THE INSTITUTE OF ELECTRONICS,
INFORMATION AND COMMUNICATION ENGINEERS

TECHNICAL REPORT OF IEICE.

† 464–8601
†† 464–8601
E-mail: †{hayashiy,kdoman}@murase.m.is.nagoya-u.ac.jp, ††ddeguchi@nagoya-u.jp,
†††{ide,murase}@is.nagoya-u.ac.jp

あらまし 0.98 0.99 0.62 0.92

キーワード

Cook-Log Video Summarization by Removing Temporal Redundancy

Yasuhiro HAYASHI†, Keisuke DOMAN†, Daisuke DEGUCHI††,

Ichiro IDE†, and Hiroshi MURASE†

† Graduate School of Information Science, Nagoya University
Furo-cho, Chikusa-ku, Nagoya-shi, Aichi, 464–8601 Japan
†† Information and Communications Headquarters, Nagoya University
Furo-cho, Chikusa-ku, Nagoya-shi, Aichi, 464–8601 Japan
E-mail: †{hayashiy,kdoman}@murase.m.is.nagoya-u.ac.jp, ††ddeguchi@nagoya-u.jp,
†††{ide,murase}@is.nagoya-u.ac.jp

Abstract We report on a method for summarizing a video which recorded the process of cooking by an individual. In recent years, life-log which records the daily life of an individual has been attracting attention. However, since life-log is recorded over a long time, the amount of data is huge. In this report, we focus on cooking which is a creative activity in daily life, and we propose a method for summarizing a cook-log video which recorded the process of cooking by an individual. A cook-log video can not only be used as a kind of life-log, but it can also be able to be provided on the Internet as a reference for other people to cook. Thus, summarizing a cook-log video enables more efficient search and browsing. The proposed method detects the state sections and the repetitious sections as temporal redundant sections, and summarizes the cook-log video by removing them. We conducted a section detection experiment using an actual cook-log. A precision of 0.98 and a recall of 0.99 were obtained for detecting the state section, and a precision of 0.62 and a recall of 0.92 were obtained for detecting the repetitious section.

Key words life-log, video summarization, cook-log video, cooking operation

1. はじめに

図 1 時間軸

2. 関連研究

2.1 HLAC 特徴

$$\int f(\boldsymbol{x})f(\boldsymbol{x}+\boldsymbol{\delta}_1)\cdots f(\boldsymbol{x}+\boldsymbol{\delta}_N)d\boldsymbol{x}, \tag{1}$$

2.2 CHLAC 特徴

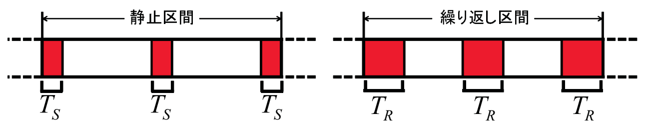

図 5 [illegible]

表 1 [illegible] [1]

[illegible]	[illegible]
1	[illegible]
2	[illegible]
3	[illegible]
4	[illegible]
5	10 [illegible]
6	5 - 10 [illegible] 2 [illegible]
7	[illegible]

[illegible] T_S [illegible] T_R [illegible] $T_R > T_S$ [illegible] $T_S \times 3$ [illegible] $T_R \times 3$ [illegible]

[illegible]

4. 実験と考察

[illegible]

4.1 実験条件

[illegible] 表 1 [illegible] 図 6 [illegible] 2 [illegible] 1,920 × 1,080 pixels [illegible] 15 fps [illegible] 22 [illegible] 18 [illegible] 20,085 [illegible]

[illegible] 5 [illegible] 7,496 [illegible] 9 [illegible] 6,845 [illegible]

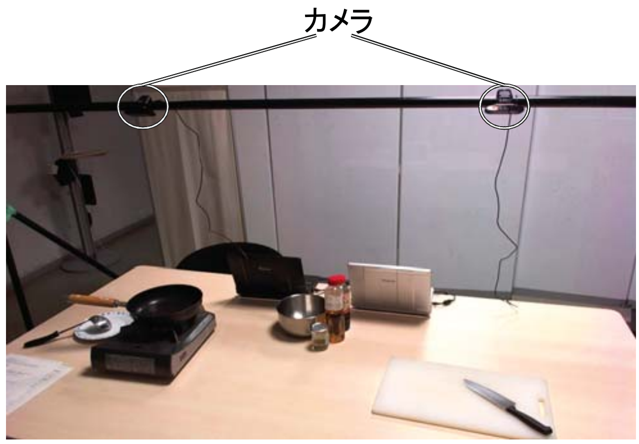

図 6 [illegible]

表 2 [illegible]

	[illegible]	[illegible]	[illegible]
[illegible]	0.98	0.99	0.99
[illegible]	0.62	0.92	0.74

$$[\text{illegible}] = \frac{[\text{illegible}]}{[\text{illegible}]} \quad (2)$$

$$[\text{illegible}] = \frac{[\text{illegible}]}{[\text{illegible}]} \quad (3)$$

[illegible] 1 [illegible] 0 [illegible] $\theta_1 = 0.95$ [illegible] $\theta_2 = 0.50$ [illegible] $T_S = 1$ [illegible] $T_R = 4$ [illegible]

4.2 実験結果

[illegible] 表 2 [illegible] 0.62 [illegible] 38% [illegible]

[illegible] 4 55 [illegible] 4 [illegible] 1 [illegible] 図 7 [illegible] 8 23 [illegible] 4 55 [illegible]

4.3 考察

4.3.1 [illegible]

[illegible]

[illegible] CHLAC [illegible] 3 [illegible] CHLAC [illegible] CHLAC [illegible]

[1] http://cookpad.com/recipe/1452708

[illegible] 3 [illegible]

[illegible]	[illegible]	[illegible]	[illegible]
$\theta_1 = 0.95, \theta_2 = 0.50$	0.62	0.92	0.74
$\theta_1 = 0.96, \theta_2 = 0.50$	0.60	0.83	0.70
$\theta_1 = 0.97, \theta_2 = 0.50$	0.59	0.64	0.62

[illegible]

4.3.2 [illegible]

[illegible] 8 [illegible] 23 [illegible] 4 [illegible] 55 [illegible] 1 [illegible] 5 [illegible] 1 [illegible] 6 [illegible]

[illegible]

[illegible]

5. むすび

[illegible] 0.99 [illegible] 0.74 [illegible]

[illegible]

- [illegible]
- [illegible] [7] [illegible]

文献

[1] [illegible], vol.64 no.2, pp.237–240, Feb. 2010.

[2] [illegible], CS2003-152, Dec. 2003.

[3] [illegible] CVIM [illegible], vol.44 no.SIG9, pp.21–29, Jul. 2003.

[4] [illegible], "CHLAC [illegible]," [illegible], MVE2010-144, Mar. 2011.

[5] T. Kobayashi and N. Otsu, "Action and Simultaneous Multiple-Person Identification Using Cubic Higher-Order Local Auto-Correlation," Proc. 17th International Conference on Pattern Recognition, pp.741–744, Aug. 2004.

[6] N. Otsu and T. Kurita, "A New Scheme for Practical Flexible and Intelligent Vision System," Proc. IAPR Workshop on Computer Vision, pp. 431–435, Oct. 1988.

[7] [illegible]," [illegible], MVE2011-100, Mar. 2012.

ゝ7 Ώᴬ ʻ Ҷ ʍ Σ̂ ξ Ӣ ϖ Ԛ ζ Ϛ υ φ ή Ш ή Ỷ ḥ ο ή ν ώ Ⴤ ά Ԛ ζ Ỷ ḥ ″ˎ ξ Ӣ ϖ Ԛ ζ Ϛ υ φ ᾶ ♀ Ỷ ḥ ο ή ν ώ Ⴤ ά Ԛ ζ Ỷ ḥ Ꭓ ! ΰ ʻ