New types of communities are emerging

- (Traditional) community:
  - Bounded by real situations (Geographically, Socially, …)
  - Fewer choices to form communities

- Network community or online community:
  - Free from real situations
  - Much more choices to form communities
Lack of Groundedness

We often feel unrest for others and even ourselves when joining network communities

- Neglect of Awareness
  - Implicit/unconscious knowledge on others and ourselves
- Neglect of Orientation (Social or Individual Orientation)
  - Explicit/conscious knowledge on others and ourselves

Why?

Outcropping awareness

- Avatar-like agent-based community system
  - Vesting corporeality by agent

Outcropping orientation

- Bookmark-based community system
  - Knowing others’ interest each other by bookmarks
A system to realize asynchronous community where avatar-like agents are provided for all participants

Features
- An avatar-like agent stands for identity of a participant
- Communication close to face-to-face communication
- Providing a field of community by multiple agents

Our Avatar-like Agent
- An animated agent that can perform a sort of actions and behavior
- A scriptable agent that can be programmed easily by a script language

Joint work with Toru Takahashi@NAIST/ATR MIC
Agent Design by ATR MIC
Use WWW pages as a field for communities
- A field where agents move around and do actions
- A field where users upload pages and images

All messages are written with a script language called ALAScript
- Simple tagged texts
- Scripts are generated by ALAScript editor
  - Operating agents
  - Choosing actions
  - Writing messages
Identity
- \(<\texttt{#actor}>\texttt{agent\_name}\): Designate an agent to describe

Verbal Representation
- \(<\texttt{#speak}>\texttt{comment\_sentence}\): Utterance with voice and text
- \(<\texttt{#think}>\texttt{comment\_sentence}\): Utterance only with text in balloon

Physical Representation
- \(<\texttt{#play}>\texttt{animation\_name}\): Physical behavior by animation
- \(<\texttt{#move}>\texttt{point\_on\_the\_screen}\): Move a designated position

Interpersonal Representation
- \(<\texttt{#approach}>\texttt{agent\_name}\): Move around a designated agent

Representation via Objects
- \(<\texttt{#open}>\texttt{webpage\_url}\): Open a designated WWW page
- \(<\texttt{#refer}>\texttt{image\_id}\): Move around a designated image and make the agent point to the image

An Example of ALAScript
\[\begin{align*}
&\texttt{<actor> Toru Takahashi} \\
&\texttt{<approach> Hideaki Takeda} \\
&\texttt{<play> Smile} \\
&\texttt{<speak> I found such a nice page} \\
&\texttt{<open> http://ai-www.aist-nara.ac.jp} \\
&\texttt{<speak> Better than the last one.} \\
&\texttt{<refer> img3@ai-www.aist-nara.ac.jp} \\
&\texttt{<speak> I love it best in those pictures.}
\end{align*}\]

**Analysis of a Test Run**
- Public in the institute for 9 days
- 7 people accessed the system
- 7 communities are created
- 18 messages are posted

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Count</th>
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<td><strong>Total</strong></td>
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Analysis of messages by phrase

Verbal Rep. | 83.0%  
Physical Rep. | 13.4%  
Interpersonal Rep. | 2.4%  
Rep. Via Objects | 1.2%  
Non verbal | 17.0%
Subjective Evaluation (5 Ranks; 1: the most positive, 5: the most negative)

1. Evaluation of agents and fields: Perception, acceptability, and usefulness
   - 15 questions: average 2.41
2. Evaluation of individual functions (Animation, moving etc.)
   - 8 questions: average 1.50
3. Comparison with other communication tools
   - 7 questions x 3 tools: average 2.29

Positive Evaluation for all aspects

Perception of agents: Avatar vs. Delegate
- Some users look as avatar, others as delegate
- Most of users are consistent in perception of agents of others and of themselves
- No significant effects to other evaluations

Acceptability and Usefulness
- Usefulness of agents > Acceptability of agents
- Acceptability of agent fields > Usefulness of agent fields
- Acceptability of agent fields > Acceptability of agents

Usability in comparison with other tools
- Joyful > usefulness, expressiveness > variety of information
Outcropping awareness
- Avatar-like agent based community system
  - Vesting corporeality by agent
- Outcropping orientation
  - Bookmark-based community system
    - Knowing others’ interest each other by bookmarks

Generation of human network guiding individual information activities
- An example
  - I want to watch sports programs on TV. What your recommendation?
- Who and What
- Shared Topics Network among Users (STN)
Combination of manual and automatic methods
- Identification of topic
  - Use of bookmark files as users’ knowledge
    To overcome knowledge acquisition problem
- Discovery of inter-topic relations
  - Text analysis to calculate inter-topic relations

Difficulty to identify topics automatically
- Examples
  - Learning: Webwatcher, Letizia
  - Categorization: Webmate
- Weakness of text analysis methods
  - “Persistence of interest” hypothesis
- Bookmark files as users’ knowledge
  - Bookmark structures are results of implicit/explicit efforts to organize their information
A bookmark folder
= A topic interested by the user
URLs in a bookmark folder
= Examples of the topic
Two pages are related

Each page is a recommended page to the other

Common relations
- (search, IR), (academia, research-related)
- similar but words themselves are different

Un-common relations
- (Unix, academia)
- Speciality of the community
What are common topics with others?
Who is good at this topic?

Validity of page relations

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Validity of topics relations

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Searching a new type of “reality” for communities

- Free from real constraints
- But grounded on our implicit/explicit knowledge

Two systems are proposed

- TelMeA: Regaining corporeality
- kMedia: Regaining orientation for others and ourselves

Future Directions

- More discussion on “Identity of persons in network”
  - *Grounded Virtual Characters on the Network*
  - *Grounded Virtual Fields on the Network*

体験モードと内省モード

- 思考の二つのモード (D.A.Norman)
  - 体験モード：物語的、習慣的、感覚的
  - 内省モード：論理的、熟考的、概念的
- 両者が適当にバランスすることが重要
- 情報技術で体験モードを支援することは容易
  - 新しい体験モードの提供
- では内省モードは？
  - 考えることは自分でしかできない
  - 自ら考えさせるモードへのスムーズな移行
文脈情報を利用した連想知識構造の構築と提示

アプローチ
ユーザが明示的に入力した知識のみならず、ユーザが入力しなかった暗黙的な前提知識の利用を考える。

・HTMLブラウザをインターフェースとして
連想知識構造を構築

知識を入力したときに表示されていたHTMLファイルを解析することによって、知識の周辺に付随する文脈情報をアクセスすることが可能。
こうした文脈情報をも含めて、連想知識構造を構築する。