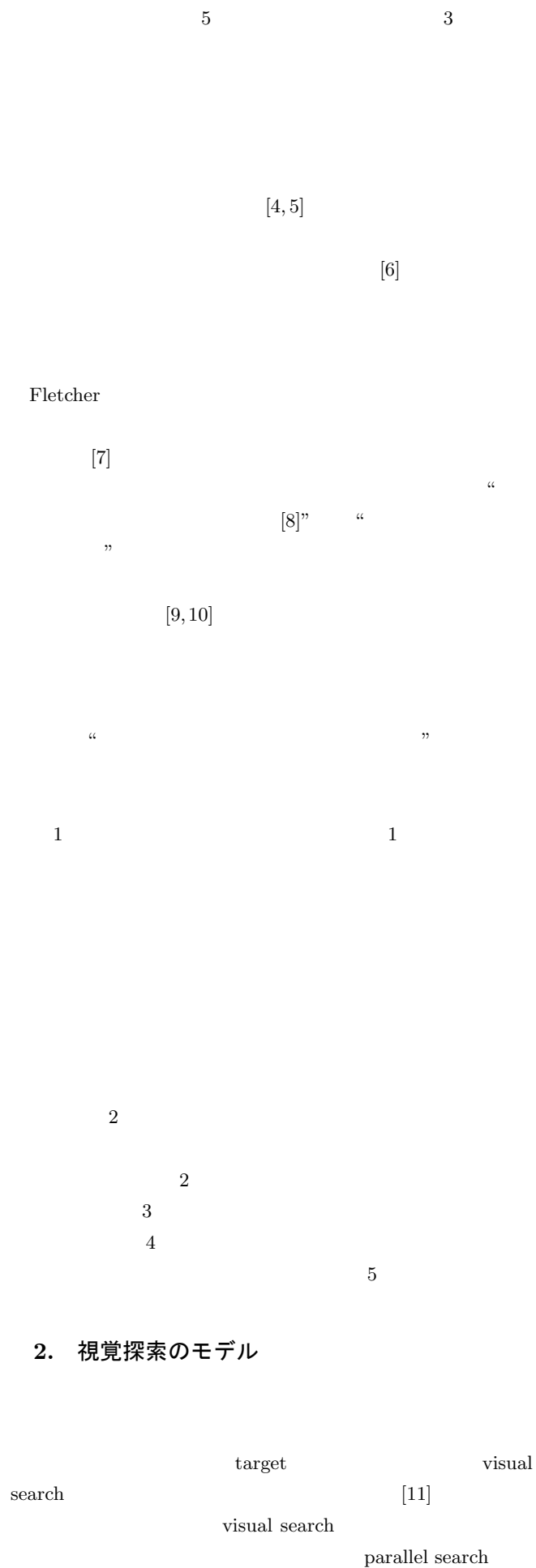
1. はじめに

[1]

[2]

[3]

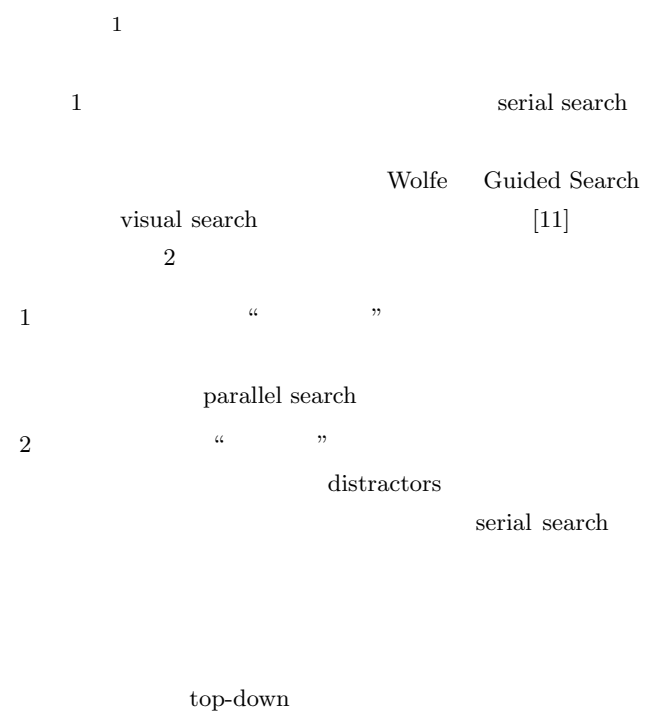
ABS

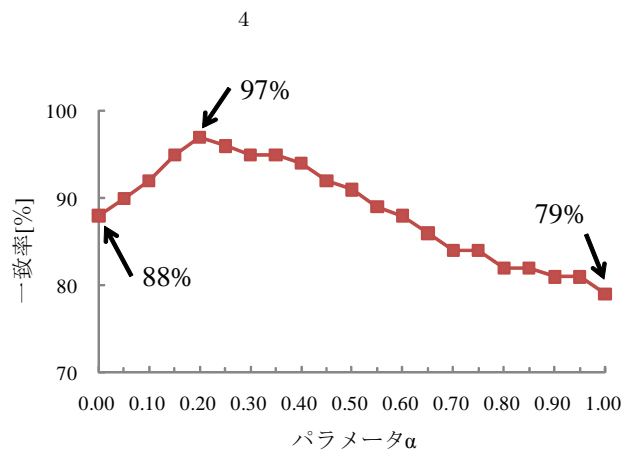
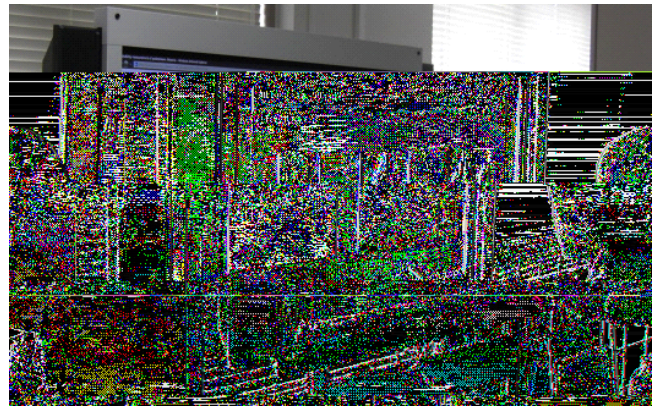
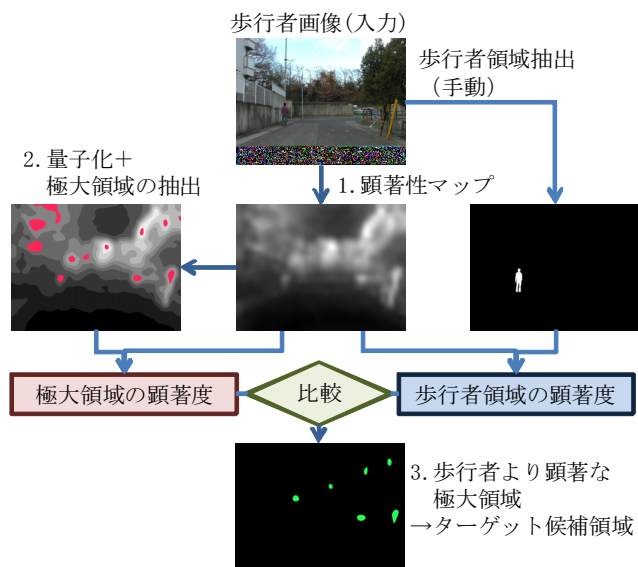


(a)



(b)





3

1

2

200

3

D

3.3 特徴量の統合

3.1 3.2

$$\text{Visibility} = (1 - \alpha)V_l + \alpha V_g \quad (5)$$

$$\alpha \quad (0 \leq \alpha \leq 1)$$

Visibility

4. 評価実験

4.1 実験準備

5 4 3

60

1

4.2 実験手順

60

4.3 実験結果

α 0 1

5

$0 < \alpha < 1$

(5)

$\alpha = 0.2$

α 1

α 0

97%

α 0

100

88%

9%



(a)



(b)

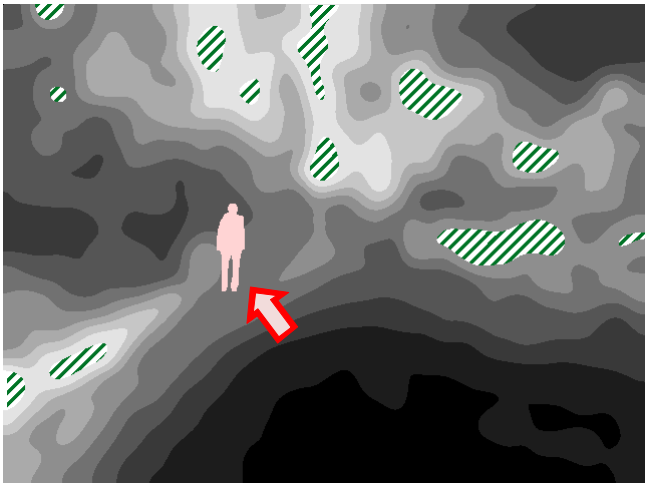
$$6$$

$$= 0$$

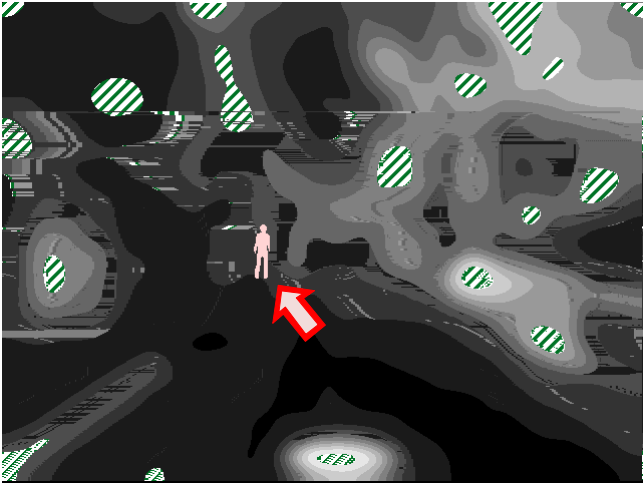
$$(a) < (b)$$

$$(a) > (b)$$

$$= 0.2$$



(a) 6(a)



(b) 6(b)

$$7$$

$$6$$

$$(b)$$

(b)

9

11

10

1

5. 考 察

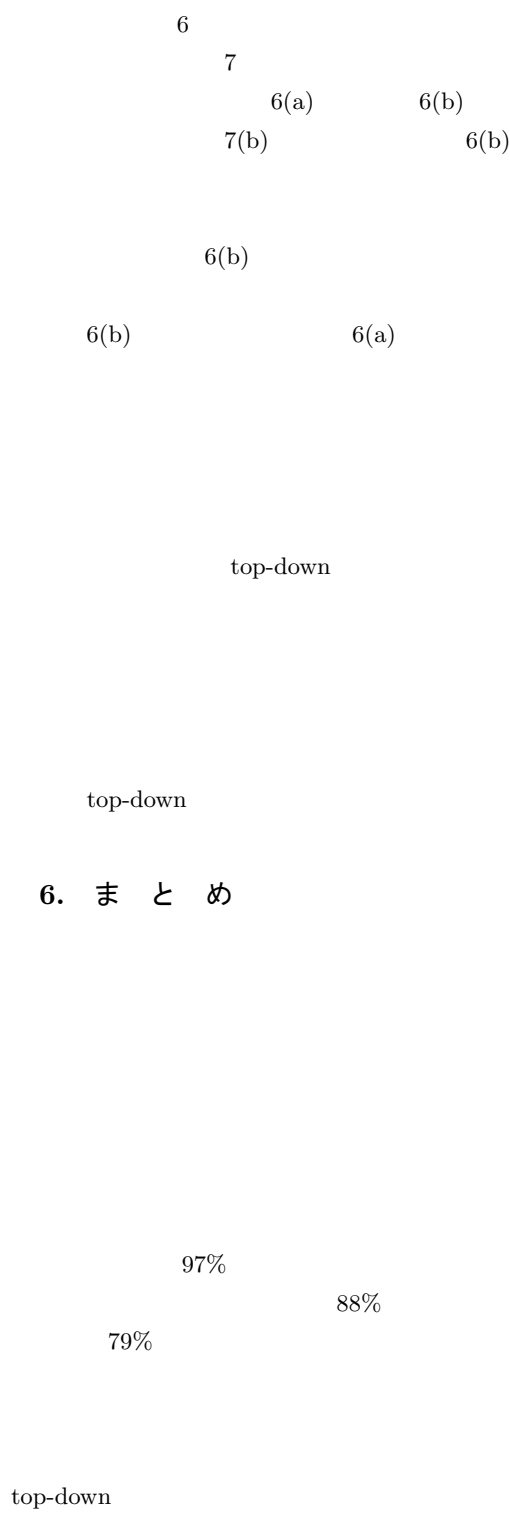
$$97\%$$

$$\alpha = 0.2$$

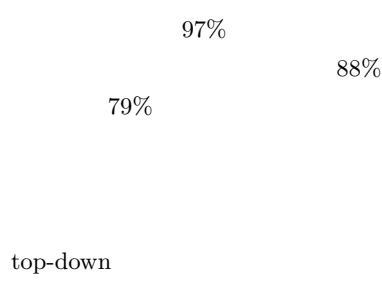
$$[15, 16]$$

$$\alpha = 0$$

$$\alpha = 0.2$$



6. ま と め



謝辞

JST
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