第8回領域会議研究発表会資料

「相互作用と賢さ」領域

日 時　平成16年7月30日(金)13:00～7月31日(土)14:50

場 所　ホテル仙台プラザ［仙台市青葉区本町2丁目20-1 / TEL 022-262-7111 FAX022-262-8169］

7月30日(金)［第1日目］

■［第3期生］の研究発表会（発表:10分、質疑応答: 20分)〔発表は英語で、質疑応答は好きな言語で〕

座長: 大矢晃久 研究者(第1期生、筑波大学電子・情報工学系 助教授)

発表内容: 具体的な研究項目、研究成果、研究の進め方など

No	時 間	発表者名	課 題 名(日本語)	課 題 名(英語)
1	13:20～13:50	今井 倫太	認識と演出の相互作用に基づくコミュニケーションロボットの実現	Interaction between Recognition and Direction: A Study of Interaction Methodology for A Communication Robot
2	13:50～14:20	工藤 卓	賢くなる2次元神経回路網によるパターン認識	Pattern detection by living neuronal networks cultured on microelectrode arrays
3	14:20～14:50	久保田 直行	人間とロボットの相互関係形成のための構造化学習	Structured Learning for Constructing Interrelation between Human and Robot
4	14:50～15:20	砂田 茂	環境・防災モニタリング用小型2重反転回転翼機の開発	Developing a small, lightweight helicopter for environmental measurements over a city and for monitoring a disaster area
15:20～15:40			休 憩（20分）	
5	15:40～16:10	友納 正裕	環境とのインタラクションによる空間構造の獲得	Acquisition of spatial structure through interaction with the environment
6	16:10～16:40	長谷川 修	学習によるシーン理解の研究	A Study on Scene Understanding by Learning
7	16:40～17:10	平田 泰久	人間・環境適応型知的歩行支援システム	Human・Environment-adaptive Intelligent Walking Support System

7月31日(土)［第2日目］

■［第2期生］の研究発表会（発表:10分、質疑応答: 20分)〔発表は英語で、質疑応答は好きな言語で〕

座長: 菅原 研 研究者(第1期生、東北学院大学教養学部教養学科情報科学専攻 助教授)

発表内容: 研究終了時点での目標成果物および達成するための具体的取組み

総括からの要望: 3年間の研究成果のセールスポイントを明確に述べて下さい。

No	時 間	発表者名	課 題 名(日本語)	課 題 名(英語)
8	10:00～10:30	石島 秋彦	新世代ナノ計測の開発と生体分子への応用	Development of the new generation nano-measurement system and application to bio-molecules
9	10:30～11:00	小林 宏	人間行動を補助するマッスルスーツの開発	Development on Muscle Suit for Supporting Human Activity
10	11:00～11:30	柴田 崇徳	人とロボットの共生と学習に関する研究	Research on Learning in Cohabitation of Human and Robot
11	11:30～12:00	高﨑 正也	弾性表面波皮膚感覚ディスプレイの開発	Development of A Surface Acoustic Wave Tactile Display System
12:00～13:00			休 憩（20分）	
12	13:00～13:30	塚越 秀行	人体へ適応化するウエアラブルフルイドパワーの開発	Development of Wearable Fluid Power Adaptable to the Human Body
13	13:30～14:00	土佐 尚子	無意識情報から生成される物語り技法	Story-teller Technologies Created from Subconscious Information
14	14:00～14:30	村田 剛志	Webにおけるコミュニティの発見	Discovery of Communities in the Web

第８回「相互作用と賢さ」領域会議発表会資料

研究者氏名	土佐　尚子	研究領域	相互作用と賢さ	研究者 No	1512
研究課題	無意識情報から生成される物語技法				
報告期間	H15.12.6～H16.7.29	発表年月日	H16.7.31		

○　研究発表内容（研究終了時点での目標成果物、この達成に向けての具体的取組み）

１．研究終了時点での目標成果物

Results of Cultural Computing (Cultural Interaction and Intelligence)

1) Interactive Comedy System
2) ZENetic Computer System
3) Cultural Computing Research
4) Innovative Storytelling Research using human subconscious behavior.
5) Report of Analysis of Human Consciousness and Emotion Transition for the Aim of Realizing Cultural Translation + Raw Data (recorded data and interviews)
6) Publishing Book “Cultural Computing” by NTT Publishing this fall.

２．この達成に向けての具体的取組み

1) ZENetic Computer System accepted at ACM SIGGRAPH 2004. Emerging Technologies Venue in L.A.

ZENetic is an interface that evokes self-awakening through essential aspects of Zen Buddhist culture. Through esoteric riddles, ZENetic teases particular cognitive responses from users, as reflections of their inner, subliminal consciousness. With stories portrayed in ink painting, haiku, and kimono, ZENetic conveys the rich allegorical interaction characteristic of Eastern philosophy.

http://www.siggraph.org/s2004/conference/etech/zen.php

2) **Cultural Computing Research**

People of many different nationalities, cultures, and customs live in the world. With a new method of inter-cultural computing that uses advanced interaction technologies, we can offer a totally new and personal experience through which people can feel and understand different cultures. Based on this approach, everybody can gain cross-cultural understanding that leads to a real understanding of "symbiosis." This real understanding of different cultures is very important for peace throughout the world.

Vision

From this beginning, we will extend our cross-cultural translation system into the global network to encourage interchanges in cultural anthropology, art, literature, philosophy, psychology, and sociology.

Goals

To develop new theories, models, and methods, that may shed new light on how a given culture may be translated into a format that would enable users from different cultural origins to access the deeper significance of the translated culture.

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3) Innovative Storytelling from human subconscious behavior.

ZENetic applies some aspects of Buddhist philosophy as a model in computational science. Our motivation derives from the more than 2,000 years of Buddhist tradition. Methods of interaction between Zen master and pupil, developed to sharpen the understanding of human consciousness, provide a rich base for interactive modeling -- a field still unexplored in the Western scientific tradition.

4) Report of Analysis of Human Consciousness and Emotion Transition for the Aim of Realizing Cultural Translation + Annexes (recorded data and interviews)

Theme

We try to capture the transitional state of user consciousness/emotion based on the user interaction with the ZENetic Computer. The human character classification model based on Buddhism principle called "Goun" is adopted in the ZENetic computer and, therefore, is the basic method to capture the consciousness transition. Then the transitional state will be visualized and is used to show the cultural difference among Japanese, French and American. At the same time, using the impression of the users will be investigated based on the questionnaires. These results will be used as a first step toward our future aim to realize the translation among the different cultures.

Purposes

The user creates a virtual world by manipulating images of Asian ink painting on a computer display with an intuitive interface tool. These images, typically symbolizing nature and philosophical precepts, provide a dramatic departure from our view of daily experience. This awakens us from our daily consciousness and gives free reign to subconscious imagination. Based on the user's 3D ink painting design, the system infers his/her internal consciousness and generates a story into which the user can "enter" via the computer display. This story further shakes the user's consciousness.

First, we developed a digital 3D Ink painting engine. Depending on how users draw their ink painting, the engine classifies their hidden personality into one of five types using a neural network. The personality is determined in terms of 'Goun', a Buddhist system, which says that five basic spirits and materials make up our world. Then, the user's basic 'Goun' data is used for context generation by the internal chaos program.

GOUN principles are expressed with either a positive (+) or negative (-) feeling by the user:

a) 色 Shiki is how nature and materials actually exist.

b) 受 Jyu is the intuitive impression.

c) 想 So is the perceived image.

d) 行 Gyo is the process of mind that activates your behavior.

e) 識 Shiki is the deep mental process that lies behind all of the above processes.

研究者氏名	土佐　尚子	研究領域	相互作用と賢さ	研究者 No	1512

Work plan

0) Experiment during KODAIJI exhibition in Kyoto and SIGGRAPH exhibition in Los Angeles.
1) Record user interaction history data.
2) Graph: Which was the most prominent "Goun" element?
3) Graph: How was the 3D ink painting constructed and laid out?
4) Graph: The relationship between the painting and "Goun"
5) Interview of the user through questionnaire
6) Report of Analysis of Human Consciousness and Emotion Transition for the Aim of Realizing Cultural Translation.
   - 6-0 Correlation between recorded data, Interviews, 3D ink painting and context generation (interactions)
   - 6-1 Correlation between chosen icons (on the 3D painting) and user's country and culture
   - 6-2 Correlation between interviews and user interaction history data
   - 6-3 Correlation between symbols (icons) and allegory (haiku poems)

Example Graph