# ISUC 2008 Demonstration List

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Abstract</th>
<th>Demonstrator’s Name</th>
<th>Affiliation</th>
</tr>
</thead>
</table>
| 1   | NSContrast: Interface for Contrasting Multiple News Site              | Today, there is access to large numbers of news sites in different countries, and there are several experimental systems that integrate news articles about a particular event from multiple news sites. These systems enable a good understanding of particular events by using multiple news sites, but they ignore the characteristics of the various news sites. To characterize the differences between news sites, the News Site Contrast (NSContrast) system has been proposed.  
This system aims to characterize the difference among different news sites and countries. For this purpose, NSContrast conducts term co-occurrence analysis and burst analysis for extracting characteristic information about each news sites and countries.  
In addition to the analysis for each news site and country, NSContrast applies a concept of contrast set mining techniques to extract information that characteristically exist in each news site for finding out the difference among each news site and country.                                                                                           | Masaharu Yoshioka                    | Graduate School of Information Science and Technology, Hokkaido University |
| 2   | Language Grid Playground                                              | Various types of multilingual collaboration tasks must be performed in the fields of education, medical care, and disaster prevention. Members in such fields need support customized for each field. Therefore, multilingual collaboration tools should allow customization to suit the tasks and circumstances. The tools provided by portal sites such as Google and Excite are not flexible enough to solve the problems in various fields because they fail to support customization.  
Therefore, we have developed the Language Grid Playground: an environment in which it is easy to make customized multilingual tools. For now, there are several language resources such as dictionaries, parallel texts, morphological analysis and machine translations on the Language Grid: an infrastructure for enabling users to create new language tools by combining web services that represent wrapped language resources published on the Internet. | Satoshi Sakai, Masaki Gotou, Satoshi Morimoto, Daisuke Morita, Koichiro Mihara, and Toru Ishida | Department of Social Informatics, Kyoto University |
However, because these language resources are provided as web services, ordinary users who have no expertise of web service cannot use the resources. Therefore in order to support multicultural communities, our system has three goals. 1) Making it easier to use language resources: The system provides simple GUls, which are available as web applications, to easily access language resources on the Language Grid. We create an environment in which users can combine/utilize language resources easily. 2) Providing new services: New useful services can be composed by combining language resources. The Playground offers new services that were created by combining language resources. 3) Supporting specific organizations: There are many organizations around the world which need support for their intercultural collaboration activities.

We support such organizations by creating customized web applications for them. The applications are constructed by combining useful services created by achieving the other two targets. In addition, customized services are finally decomposed into reusable components, which are made available for composing new services.

<table>
<thead>
<tr>
<th>3</th>
<th>Multilingual Tourist Information Communication Platform</th>
<th>NICT has been developing the MTICP (Multilingual Tourist Information Communication Platform), which enables tourists to enjoy travel in Japan without facing any linguistic barriers. MTICP provides various information services such as multilingual communication among people and spoken guidance before/during/after travel.</th>
<th>Tamotsu Shirado</th>
<th>National Institute of Information and Communications Technology</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Conversational Robot Plays Rakugo to Learn Communication Skill</td>
<td>We will show a robot which plays RAKUGO.s. The robot talks with a young boy’s voice by a text to speech software. The combination of the cute style of the robot and the childish voice makes a very nice atmosphere in cooperation with the funny RAKUGO stories.</td>
<td>Noritaka Moriya and Hirotada Ueda</td>
<td>Faculty of Engineering, Kyoto Sangyo University</td>
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<td>5</td>
<td>Autogenerated Web Search Directory, Torishiki-kai</td>
<td>The goal of this research is to present, in an intuitive directory structure, valuable additional search terms relevant to a user’s topic of interest. Selecting one of these search keywords displays a list of Web pages containing information about the search term and the selected keyword. For this purpose we have autogenerated a Web search directory called Torishiki-kai from a large collection of Web documents using state of the art knowledge acquisition methods. Torishiki-kai maps out the context of use of the terms input by the user, and classifies topically related search terms according to semantic categories such as</td>
<td>Kentaro Torisawa¹, Asuka Sumida², Daisuke Noguchi², Yasunori Kakizawa², Jun’ichi Kazama¹, Stijn De Saeger², and Masaki Murata¹</td>
<td>¹ National Institute of Information and Communications Technology, ² Japan Advanced Institute of Science and Technology</td>
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</tbody>
</table>
potential troubles, methods or tools to help the user find potentially relevant “unknown unknowns”.

Underlying this notion of context of use is the assumption that what people want to know about a given search topic is, in a broad sense, related to its intended use (e.g. “reading” a novel), or preparation for this use (e.g. “buying” the novel). Restricting the semantic search space to the context of use of whatever the user inputs lets us delineate the scope of relevant keywords in a more meaningful way, allowing the user to discover meaningful but previously unknown information through predefined semantic categories without drowning in a sea of related but irrelevant information. For ease of navigation, the distance to the category center indicates the co-occurrence frequency of the keyword, and the angle between keywords reflects their semantic similarity, which is computed using the EM clustering method.

We believe that the technology to pro-actively find and organize relevant information vital to our day to day goals will become increasingly important as the Internet continues to permeate further aspects of our lives, and we see Torishiki-kai as an important step in that direction.

6 Experience Mining: Databasing Personal Experiences and Opinions Extracted from the Websphere

This presentation demonstrates a novel UGC-oriented language technology application, which we called experience mining. Experience mining aims at automatically collecting instances of personal experiences as well as opinions from an explosive number of UGCs such as weblog and forum posts and databasing them as a collection of structured and semantically indexed entries.

More specifically, our goal is (a) to collect personal experiences relevant to a broad range of topics including consumer products (e.g. automobiles, cellular phones, etc.), public places (tourist sites, hospitals, etc.), social systems (administrative services, welfare systems, etc.), and (b) to store them all together in a huge database, called an experience database, where each experience is represented as a piece of structured information comprising such slots as topic, experiencer, event type, factuality and source pointer.

Once such a database become available, a broad range of applications can be considered. Semantic indices such as event types and temporal and modal attributes

Kentaro Inui and Shuya Abe
Nara Institute of Science and Technology
allow users of the DB to retrieve, for example, “troubles experienced during the use of a particular model of consumer product” or “complaints and requests of the users of a particular welfare system provided by a local government”.

This sort of retrieval makes explosive amounts of UGCs a useful and valuable resource that can potentially be used for not only customer review retrieval, corporate marketing and risk management but also evaluation of public services and social systems. The system we demonstrate in this presentation stores over 80M experience instances with semantic indices and is scheduled at the end of September to start serving as an experience search engine for unrestricted users.

We would like to give a demonstration of our “Speech Rate Conversion technology”. The feature of this technology is to be able to control the speech rate, as you like, without spoiling sound quality and voice character. It has two operational modes as follows. (1) Uniform extension or contraction of the utterance time. (2) Adaptive speech rate conversion not to accumulate time delay with slower feeling. Elderly people often find that the speech of contemporary broadcasts is too fast for comfortable listening. The mode (2) is especially adequate to enjoy the real-time broadcasting program.

Furthermore, high-speed reproduction has strong demand for “one-over listening” (= very fast listening) among many visual impairments. The mode (2) is also applicable at this case.

According to our experiment for the normal subject, most of them could catch high-speed speech (e.g. 2 or 3 times of normal speed or more) easily.
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Text</th>
<th>Authors</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Information Credibility Survey Reporting: A Prototype System and Project Roadmap</td>
<td>This presentation overviews the current results of our ongoing project aiming at developing NLP technologies for generating information credibility-oriented survey reports from Web documents and demonstrates our prototype system. An explosive number of documents on the Websphere are becoming an indispensable source of information used for a broad range of decision makings in our daily life. Web pages, however, sometimes contain incorrect statements, prejudiced opinions, or obsolete information. Judging the credibility of information in one document requires to see what other documents say about the same topic. A statement can be considered credible if it is compatible with those in other pages while it may be doubtful if contradicted by expert, authoritative, or newer pages. Motivated by this background, we launched a three-year project this year, granted by NICT, Japan, aiming at developing new NLP technologies for survey report generation. In this project, we consider a survey report to contain (a) a summary text, (b) results of temporal analysis as well as (c) a bird’s eye view of logical relations (e.g. entailments and contradictions) between relevant statements. In this presentation, we demonstrate through a prototype system how these components are designed to contribute to information credibility analysis, showing a future roadmap of the project.</td>
<td>Shin-ichi Ando, Kentaro Inui, Madoka Ishioroshi, Yuji Matsumoto, Suguru Matsuyoshi, Rintaro Miyazaki, Tatsunori Mori, Koji Murakami, Masahiro Nakano, Satoshi Nakazawa, Yuzuru Okajima, Hideyuki Shibuki, and Takako Suzuki</td>
<td>1 Nara Institute of Science and Technology, 2 Yokohama National University, 3 NEC Common Platform Software Research Laboratories</td>
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<td>9</td>
<td>Three-Dimensional User Interface using a Haptic Device for Volumetric Display</td>
<td>A new user interface system consisting of a haptic device and a volumetric display for intuitive manipulation of three-dimensional (3-D) information is demonstrated. Development of natural-looking 3-D displays is expected to realize intuitive manipulation of 3-D information. Most of 3-D displays based on only binocular parallax have the problems of visual confusion and fatigue caused by inconsistencies in 3-D visual information, such as focus and binocular convergence. We have proposed a volumetric display technique satisfying all the requirements for stereoscopic vision based on 3D scanning using an inclined image plane. We constructed an experimental volumetric display system. In the volumetric display system, a two-dimensional (2-D) display device, a vector-scan CRT display, is placed obliquely in an optical imaging system.</td>
<td>Keisuke Ohno, Daisuke Miyazaki, and Takaaki Mukai</td>
<td>Osaka City University, Graduate School of Engineering</td>
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system, in which a galvanometric mirror scanner is inserted. An inclined image is moved laterally with the scanner. Inclined cross-sectional images of a 3-D object are displayed on the 2-D display device in accordance with the position of the image plane. A volumetric 3-D image is formed as a stack of afterimages by high-speed scanning.

We used a haptic device in the volumetric display system as a 3-D input device to provide a human interface for accessing a 3D image data. We set the haptic device to match its manipulation space corresponded the display space of the volumetric display system. In order to achieve touching feeling for a displayed 3-D image, we designed to give force feedback to a user when the point of the stylus approached to the surface of the 3-D object by matching the virtual objects for the display system and the haptic device.

In addition, we implemented shifting and rotating manipulation of an object in a volumetric image synchronized with the movement of the stylus.

### Person-Independent Gaze Tracking for Interactive Information Display

We develop an information display that reads a user’s unconstrained non-verbal behavior, such as face / gaze direction, from which the system estimates the user’s mental states, such as intention and preference.

Akihiro Kobayashi¹, Kentaro Kayama¹, Takekazu Kato¹, Tatsuya Yamazaki¹, Takatsugu Hirayama², Hiroaki Kawashima², and Takashi Matsuyama²

¹ National Institute of Information and Communications Technology, ² Kyoto University

### Language Grid Service Manager

The Language Grid is an infrastructure for enabling users to share language resources developed by language specialists and end-user communities. The users employ the resources to support their intercultural collaboration. To this end, language resources (including data and programs) are wrapped to form Web services that users can combine by workflows to create services customized for their activities.

However, intellectual property associated with language resources disturbs the language resource sharing. To enable users to provide and/or use language resources by mutual consent, we have implemented a Language Grid Service Manager that allows users to monitor the language resources on the Language Grid, set and confirm information necessary for their participation, authorize users to access the language resources, and set access constraints such as limitation of the number of usages and maximum size of data.

Yohei Murakami, Rieko Inaba, Tomohiro Shigenobu, Takao Nakaguchi, Akiyo Nadiamoto, and Toru Ishida

National Institute of Information and Communications Technology
transfer.

The Language Grid Service Manager can promote users to provide their language resources by providing a transparent interface of the Language Grid.

| 12 | A Musical Whistling Test System Using Air-Transmitted Sounds and Bone-Transmitted Sounds | A bone-conductive microphone that transforms bone-transmitted speech sounds through skull into electronic signals has two advantages. One is to operate in hands free mode, and another is to be anti-noise. Therefore, it is expected to match the man-machine interface for wearable computers. But, it does not have good sound quality. By the way, some languages and code languages use whistles as a part of their communication.

On the other hand, whistling can be musical. It is called “musical whistling.” Here, we examined and analyzed the possibility of a musical whistling test system using bone-conductive microphone. This system consists of two parts. One is a blow/draw notes detection part using air-transmitted sounds. And the other is a pitch detection part using bone-transmitted sounds.

This demonstration shows that the proposed system using air-transmitted sounds and bone-transmitted sounds gives good performance under the noisy environment. In addition, this poster shows a basic study of the whistling. For example, the compass (total pitch range) of a whistling was measured by a chromatic tuner.

In conclusion, the study of the musical whistling test system using bone-conductive microphone has shown the importance of three features. The first is to be anti-noise. The second is to be good sounds. The third is to be robust against a wind noise. | Mikio Mori, Mitsuhiro Ogihara, Shuji Taniguchi, and Chikahiro Araki | University of Fukui |

| 13 | Linguistic Technologies for Basque | We will demo a scenario for Cross Lingual Information Retrieval using Basque, and Spanish (possibly English too) as search languages; and Basque as the interface language. We also include Speech technologies for Basque and a virtual character. We got our paper accepted and we want to accompany it with a demo. | Kutz Arrieta | VICOMTech |

| 14 | Does Computer Interviewer Elicite More Information?: Comparing With The Human Interview. | The cognitive interview enhances memories including mnemonics. This technique is used in police interview in overseas. The aim of the cognitive interview is to elicit more information than the standard police interview. This interview is very useful, however, it is time consuming to bring up trained interviewers. | Hiroaki Shiraishi and Makiko Naka | Graduate School of Letters, Hokkaido University |
Therefore, we developed computer interviewer which conducted cognitive interview automatically. To build rapport between the listening agent and interviewee, we used baby-face figure as a interviewer based on baby-scheme theory. Additionally, it nods by detecting interviewees’ voice to make interviewee feel comfortable. The interviewee reads the instruction text which displayed below the agent and carry on an interview at interviewees’ own pace like playing game.

To evaluate the effect of this agent, we conducted a experiment that examined whether the listening agent elicited information as the same level as human interviewers’ cognitive interview. 42 interviewees participated in this research, and assigned them to computer interview condition or human interview condition at random. Amount of a report was the number of type (total number of details reported: mean numbers of subject, verb, object and other meaningful details), token(total number of not duplicated details), that were segmented and counted by Japanese Morphological Analysis system KH Coder(Higuchi, 2007).

Results showed that the computer interviewer elicited comparable level of information compared to the human interviewer. The results suggest that the listening agent behaved conversable, that’s why it helps to build rapport. However, the listening agent is used only in a structural interview, such as cognitive interview have a beneficial effect on interview.

In ISUC 2008, we demonstrate 2 types of the listening agent. One is a quick demonstration version which includes rapport building phase only, another one is a full version which includes rapport building and mnemonics phases.

| 15 | Large-scale Simulation of Mobile Robots | Recently mobile robots act in various situations such as disaster areas, office buildings, factories and homes. When these new mobile robots are released, they should be confirmed to work correctly and safety from evaluation.

We propose large-scale simulation environment of mobile robots on StarBED which is a large-scale networked testbed. On the simulation environment, we can demonstrate that hundreds of mobile robots act in real-time. | Takashi Okada | Japan Advanced Institute Science and Technology |
As the amount of information created by human beings is explosively grown in the last decade, it is getting extremely harder to obtain necessary information by conventional information access methods, i.e., Web search engines. This is obvious from the fact that knowledge workers now spend about 30% of their day on only searching for information. Hence, creation of drastically new Information Retrieval (IR) technology is needed.

To develop such new IR technology, a search engine infrastructure that plays a low-level layer role (i.e., retrieving web pages according to a user’s query from a huge web page collection) is required.

Although the Application Programming Interfaces (APIs) provided by commercial search engines can be regarded as such infrastructures, these APIs have the following restrictions:

1. The number of API calls a day and the number of web pages included in a search result are limited.
2. The API users cannot know how the acquired web pages are ranked because the ranking measure of web pages has not been made public.
3. It is difficult to reproduce previously-obtained search results via the APIs because search engine’s indices are updated frequently.

These problems are an obstacle to develop new IR technology using existing search engine APIs.

To help the development of new IR technology, we are running an open search engine infrastructure, TSUBAKI, on a high-performance computing environment. TSUBAKI can provide users with search results retrieved from approximately 100 million Japanese web pages.

TSUBAKI handles synonymous expressions (including spelling variation) of words and phrases in a user’s query for retrieving web pages, and uses dependency relations in the query and retrieved pages for ranking of the pages. In this poster presentation, we demonstrate TSUBAKI infrastructure.
<table>
<thead>
<tr>
<th>17</th>
<th>Floating Touch Display</th>
<th>We developed a novel optical imaging element using micromirror array. This element can form an unit magnification image like a plane mirror, but the image is real not virtual. In the case of this element, there is no optical axis and no focal length, so the image is not distorted and have reality. Because of the reflection by micromirror, the image can be viewed at angle according to the element surface. With use of this element, the aerial touch display, whose image surface is erected from the desktop, is demonstrated.</th>
<th>Satoshi Maekawa</th>
<th>National Institute of Information and Communications Technology</th>
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</thead>
<tbody>
<tr>
<td>18</td>
<td>gCubik: A Cubic Autostereoscopic Display for Sharing and Grasping Virtual 3D Images</td>
<td>We have proposed a cubic autostereoscopic display employing integral photography(IP). The display is compact, graspable and viewable from any direction.</td>
<td>Roberto Lopez-Gulliver, Shunshuke Yoshida, Sumio Yano, and Naomi Inoue</td>
<td>National Institute of Information and Communications Technology/Advanced Telecommunications Research Institute International</td>
</tr>
<tr>
<td>19</td>
<td>Virtual Auditory Display System with Simulated HRTFs</td>
<td>Personalized Head-Related Transfer Functions (HRTFs) can noticeably improve the reality of virtual sound when listening through headphones. In this demonstration, you can experience a virtual auditory space created using HRTFs which are simulated on the basis of the geometric features of a person.</td>
<td>Ryouchi Nishimura, Parham Mokhtari, Hironori Takemoto, and Hiroaki Kato</td>
<td>National Institute of Information and Communications Technology/Advanced Telecommunications Research Institute International</td>
</tr>
<tr>
<td>20</td>
<td>Machine Translation between 18 World Languages</td>
<td>This demonstration introduces a text-to-text translation service that enables users to translate Japanese conversational spoken language sentences in the travel domain into 17 of the major world languages. The system’s core components consist of a multilingual, sentence-aligned spoken language corpus and state-of-the-art statistical machine translation engines that are trained automatically from this corpus. Two different translation modes are distinguished: (1) the multilingual mode where the Japanese input is translated into all 17 languages simultaneously and (2) the bilingual mode where a single language out of 17 languages can be selected as the target language of the text translation. The bilingual mode also features a back-translation functionality, i.e., a reverse translation of the generated translation output into Japanese, that enables immediate feedback on the quality of the translation output.</td>
<td>Michael Paul, Hailong Cao, Andrew Finch, Chooi Ling Goh, Hideo Okuma, Eiichiro Sumita, Masao Uyama, Hirofumi Yamamoto, and Keiji Yasuda</td>
<td>National Institute of Information and Communications Technology/Advanced Telecommunications Research Institute International</td>
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<tr>
<td>Page</td>
<td>Title</td>
<td>Abstract</td>
<td>Authors</td>
<td>Institution</td>
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<td>21</td>
<td>Speech-to-speech Translation System on Mobile Phone</td>
<td>In this demo, we introduce the recent progress of NICT-ATR multi-lingual speech-to-speech translation system. Speech translation system on a mobile phone is realized by implementing distributed speech recognition (DSR). Recent progress in corpus-based speech and language processing technology has made it possible to realize multi-lingual speech-to-speech translation in real situations. A distributed architecture realizes real-time, accurate and location free speech translation service with mobile phone. The advantages of the corpus-based approach are that it achieves wide coverage, robustness and portability to new languages and domains.</td>
<td>Tohru Shimizu, Eiichiro Sumita, Yutaka Ashikari, Shigeki Matsuda, Takeo Fukuroya, and Satoshi Nakamura</td>
<td>National Institute of Information and Communications Technology</td>
</tr>
<tr>
<td>22</td>
<td>Spoken Dialog System for Next Generation Knowledge Access</td>
<td>Nowadays we can get most information through the Internet. However, we have a trouble to pick up expected information from the huge results with conventional search engines. Especially in mobile terminal, we are confronted with great difficulties for two factors. One is that most of users cannot make an appropriate query because their request is vague with theirselves. The other is that the retrieved information has huge variation and mobile terminal has small area for displaying them. Therefore, we aim to develop technologies for the users to input their requests by familiar way and clarify what they want to know with displaying the retrieved information with suitable method. This paper shows our development dialog system on Kyoto tourist information assistance in a client-server fashion.</td>
<td>Hideki Kashioka, Kiyonori Ohtake, Chiori Hori, Teruhisa Misu, and Satoshi Nakamura</td>
<td>National Institute of Information and Communications Technology</td>
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<td>23</td>
<td>Navigative City of Books</td>
<td>The Navigative City of Books is a project to build a city-like virtual structure of books, equipped with various navigation functions. This project is also meant to provide a testbed where we can develop new applications for active database models and new search technologies of association, inspiration and methods based on culture. The basic concept of Toshogai comes from the ideas developed over a number of years by Seigo Matsuoka. In this city, the books are structured in accordance with meanings vented by context and topos. Also, user’s intention and situation will be accounted for an interactive navigation.</td>
<td>Ikuyo Kaneko¹, Norimichi Ikeda¹, Shuichi Kurabayashi¹, Shiori Sasaki¹, Yuzuru Tanaka², Naoko Tosa², Syuko Kato³, and Yutaka Kidawara⁴</td>
<td>¹ Keio University, ² Hokkaido University, ³ Kyoto University, ⁴ National Institute of Information and Communications Technology</td>
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| Page | Knowledge Cluster System | We recently study a project on “knowledge cluster systems” for knowledge sharing, analysis, and delivery among remote knowledge sites. We introduce several key techniques of the knowledge cluster systems. We have proposed a “three-site model” as knowledge system architecture. The “three-site model” defines three roles of remote sites: knowledge capture, knowledge transfer, and knowledge provision.  

The knowledge cluster system provides an evolving network of community knowledge by interconnection of heterogeneous knowledge bases. We implement knowledge cluster systems on the “knowledge grid” as an infrastructure. Our approach is one of the methods for solving the limitations of the current systems. Our approach realizes Web 3.0 environment and has functions for the reconfiguration of Web resources and legacy databases and for changing our browsing style on the Web.  

In this demonstration session, we demonstrate some applications of the knowledge cluster systems. |
|---|---|---|
| 25 | Web Information Credibility Analysis System (WISDOM) | We demonstrate an information credibility analysis system named WISDOM, which supports human judgment of information credibility by analyzing Web pages based on various criteria such as the sender, content, and appearance.  

Nowadays, a variety of information is available on the Web, and such information gives judgment criteria for people’s daily life such as sightseeing and shopping. Moreover, this information is starting to have a strong influence on health management and governmental policy.  

Therefore the credibility of Web information is becoming increasingly important. We have been developing an information credibility analysis system, WISDOM (Web Information Sensibly and Discreetly Ordered and Marshaled). The purpose of WISDOM is to evaluate the credibility of information on the Web from multiple viewpoints. WISDOM considers the following to be source of information credibility: information contents, information senders, and information appearances.  

We aim at analyzing and organizing these measures on the basis of semantics-oriented natural language processing (NLP) techniques. The analysis | | |
of information contents focuses on the text information in Web pages and also includes the processes of page clustering, summarization, and opinion extraction. The analysis of information senders highlights the identity of a sender, classifies his/her affiliation, and determines the level of expertise in the topic.

The analysis of information appearances focuses on the impression of a Web page, and includes the processes of clarifying the information source and contact address and assessing the appropriateness of page design and writing style.

Information Credibility Analysis of Web Contents

The information credibility analysis of Web contents becomes crucial because of the wide and daily use of Web browsers and search engines. We developed technologies for analyzing Web content credibility. Especially, we explored ways to analyze the credibility of Web text, images and video. As for Web text credibility, we developed functions to compute the degrees of the topic majority, the topic coverage, social acceptance.

As for Web multimedia contents credibility, we explored functions to compute the evidential degrees of the typicality, the speciality, the coverage of Web images, and the sentiment of annotations for Web video contents. These functions are implemented over conventional Web browsers or Web search engines.

Katsumi Tanaka, Satoshi Nakamura, Adfam Jatowt, and Hiroaki Ohshima

Graduate School of Informatics, Kyoto University