National Institute of Informatics News

No.9 2004

"Quick Refinement of Face Candidate Regions for Fast Face Detection"
Photo : Prof.Shin'ichi Satoh (for details to p.11)

Joint research No.4

Research on e-Community Money System
— feasibility study of currency exchange among geographically distant communities

Hitoshi Okada (NII)

Research on e-Community Money System
— feasibility study of currency exchange among geographically distant communities

1. Small-Scale Currency Systems

In Japan, "Regional Currency Systems" or "Community Money Systems" have been mushrooming during the past few years. The IC-Cards developed as an identifier for residential records issued by municipal governments have spare memory space, and many municipalities utilize this memory to store applications which enable the use of "Community Money" payment systems for regional transportation, community facilities, and other applications. These are recognized as "Large-Scale Currency Systems."

There are many "Small-Scale Community Money Systems" as well. These are mainly used for transactions that are very small and closely related to daily life, such as sales of organic foods and handicrafts and transportation services. Despite the small scale of each individual system, these systems have demonstrated significant positive impacts on the enrichment of community life. The replacement of currency by these Small-Scale Community Money Systems is expected to vitalize not only individual systems but also all of the participants in these kinds of interconnections. The cyberization [Is "cyberize" the correct word here? Is "computerize" better?] of Community Money is considered one of the measures by which this objective may be achieved.

2. Is horizontal integration possible?

The aim of this research project, "Practical Analysis on the Possibility of Circulating Small-Scale Community Money in Different Regions" (Shiro Uesugi, Associate Professor and Head of Research at Matsuyama University), was to verify the possibility of horizontal integration of different Community Money systems when transformed into electric money systems. The research was conducted in four steps. First, field research was conducted in Hokkaido at a small organic farm called "Galu" that supplies eggs, rice, and vegetables. The members of "Galu" who provide labor in turn receive "Galu-notes," which can be used to purchase organic products. Organic products are recognized as a kind of "standard"; thus, there is an "Organic Products Standard System," and the system functions well because of this standard.

The second step involved study of the transformation of Community Money to electric form. "Travecoup" (Shige-ichiro Yamazaki, Professor, Kinki University, Kyushu) is a system that uses both paper notes and a client-server system.

A two-dimensional barcode is printed on the surface of a "Travecoup" note as an identifier. When a transaction is completed between a seller and a buyer, the buyer sends information on the notes received via mobile internet using a camera-equipped mobile phone. This system serves as a "door" connecting the real world and the "cyber world."

The third study was conducted to verify whether it is possible to use a common platform among different Community Money Systems. ECOM had developed a "Mobile LETS system" in Namikata, Ehime, and the study intended to bring the same system to other groups that follow the same kinds of rules and have the same disciplines as Namikata, namely the "Timedollar" system. The results demonstrated that even among systems that share similar origins, because of differences in daily practices in the real world, transplantation of a system requires a significant amount of modification, and further study on this type of technological adjustment is required.

Lastly, a study was performed to research the interchange and exchange of Community Money between different regions and different disciplines. Regrettably, it was found the Community Money systems are far from cyberized and that further development is necessary.

3. New sprouts from this research

The research has produced quite a few seeds for new research. ECOM's Mr. Naruse, who developed Mobile LETS, is now conducting follow-up studies on this theme to be compiled as his dissertation, while Professor Tsuji, who is also a member of the Mobile LETS project, is currently acting as the head of this year's follow-up research. Professor Yamazaki, who developed the two-dimensional barcode utilized in the Community Money system, is now trying to adapt the system for use in academic evaluation.

Interoperability between Paper Community Money and Electronic Community Money

Graphical BarCode

Authentication by the issuers of Paper Community Money

URL

In a collaborative research project with Assistant Professor Sugawa of Niigata University, he is also providing technological assistance in the development of a legal information database website. Associate Professor Sakata of Kinki University conducted a survey study as part of this research and found that a distributed system is more useful than a centralized system in constructing flexible and durable urban planning, especially for regional financial systems, traffic control, and energy distribution. Currently, he is proposing a practical analysis on the flexibility of a distributed-style metropolis.

Above all else, collaborative research seems to be an extremely efficient opportunity by which to create a forum for the development of new research ideas. From here on out, I am looking forward to helping advance this research while anticipating productive results from each study.

*(**Hitoshi Okada,** Associate Professor, Information Institution, Human and Social Information Research)*

Research & Education

Quantum Computation: Tomorrow's way to process information

It has long been known that quantum mechanics plays a vital support role for modern conventional information technology (IT), by improving its building blocks, through, for example, providing a better understanding of material properties and of the functioning of components such as transistors and memory elements. In contrast, for quantum information processing and communication (QIPC), fundamental quantum phenomena play the central role, - here information is actually stored, processed, and communicated in accordance with the laws of quantum physics. It is known already that this new and additional freedom enables quantum information devices to perform certain tasks that we will never achieve with conventional IT. It should be noted, however, that this is not a closed book, and that research continues apace to determine the full extent of what can and can't be achieved with quantum information technology (QIT). These are some of the core activities being undertaken by Professor Nemoto and her coworkers.

Kae Nemoto is an Associate Professor in the newly formed Quantum Information Sciences group at NII and her main research interests and efforts are focused around:

- Determining the requirements for true quantum computation as opposed to quantum processes that can be efficiently simulated on a classical computer. The fact that a device operates according to quantum laws does not mean that it is automatically useful for quantum computation. There are a large number of quantum gates and circuits that can be efficiently simulated on today's computers and it is essential that we be able to determine the difference.

- Investigating the generation of optical nonlinearities. It is widely known and accepted that to achieve quantum computation (and information processing) with light, a nonlinear optical element is needed. Currently, the nonlinearities provided by natural materials are rather small and unsuited to quantum tasks at the single photon level. Hence the task is to find new methods to generate large optical nonlinearities.

- Novel schemes for quantum computation and information processing. Currently there are a number of distinct models available for quantum computation and the particular model one uses depends on the physical implementation. Kae is researching the best approaches for optical quantum information processing. One highlight of Kae's recent work has been that she has shown that weak cross-Kerr nonlinearities in conjunction with linear optical elements are sufficient for all optical universal quantum computation. Previously, it had been thought that very strong nonlinearities were required or at least needed to be created.

- Quantum/atom optics and quantum nonlinear dynamics.

- The foundations of quantum mechanics.

Finally, Kae participates in a number of very active international collaborations with various researchers including Samuel Braunstein at the University of York, Gerard Milburn at the University of Queensland, Mio Murao at the University of Tokyo and the Quantum Information Processing group of Hewlett Packard Labs in Bristol. For more information about our quantum information group and its activities please visit our website:

http://www.qis.ex.nii.ac.jp

*(**Kae Nemoto,** Associate Professor, Cryptography, Infrastructure Systems Research Division)*

Towards Chinese Temporal Information Extraction and Its Applications

Department of Systems Engineering & Engineering Management

The Chinese University of Hong Kong,
Hong Kong, People's Republic of China

Kam-Fai WONG

After receiving his Ph.D. from Edinburgh University, Scotland, in 1987, K.F. Wong performed research at Heriot-Watt University (Scotland), UniSys (Scotland), and ECRC (Germany). At present, he is a professor in the Department of Systems Engineering and Engineering Management at the Chinese University of Hong Kong (CUHK), and in parallel serves as the director of the university's Centre for Innovation and Technology (CINTEC). His research interests are centered on Internet programming and applications, Chinese computing, and parallel database and information retrieval. He has published over 100 technical papers on these areas in various international journals, at conferences, and in books. He is a member of ACM, CLCS, and IEEE-CS and IEE (UK). He is the founding Editor-In-Chief of ACM Transactions on Asian Language Processing (TALIP) and a member of the editorial boards of the Journal on Distributed and Parallel Databases, International Journal on Computer Processing of Oriental Languages, and International Journal on Computational Linguistics and Chinese Language Processing. He is the general co-chair of AIRS04, panel co-chair of VLDB2003, PC co-chair of IRAL03, ICCPOL01, and ICCPOL99, and General Chair of IRAL00 and AIRS2004. He is also a PC member of many international conferences; some of the more recent ones include SIGGMOD04 and DASFAA04. He is an active member of ACM and serves as the China program coordinator of the Membership Activities Board (MAB).

Temporal information carries information about changes and the time at which the changes occurred. It is regarded as a piece of information of equal, if not greater, importance in applications such as extracting and tracking information over time and planning and evaluating activities. Conventional information systems may maintain and manipulate the time at which events occur, but they may not be able to handle users' queries concerning how an event relates to another temporally, and are undoubtedly incapable of inferring new information which is not presented in texts but can be derived from existing facts. These systems, which cannot make effective use of temporal information, are thus rather restricted. Therefore, it would be useful to capture and maintain the temporal knowledge associated with each action and to introduce an effective inference mechanism into information systems.

In a broader sense, when we speak of the temporal information contained in languages, we do not simply mean explicit specifications such as time clauses or phrases associated with the actions addressed. Such temporal information also includes the information which is implicitly embedded in verbs. Thus, modeling of the temporal aspects of a language is more complex than a physical time-dependent system. Despite the fact that during the past few years, temporal information processing and reasoning have been the subject of increased focus, only a few researchers have investigated these areas in Chinese. In this seminar, I will briefly introduce our past and ongoing research activities on temporal information extraction, processing, and inference.

Towards Identification of Newly-coined Words Which Are to Be Important in Specialized Domains

Assistant Professor, Library Information,
Human and Social Information Research Division

Keita TSUJI

Keita TSUJI obtained his Ph.D. from the University of Tokyo, Japan, in 2003. Since 2001, he has performed research at the National Institute of Informatics (Japan) as a research associate. His research interests are centered in computational linguistics, natural language processing, and library science.

The ability to predict which words among those newly-coined are to be important in specialized domains would

be useful for the compilation and revision of terminology and for the detection of emerging trends in specialized domains. Toward this goal, I investigated the features of

newly-coined words that would enable us to make such predictions. The pertinent words here are two types of "important" words: (1) words that are frequently used and (2) words that are connected to special concepts within the domain. The two basic points that I would like to emphasize are: (a) the importance of introducing temporal information to term extraction and (b) the importance of distinguishing newly-coined terms from other terms upon term extraction. With regard to (a), much of the previous work on term extraction used texts without considering when they were produced. No work concerning the age of texts applicable for use as resources for "present term" extraction has been performed. Information about the temporal validity of extracted terms is useful for lexicographers who wish to delete or avoid adding terms that will die out immediately. With regard to (b), much of the research on term extraction has failed to distinguish newly-coined terms from other terms. The frequency of newly-coined terms in texts is inherently low and such terms are difficult to extract using the frequency-based methods proposed thus far. With this background, I used papers from journals (Journal of the American Society for Information Science and Technology) and proceedings (SIGIR) ranging across 17 years and investigated the usefulness of existing term extraction methods for identifying important words meeting definitions (1) and (2). The methods I adopted are based on TFIDF, the term representativeness of Hisamitsu, and the measure of Nakagawa.

- -

Synchronization and stabilization: quick and flexible development of software

Professor,
Massachusetts Institute of Technology's Sloan School

Michael A. Cusumano

Michael A. Cusumano is the Sloan Management Review Distinguished Professor at the Massachusetts Institute of Technology's Sloan School of Management. He specializes in strategy and technology management in the computer software industry, as well as in the automobile and consumer electronics industries. He has also performed consulting for major corporations around the world.

Professor Cusumano has published many books, including : *Microsoft Secrets* (1995, with Richard Selby): Bestseller. *Competing on Internet Time: Lessons from Netscape and Its Battle with Microsoft* (1998, with David Yoffie). *The Business of Software: What Every Manager, Programmer, and Entrepreneur Must Know in Good Times and Bad: His latest book*

This lecture meeting was held under the cosponsorship of the National Institute of Informatics and the Japan Society for the Promotion of Science as the "Research and development committee for infra-software technical exploitation (industry, academia, and government joint activity aimed at promoting technical innovation in software)." Professor Cusumano's proficiency in Japanese permitted him to deliver the lecture in Japanese. Many auditors filled the hall and participated in the question-and-answer session so eagerly that the time was extended

OUTLINE

First off, allow me to mention the keywords that characterize the software of Europe, the U.S., and Japan. In Europe, it is "Software as Science", and they are quite good at taking scientific approaches such as object-oriented and formal methods. It is "Software as Business" in the U.S., and their goal is to obtain profits by launching products into the market at an early stage, even if imperfect, and making them the de facto standard. In Japan, it is "Software as Production" and is symbolized by "zero defects" and "the software factory."

Improving the productivity and reliability of software development are typically important problems. Recently,

repeated-type development processes such as spiral-type development, synchronization and stabilization, extreme programming, and so on have been attracting attention.

"Synchronization and stabilization" are software development techniques that use periodic repetitions to build up programs for synchronizing the designs of each project member with those of the other members and to perform integration and stabilization testing. Microsoft, Netscape, and other companies have adopted these techniques. They are useful in a number of areas, including the exercising of programmers' creativity, short-term development, flexible correspondence, and customer intention development, among others.

Waterfall-type development, on the other hand, remains useful for high-reliance systems, embedded systems, and so on, and is still in use in Japan.

(Publicity and Dissemination Division)

NII MESSAGE FROM NII RESEARCHER

Project Researcher,
Collaborative Center for Grid Research and Development

Soonwook Hwang

I moved to Tokyo last November to join the National Research Grid Initiative (NAREGI), one of NII's research projects. After receiving my B.S. degree in Mathematics and M.S. in Computer Science from Seoul National University in Korea, I moved to the U.S to pursue a Ph.D. program. I completed my Ph.D. work in Computer Science at the University of Southern California (USC) under the supervision of Dr. Carl Kesselman, one of the originators of the Globus Project, which is well known as the project responsible for the development of the middleware software for the Grid called the Globus Toolkit. My Ph.D. work was focused on fault tolerance in the Grid. To this end, I designed a generic failure detection service (FDS) that enables Grid clients to monitor the states of jobs submitted to Grid resources. I also developed a Grid workflow system on top of the FDS as a failure recovery mechanism for the Grid and integrated fault tolerance features into the system. This workflow-based failure handling framework provides high-level Grid programming that allows users not only to specify ordinary jobs and constraints but also to specify diverse failure handling strategies such as retrying, checkpointing, replication, alternative tasks, and user-defined exceptions.

NAREGI thus far has been pursuing research and development based on UNICORE, another well-known Grid middleware infrastructure. I expect that the NAREGI project will continue to rely on UNICORE this year and probably next year as well. Consequently, I am interested in investigating a NAREGI workflow system to be built on top of the UNICORE infrastructure.

Although UNICORE supports some workflow functionality, its workflow engine seems to be too much tightly coupled with the system itself due to its adoption of the concept of the Abstract Job Object (AJO) (i.e., a serialized java object) as a means of specifying workflow structures. It would be interesting to investigate whether the current UNICORE workflow architecture can seamlessly support certain additional features under study at NAREGI such as fault tolerance and community scheduling. I am also interested in exploring a NAREGI workflow system independent of the UNICORE AJO structure. This high-level, UNICORE AJO-independent workflow architecture would be expected to promote ease of access to other Grid middleware infrastructures like Globus as well. I also expect that this approach would provide more flexibility in the exploration of various features (i.e., fault tolerance, community scheduling, and brokering) in connection with workflow structure.

In addition to my research at NII, I am very excited about learning Japanese language, culture, and history. I can't wait for the day when I can speak to my fellow colleagues in Japanese. My new journey in Tokyo will be exciting in many aspects but also a bit challenging. I hope that down the road, when I look back on my life, I will be able to say, "My time in Tokyo was one of the best times of my life."

Hamasaki Masahiro

Department of Informatics, School of Multidisciplinary Sciences
Graduate University for Advanced Studies

In April 2002, I came to the National Institute of Informatics (NII) as a first-term student in the informatics program at the Graduate University for Advanced Studies. At the same time I was advancing to the doctorate level, Professor Hideaki Takeda, who mentored me when I was a Masters student, moved to NII. This prompted me to enter the Graduate University's Ph.D. program.

The theme of my research is the use of human knowledge to efficiently organize and classify large amounts of information on a network. As an offshoot of this, I am also conducting research related to support for interpersonal encounters, which focuses on the question of how people come into contact with others who share their interests. As part of this research, I have developed a "community support system" for academic conference. I actually have ran this system into operation and conducted experiments using it at academic conferences beginning last year. At large conferences where many presenters and participants involved, it can be difficult to identify the presentations and people whom you are likely to find interesting. The objective of the system is to solve problems stated the sharing of information among the participants. A paper that presented the accomplishments of this system has been accepted for publication in a national research journal, and I have received the Best Paper Award at the 18th Annual Conference of the Japanese Society for Artificial Intelligence.

A valuable attribute of NII is the way in which it actively encourages exchanges with people and organizations outside of itself. The experimentation with the support system for academic conferences that I just mentioned was carried out in collaboration with the Event Space Information Support Project, which is being advanced by the National Institute of Advanced Industrial Science and Technology. This cooperation is the fruit of a relationship that began when I mentioned in a conversation I had at a study seminar with a researcher who shared my interests that "it would be great if we could work together," and from then we developed collaborative research. And as mentioned, our efforts have been rewarded with success. I am grateful for the open research framework that NII has created, and credit it for making this success possible.

Another attractive characteristic of NII is the fact that it hosts people from various places having different qualifications and experiences. From students who have just completed their Masters programs to established members of society whose children are in college, people with variety of background the world are working side by side. Because such an environment exists, interesting exchanges that draw from diverse backgrounds emerge in a steady stream not only from discussions concerning each other's research, as would be expected, but from casual conversations as well, and this in turn exposes those involved to a variety of stimuli. Although NII has only Ph.D. students, this group of approximately 80 individuals is quite large, and I have heard that there are plans to increase its size. I look forward to finding out with what kinds of people I will next have the opportunity to meet.

I believe that NII, which consistently and actively supports the exchange of knowledge in these ways, provides a wonderful environment for us as researchers who are involved in knowledge discovery. I myself am profoundly grateful to be able to conduct research in such a marvelous environment.

Li Lei

Department of Informatics, School of Multidisciplinary Sciences
Graduate University for Advanced Studies

I am foreign student from China. I received my Bachelor degree from Shenzhen University in July 1999 and then entered a master's program at the University of Science and Technology of China. As a master's student, I was particularly interested in the key technologies for the next generation of the Internet. I received my master's degree in June 2002; my thesis topic was "Robust Header Compression and Its Application in Mobile IPv6."
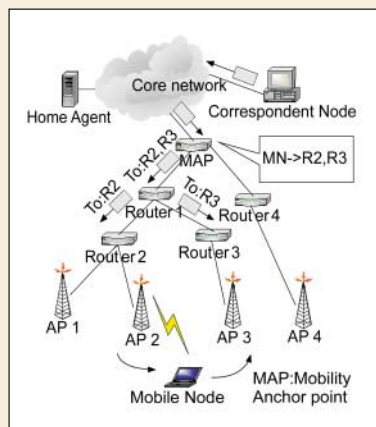
Currently, I am a Ph.D. student at NII under supervision of Associate Professor Dr. Shunji Abe. I am interested in alleviating the service degradation experienced during the handover of mobile IPv6 to make it possible for the application of real-time applications in IP-based mobile wireless networks. Based on the currently existing fast handover mechanisms, I have proposed a novel Xcast based a micro-mobility scheme to achieve seamless handover. I am now considering application of this scheme to real networks of various wireless access technologies.

I heard about the NII Ph.D. program from my master's program advisor. The idea of working in this world-class national institute with the support of an NII scholarship is quite attractive to me. Additionally, the free Japanese language courses for foreign students offered by NII, which allow students to learn the Japanese language as well as learn about Japanese culture and people, provides another reason for me to pursue Ph.D. studies at NII.

■ Test release of Cultural Heritage Online

NII has provided technical cooperation for the construction of Cultural Heritage Online as promoted by the Agency for Cultural Affairs; its test version was opened to the public on April 27.

Based on bibliographical information obtained by searches conducted through use of the associative search function of the Generic Engine for Transposable Association (GETA) developed by NII, this test version readily seeks out similar and related cultural properties, permitting users to effortlessly survey the cultural heritage of every period and genre in which they have interest. The test version of Cultural Heritage Online is available on the URL http://bunka.nii.ac.jp/.

(Contents Division)

■ Third Super SINET Symposium

The Third Super SINET Symposium on the development of research using Super SINET was held on May 24 in Hitotsubashi Memorial Hall at the National Center of Sciences. Super SINET, a world-class ultrahigh-speed network supporting the development and promotion of cutting-edge research, has been in operation since January 2002. At this third symposium, research results obtained with the aid of Super SINET in five leading-edge research fields (high energy and nuclear fusion science, space and astronomy, gene information analysis, GRID computing, and nanotechnology) as well as ITBL, NAREGI, and optical network control technology were announced. More than 120 participants from industrial, governmental, and academic sectors listened attentively to the newest trends in cutting-edge research. These research results were also published as the "Scientific Information Network (Super SINET / SINET) Result Report Collection."

(Network Division)

Opening address by Suematsu Director General

■ The 2004 Open House (open to the public)

NII held an Open House on May 31 and June 1 at the National Center of Sciences in order to promote its research activities, research results, projects, developments, and operations to the public. This year, NII conducted various subprograms based on the Open House in addition to its annual programs such as Special Lectures, Introduction of Research Activities, Introduction of the Graduate School, and Presentations and Exhibitions.

In addition to various presentations and exhibitions, the subprograms Press Preview, the Children's Tour, Chiyoda IT Forum, and Public Concert, held as part of a regional partnership, took place on the first day. For the Children's Tour, NII, in cooperation with the Chiyoda Ward Board of Education, invited all fifth grade children at the Chiyoda Elementary School to the Open House and provided them with a lecture, presentations, and exhibitions. The NPO support center collaborated with NII on the Chiyoda IT Forum entitled "IT: bringing vitality to society and collaboration

cooperation with Ciyoda Ward "Children's Tour"

with the public" and held lectures and a panel discussion. A mixed citizen's orchestra from the Chiyoda area called the "Chiyoda Forest Orquesta performed jazz, dances, and musical numbers for the Public Concert.

On the second day, Director General Suematsu and Mr. Ishikawa, the mayor of Chiyoda Ward and invited guest, gave opening speeches at a ceremony held in the morning. Following the ceremony, Professor Ken Sakamura of the Interfaculty Initiative in Information Studies at the Graduate School of the University of Tokyo delivered a special lecture entitled "Ubiquitous Computing: Present and Future." He introduced his activities and discussed the technologies required for the realization of ubiquitous computing, its applications, its social impacts, its future possibilities, and so on. Introductions to NII's research and graduate school along with other presentations and exhibitions were given in the afternoon. In addition, NII invited 13 science counselors from 10 foreign embassies in Japan and introduced them to its latest research activities. They also spent some time looking at the various presentations and exhibitions. Virtually the entirety of NII was shown, through 88 presentations and exhibitions on the research of the faculty and graduate students and of projects, various operations, and services offered by the Development and Operations Departments as well as through other exhibitions concerning publicity activities, publications, graduate school, and other areas provided by the International and Research Cooperation Department. Moreover, this year a special exhibition was held to provide specifics on the partnership between NII and society, with the Tokyo Antiquarian Booksellers Cooperative Association, Japan Book Publishers

Professor Ken Sakamura of University of Tokyo who gives a special lecture

presentations and demonstrations of research result

Association, and Chiyoda Ward as requested participants.

The Open House had a record 1000-plus participants and ended receiving high marks from those in attendance.

Open House Archives, including programs, abstracts, exhibition posters, and pictures are available at the following URL : http://www.nii.ac.jp/hrd/HTML/OpenHouse/

*(Publicity and Dissemination Division)*

■ ILL Off-Setting Service

The ILL off-setting service, which is linked with the catalog information service called the Interlibrary Loan System (NACSIS-ILL), has been in operation since April 1. With this service, NII mediates settlement of the charges generated by reference copy or loan requests between libraries, and it is expected to vastly reduce the workload of library clerks.

Since its beginnings in April, more than half of the organizations participating in NACSIS-ILL have used this service, and nearly 80% of ILL affairs are subject to the service. The number of organizations using this service has continued to increase and exceeded 500 as of July 1.

NII carries out month-long processing every month and charge settlement of accounts every three months. Each user can check the processing results through the Internet.

The first charge settlement was completed with no problems on June 30 and has received high marks from users.
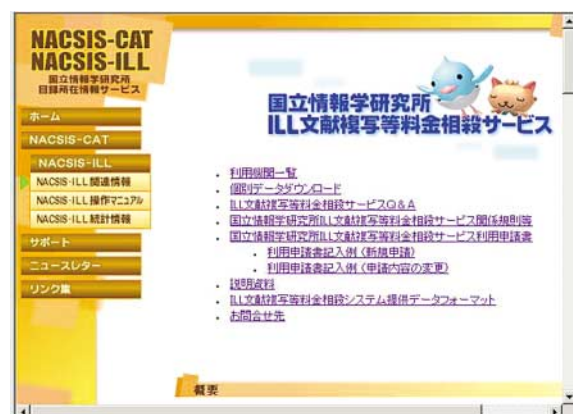
NII aims to continue to improve this service in the hopes of developing user services at each organization utilizing this system.

Information concerning this service is provided at the following URL : http://www.nii.ac.jp/CAT-ILL/contents/nii_info_sousai.html

(Contents Division)

■ Karuizawa Saturday Salon 2004

On May 29, 2004 and June 12, 2004, the first and the second lectures of the Karuizawa Saturday Salon were held at the International Seminar House for Advanced Studies in Karuizawa, Nagano. The lectures given will appear on the NII website at a later date.

The first lecture : May 29, 2004
Educational Reform Which Aims for Self-Initiative and Creativity

Former Minister of Education,
Culture, Sports, Science and Technology

Atsuko Toyama

Ms. Toyama discussed new directions of education in the future based on her experience as Minister of Education, Culture, Sports, Science and Technology.

"No one can accurately predict what the future of the 21st century will be like in the midst of worldwide uncertainty and the unpredictable occurrences successively taking place at the global level. In order to lead 'the intellectual century' toward significant technological and educational progress, I think the most urgent task is to develop Japanese citizens who are intellectually, mentally, and physically strong.

During my time of service as Minister of Education, Culture, Sports, Science and Technology, I promoted a variety of educational reforms, such as transition from the 'uniformity and passivity'- based education designed for the 20th century to the 'self-initiative and creativity'-based education designed for the 21st century. From elementary schools to universities, this is a time requiring great changes. The same can be said of Japanese society. I would like to consider the problems we face from the perspective of just what Japan is supposed to be."

(Excerpt quoted from leaflets handed out at the seminar)

The second lecture: June 12, 2004
Japanese Culture

Professor Emeritus, Hitotsubashi University

Former President of Kyoritsu Women's University

Kinya Abe

Professor Abe, who specializes in Western social history and is the author of numerous books, gave an interesting lecture, part of which is quoted below.

"The word 'culture' is already becoming obsolete. Culture once referred to personal skills that the privileged class was obliged to learn; in a word, manners. Since this privileged class no longer exists, there remains only the word 'culture.' At universities, the words 'liberal arts education' aim only at the mere acquisition of knowledge. If we use the word 'culture,' we must reconsider it from the standpoint of what modern society is supposed to be. In that sense, I would like to explore what culture is supposed to be today."

(Excerpt quoted from leaflets handed out at the seminar)

(Publicity and Dissemination Division)

■ Award

Papers presented by Prof. Hideaki Takeda and students Masahiro Hamasaki and Ikki Ohmukai of the Graduate University for Advanced Studies won the Outstanding Paper Award for the 18th Annual Conference of the Japanese Society of Artificial Intelligence (JSAI), 2004

Outstanding Paper Awards for the 18th Annual Conference of JSAI held at Ishikawa Kouseinenkin Hall from May 31 to June 4 were presented to the following papers delivered by NII faculty and graduate students.

"Application and Analysis of Personal Networks for a Community System" by Masahiro Hamasaki and Ikki Ohmukai, doctoral students in the Department of Informatics of the Graduate University for Advanced Studies, Assist. Prof. Ryutaro Ichise, and Prof. Hideaki Takeda

"Tagging for Intelligent Procession of Design Information" by Prof. Hideaki Takeda, Masaharu Yoshioka of Hokkaido University, and Yutaka Fujimoto and Yoshiki Shimomura of the University of Tokyo

"Human-Robot Cooperative Sweeping using Embedded Interaction in a Task" by Ikki Ohmukai, a doctoral student in the Department of Informatics of the Graduate University for Advanced Studies and Prof. Seiji Yamada

The 18th Annual Conference of JSAI: http://www.jsait.ac.jp/jsai2004/

Prof. Shin Nakajima and Prof. Tetsuo Tamai won the Paper Award for 2003 from the Japan Society for Software Scientific and Technology

The following paper presented by Prof. Shin Nakajima of NII and Prof. Tetsuo Tamai of the University of Tokyo received the Paper Award for 2003 from the Japan Society for Software Scientific and Technology in Vol.19, No.2 of *Computer Software*.

"Behavioural Analysis of the Enterprise JavaBeansTM Component Architecture" by Prof. Shin Nakajima and Prof. Tetsuo Tamai of the University of Tokyo

Relevant Website: http://www.jssst.or.jp/admin/awards.html

Assist. Prof. Hironori Washizaki won the Takahashi Award of the Japan Society for Software Science and Technology

Assist. Prof. Hironori Washizaki received the 20th Takahashi Award of the Japan Society for Software Science and Technology on June 9, 2004. He presented a paper entitled "Collecting and Searching Object-Oriented Programs from WWW" at the 20th Conference of the Japan Society for Software Science and Technology held from September 16 to 19, 2003. He received the award for his excellent presentation.

Relevant Website: http://www.jssst.or.jp/jssst/admin/awards.html

Ikki Ohmukai of the Graduate University for Advanced Studies was designated a "super creator" in the Non-Traditional Software Creation Project, 2003, conducted by IPA

Ikki Ohmukai of the Department of Informatics at the Graduate University for Advanced Studies was designated as a "super creator" in the Non-Traditional Software Creation Project, 2003 on June 9, 2004. Ohmukai's development results were evaluated as a part of this project, which is conducted by the Information-technology Promotion Agency (IPA), an Incorporated Administrative Agency.

Relevant Website: http://www.ipa.go.jp/jinzai/esp/15mito/index.html

Alexander I. Kovacs of Ueno Lab. At the Graduate University for Advanced Studies received the Best Presentation Award at the 5th AI Meeting for Youth MYCOM2004

The following paper presented by Alexander I. Kovacs won the Best Presentation Award at the 5th AI Meeting for Youth, MYCOM2004 held at Biwako conference center on June 24 and 25.

"Seek spiritual energy-recommendation of cognizant system simulation" by Alexander I. Kovacs, a doctoral student of the Department of Informatics at the Graduate University for Advanced Studies

Relevant Website: http://www2.create.human.nagoya-u.ac.jp/mycom2004/

The conclusion of the memorandum on Scientific Exchange with Institut National Polytechnique de Grenoble (INPG), France, Université Grenoble 1 (UJF), France, and Open University, UK

NII concluded a memorandum on scientific exchange with two universities in Grenoble, France, Institut National Polytechnique de Grenoble (INPG) and Université Grenoble 1 (Joseph Fourier-UJF), on May 11, and with Open University in the UK on May 21. INPG and UJF plan to promote research cooperation mainly in the image data processing field through the Institut d'Informatique et de Mathématiques Appliquées de Grenoble (IMAG), which was jointly founded by the two French universities.

In addition, Dr. Patrick Ozil, a vice president of INPG, and Dr. Claude Feuerstein, a former president of UJF, visited NII for the conclusion of the memorandum and witnessed Deputy Director General Sakauchi place his signature. Dr. Feuerstein is also a president of Consortium japonais du Collège doctoral franco-japonais, in which NII has participated through its Graduate University for Advanced Studies and which will actively promote cooperation in student exchac between Japan and France from

MOU signing ceremony

this point forward.

The memorandum with Open University was the first of its type concluded between NII and the UK. As such, significant development of exchanges with the UK is anticipated in the future.

(International Affairs Division)

Description of a cover

Quick Refinement of Face Candidate Regions for Fast Face Detection

Shin ichi Satoh, *Professor, Image Processing, Multimedia Information Research*

Face detection is one of the most difficult tasks for computers, although it is quite easy for human. Towards fast face detector, we are addressing a cascaded face detection approach, where face candidate regions are located in the earlier stages, and non-face regions are then discarded in the later stages. The photo shows that about 350,000 face candidates are generated by the first stage (L01), they are quickly refined, and finally face regions are correctly detected. The processing time for 959x640 sample image is only 4.5 seconds.
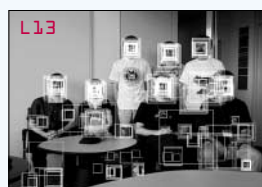
Reference: Duy Dinh Le and Shin'ichi Satoh, "Fusion of local and global features for efficient object detection," Applications of Neural Networks and Machine Learning in Image Processing IX, IS&T/SPIE Symposium on Electronic Imaging, 2005 (to appear).

the author: Shin'ichi Satoh
Joint research: Le Dinh Duy (Sokendai)

Detailed information on the research and projects of NII is available at our Website.

▶ http://www.nii.ac.jp/index.html