料理写真の高精度な魅力度推定に向けた Data Augmentation

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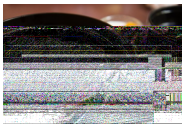
1　はじめに

SNS　　Web

2:



(a) (b) (c)

3:

2.2.1 サイズ特徴：主食材の大きさ

R_d R_m S

$$S = \frac{jR_m j}{jR_d j} \tag{4}$$

2.2.2 位置特徴：主食材の相対位置

R_d $x_d; y_d$ R_m $x_m; y_m$ P_x P_y

$$P_x = x_d \quad x_m \tag{5}$$

$$P_y = y_d \quad y_m \tag{6}$$

2.2.3 形状特徴：主食材の方向ヒストグラムとモーメント

R_m 36 O

$$O = (O_1; O_2; :::; O_{36}) \tag{7}$$

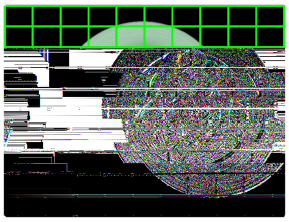
O 1 4 M

$$M = (M_1; M_2; M_3; M_4) \tag{8}$$

M_1 M_2 M_3 M_4 O

3 評価実験

Data Augmentation



(a) (b)

4:

3.1 方法

NU FOOD 360x10 [1] 10 3 30 ; 60 ; 90 12 0 ; 30 ; : : : ; 330 36 Thurstone [7] 0 1

5

0:1 5:0

s 0:95 s 1:05 s 6= 1:00

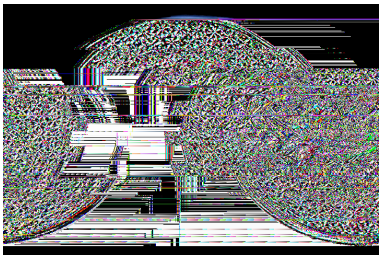
d_x d_y 0 $jd_x j$ 5 0 $jd_y j$ 5 $jd_x j + jd_y j$ 6= 0

RGB n 0 jnj 5

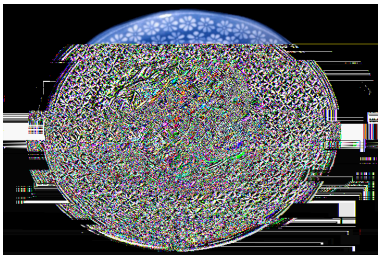
D_{orig} 4 D_{rotate} D_{scale} D_{shift} D_{noise} D_{all} 4 D_{comb} 1 2 leave-one-out MAE

w Ã 07@ •À` h o M ˜1Ð§p4

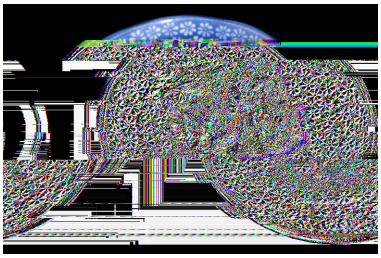
ØvŸ%‡`a@•9¸^sô" } ‡ ÷viñs,q " m F'•- ob$Ð"Ÿl



(a)



(b)



(c)

(d)

(e)

5:

Table 1: [ ]

D_{orig}	D_{rotate}	D_{scale}	D_{shift}	D_{noise}	D_{comb}	D_{all}
36	396	396	396	396	1,476	1,476

D_{noise} D_{orig} Data Augmentation

Data Augmentation

D_{all}

D_{comb}

Generative Adversarial Nerworks [8] Adversarial Examples [9]

6

6b

6c

Data Augmentation

4 おわりに

謝辞 JSPS JP17K12719 16H02846 Microsoft CORE-12

参考文献

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[2] T. Hattori, K. Doman, I. Ide and Y. Mekada: A study on the factors affecting the attractiveness of food photography, Proc. 10th Workshop on Multimedia for Cooking and Eating Activities (CEA), pp.25–28 (2018).

[3] A. Liaw and M. Wiener: Classification and regression by randomForest, R News, vol.2, no.3, pp.18–22 (2002).