Inter-University Research Institute Corporation
Research Organization of Information and Systems

National Institute of Informatics

NII

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Greeting from the Director General

Needless to say, academic research organizations are now under increased pressure to clarify their missions and roles, plan and implement unique activities, and effectively demonstrate their various successes.

National Institute of Informatics (NII) has designated the following missions and roles: To create future value (create scholarship) as Japan's sole comprehensive academic research institute in the field of informatics; to attain the status of a national center for informatics research activities; and to spearhead and develop service operations related to the academic information infrastructure (academic networks and contents) — a task vital to the research and education activities of today's academic community overall. Through the above efforts, the NII aims to realize the effective contributions internationally as well as to domestic society.

These missions have now reached a particularly important stage, after the ten-year history from the IT boom to IT bubble collapse. The field of informatics thus needs to demonstrate new theories, methodology, and applications (future value) that can generate new types of actual value for human and society. In addition, needs are growing as regards the formation of a 'Cyber Science Infrastructure (CSI)' that organically combines elements such as shared ultra-high-speed networks, research resources, and science software and databases, as well as human resources, in order to realize global competitiveness in broader-ranging research and industrial and education activities. The need is therefore urgent to develop academic information infrastructure that will lead seamlessly to that of the next generation. Structual changes from Science Information Network (SINET3) to next generation Science Information Network (SINET4) , and next generation science contents infrastructure formation by cooperation with universities is parts of the concrete result.

NII intends to focus its efforts on fulfilling these missions by further strengthening its research structure and by making the institution more accessible.

We look forward to the continued understanding and support of all related parties.

Masao Sakauchi

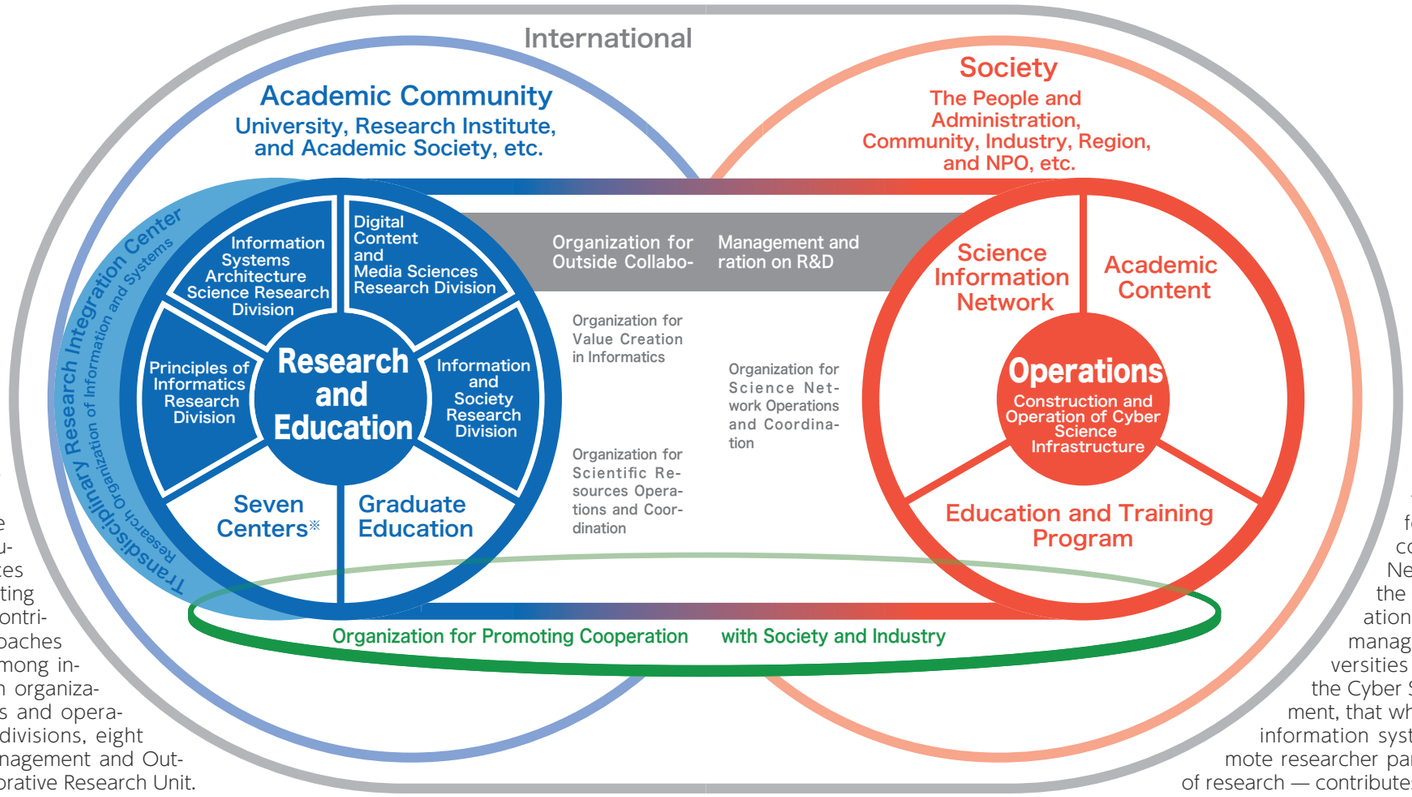
Director General, National Institute of Informatics

April 2011

Future Value Creation through Informatics by Advancing Research and Operations in Tandem

As Japan's only general academic research institution seeking to create future value in the new discipline of informatics, National Institute of Informatics (NII) seeks to advance integrated research and development activities in information-related fields, including networking, software, and content. These activities range from theoretical and methodological work through applications. As an inter-university research institute, NII promotes the creation of a state-of-the-art academic-information infrastructure (the Cyber Science Infrastructure, or CSI) that is essential to research and education within the broader academic community, with a focus on partnerships and other joint efforts with universities and research institutions throughout Japan, as well as industries and civilian organizations.

Founded in April 2000, NII marked its new beginning in April 2004 as a member of the Research Organization of Information and Systems.



※Eight Centers
- Global Research Center for Quantum Information Center
- Research and Development Center for Informatics of Association
- Grace Center: Center for Global Research in Advanced Software Science and Engineering
- Research Center for Community Knowledge
- Research and Development Center for Academic Networks
- Center for Grid Research and Development
- Research and Development Center for Scientific Information Resources
- Strategic Research Projects Incubation Center

Advancing integrated research and education in the field of informatics

Informatics is a new academic discipline based not just only on computer science and information technology, but on the human, social, and life sciences. NII advances informatics research with the goals of creating future value; furthering social and public contributions; promoting interdisciplinary approaches to information processing; partnerships among industry, government, academic, and civilian organizations; and international research activities and operations. NII has established four research divisions, eight research centers, the Organization for Management and Outside Collaboration on R&D, and the Collaborative Research Unit.

Promoting the Cyber Science Infrastructure (CSI)

NII advances the formation and operation of the CSI, a state-of-the-art academic information infrastructure. Through these efforts, the entire research organization — comprising the Organization for Scientific Network Operations and Coordination and the Organization for Scientific Resources Operations and Coordination, that which plan and manage partnerships and cooperation with universities and other institutions throughout Japan; the Cyber Science Infrastructure development Department, that which handles development and operation of information systems; and the research centers that promote researcher participation and incorporation of the results of research — contributes to the academic community.

Reserch

Seeking to establish a new academic discipline through long-range promotion and systemization of a broad range of informatics research, ranging from the natural sciences through the human and social sciences, NII contributes to informatics development by creating future value (ranging from theoretical and methodological work through applications) throughout the discipline.

Social contributions

NII seeks to achieve harmony between society, culture, and social systems, in addition to creating platforms and portals that encourage the establishment, searching, and use of content to develop, and enliven, and disseminate academic, cultural, educational, publishing, and environmental activities, as well as the social and public activities of localities, nonprofit organizations, and other entities.

Interdisciplinary approach to information processing

NII promotes cross-functional interdisciplinary research and promotes synergistic efforts between academic disciplines to enable progress in new and developing domains. Established in April 2005 at the Research Organization of Information and Systems, the Transdisciplinary Research Integration Center undertakes interdisciplinary research across a broad range of fields, seeking to elucidate issues in the life and earth system sciences.

Partnerships among industry, government, and academic sectors

NII enjoys close ties to and works in close partnership with universities and public and private research institutions. Joint efforts include research projects and human resource development, as well as activities promoting the utilization of research results based on partnerships with civilian organizations, as represented by localities and nonprofit organizations.

International research activities

NII strives to expand its informational reach to the international community through the sharing of academic information with overseas researchers and conducting joint research with overseas research institutions. Such efforts are based on memorandum of understanding (MOUs) on international exchange concluded with universities and research institutions from around the world. NII also engages in the development of an infrastructure for international distribution of scientific information and international academic networks.

Graduate education and human resource development

At the Graduate University for Advanced Studies, NII has established an interdisciplinary Ph.D. program in Informatics to achieve mid-to long-term growth — both qualitative and quantitative — in researchers and engineers in the field of informatics. NII has established a base for development of strategic human resources and seeks to train engineers with the skills to link the spheres of industrial and academic research.

Principles of Informatics Research Division

In the Principles of Informatics Research Division we seek to discover new principles, theories and methods in informatics, and extend our goal to pioneering the frontiers to try and achieve a paradigm shift in informatics.

Betting on the Quantum Computer —A Unique Approach to Quantum Computing

I was excited by the idea that there is a connection between information science and physics that at first glance seem far apart from one another. Quantum mechanics involves some mysterious phenomena, such as the idea that monitoring something changes its state and the fact that a correlation between two particles does not disappear no matter how far apart they are from one another. In a quantum computing algorithm, these quantum mysteries are used as basic principles. The act of making the quantum computer a reality is also the act of verifying the core of quantum mechanics, and I find that very intriguing.

In the late 1980, I assumed photons as quantum bits(*1) and considered the idea of constructing a basic gate. To achieve this goal, however, techniques to generate single photons at desired times are needed, and so this was impractical. All of the researchers who knew the reality of the experiments felt something close to that.

Now the situation has changed. Many extremely talented people have participated in the field and are challenging various possibilities. A number of methods have been proposed to achieve quantum computing. The current approach of creating a quantum gate that operates quantum bits and then combining these to execute a quantum algorithm is simple in mathematic terms. But that doesn't mean it's necessarily the right answer in engineering terms.

Because it's in direct opposition to nature. Everything in this world is connected to the outside world. However the proposed quantum register that stores the data for a quantum computer must be completely cut off from the outside world or the calculations will be in error. They say that computing will be possible if error correction is done, but there are limits to the degree to which human beings can engineer the natural world. We need to think of a way that is not in conflict with nature and yet brings out the essence of quantum mechanics.

What we're considering right now is a method of creating a system in which determining the state at which the energy or required gain in the physical system is at a minimum will provide the answer to the mathematical problem that you want to solve.

You bring the system to that particular state through experimentation.

Fortunately, when a sufficient number of bosons reach the state, other bosons also go down to that state. I have high hopes for this power of nature.

Major inventions are usually achieved within five years of when the concept is developed. If it can't be done in five years, it will probably never become a reality.

The next five years will determine success or failure. The Japanese government chose the quantum information processing project as one of 30 FIRST programs (major national project). We will collaborate with more than thirty research groups when the FIRST program to probe that this new approach is promising toward a practical quantum computer.

(*1) Quantum bit: the smallest unit of quantum information. May also refer to a photon, electron spin or other material that contains this information.

(Yoshihisa Yamamoto)

Handling huge data

Now we are in the information-explosion era. There exist various kinds of huge data. For example, because of advances of DNA sequencing devices, we can obtain huge amount of DNA data. It becomes necessary to search such huge data, and find some characteristic data form them. To accomplish these quickly, we have to add indices to the data. Here indices are of the same kind as an index of a book, and used to memorize where keywords appear.

A problem in this approach is that if we want to find any data, the size of the index will become huge. For example, the DNA sequence of a human being is represented by a sequence of about three billion letters of A, C, G, and T, and a detailed index for it called a suffix array is of about 12 gigabytes.

A collection of Japanese patent documents for five years has size about 100 gigabytes, and its suffix array needs 500 gigabytes to be stored.

Though we can thin out those indices to reduce their size, it causes oversight in searching data. Methods for the compression of indices while original information is being kept are pursued.

For huge data, not only compressing indices, but it is also necessary to compress data themselves. A difficulty is that we have to decompress data to process operations such as search. It is well known that decompressing a part of data is difficult if conventional data compression methods are used. Therefore we need a novel compression method which supports fast partial decoding.

These kinds of compression methods are called succinct data structures.

The area of developping succinct data structures is relatively-new area, started in year 2000. There exist a lot of results and various practical data structures have been proposed. For example, an index which stores compressed text data and a compressed version of its suffix array has been proposed. By using this, the above patent data and their suffix array, which are of size 600 gigabytes in total, can be compressed in about 20 gigabytes. The same kind of index is now extensively used for fast DNA search. The importance of the development of practical indices will increase.

(Kunihiko Sadakane)

Current Research Topics of Reseach Staff of NII

Mathematical Informatics	
Takeaki Uno	●Efficient and practical fast algorithms for solving large scale problems arising from data mining and genome sciences ●Theory of Complexity on Discrete algorithms and enumeration algorithms ●Practical efficient computational models and algorithms for industrial engineering such as scheduling, logistics, and vehicle routing problems
Ken-ichi Kawarabayashi	●Graph coloring problems in discrete math ●Structural graph theory and its applications to algorithms ●Network flow and disjoint paths problem
Kunihiko Sadakane	●Succinct data structures for efficient storage and search of data ●Data structures for fast string processing ●Graph exploration algorithms, random walks
Ken Hayami	●Numerical Analysis, Numerical Linear Algebra ●Development and analysis of iterative methods for large systems of linear equations, least squares problems.
Mathematical Logic	
Makoto Kanazawa	●Lambda calculus and formal grammar ●Logical semantics of natural language
Makoto Tatsuta	●Theory of programs ●Type theory ●Constructive logic
Quantum Information	
Shouko Utsunomiya	●Quantum simulation using optical semiconductors ●Quantum solid state physics in optical semiconductors
Kae Nemoto	●Quantum information/computation ●Quantum optics ●Theoretical physics
Keiji Matsumoto	●Quantum information and computation
Yoshihisa Yamamoto	●Photonic quantum information systems ●Electronic quantum simulation systems
Tim Byrnes	●Quantum Information ●Quantum Computation ●Solid State Physics
Material and Life Informatics	
Keiichi Kuma	●Comparative genome analysis based on molecular evolutionary approach
Hiroko Satoh	●Chemoinformatics ●Computer chemistry ●Molecular modelling
Asao Fujiyama	●Comparative genomics research
Intelligent Informatics	
Ryutaro Ichise	●Machine learning ●Knowledge Systems ●Data mining
Tetsunari Inamura	●Human robot interaction ●Synthetic study of robot intelligence based on stochastic information processing ●Intelligent information processing based on embodiment of robots
Katsumi Inoue	●Inference and Knowledge Representation ●Hypothesis-finding based on Induction and Abduction ●Knowledge Discovery for Systems Biology
Nobutaka Ono	●Sound source localization/separation based on microphone array ●Analysis and modification for speech and music signals ●Music information retrieval
Nigel Collier	●Text Mining ●Natural Language Processing ●Ontology Engineering
Ken Satoh	●Construction of multiagent systems with speculative computation ●Applications of AI to Legal Reasoning
Hideaki Takeda	●Knowledge sharing system ●Semantic Web ●Design theory
Shigeki Yamada	●Research on ubiquitous and mobile networks and their applications ●Research on Delay/Disruption-Tolerant Networks (DTNs)

Information Systems Architecture Science Research Division

The Information Systems Architecture Science Research Division deals with the research issues in software/hardware architectures of computers and networks, and their system implementation.

Reliability of Software that Supports Society —Disseminating Formal Methods

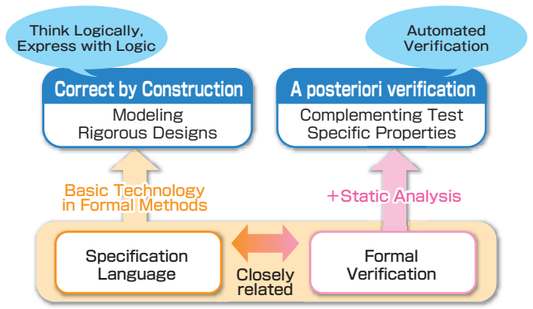
Software technology is penetrating into social infrastructure to support our daily life such as IC-cards or automobiles. Safety and security of our life are now much dependent on the reliability of software-intensive systems. However, the cost needed for the quality assurance of them increases and such software products are hard to find their positions in the competitive market place. A new approach, formal methods, is expected as a key technology for the issues. Together with six major IT-companies in Japan, DSF (Dependable Software Forum) was launched to conduct feasibility studies of the prospective technology for its use in industry.

Formal methods have their history in Europe to start back in 1970's. Such technologies have two aspects; the formal specification languages based on mathematical logic for describing clearly and unambiguously the requirements or design specification of software systems, and the systematic analysis methods to ensure the correctness of such descriptions. As for the latter, a fully automated analysis to find errors in them is sometimes possible. Although the technologies related to formal methods already have a long history of about 40 years, it is still not clear on the following points; what formal methods really are, how they help us, or how we make best use of them. In a word, clear advantages of their use in industry are not understood at a glance.

Formal methods may find their ways in industrial settings two directions. Firstly, their application to the early stages of software development processes, where the conventional technology alone can be of little help for the quality assurance. Secondly, what is called a posterior verification can be figured out; program codes, constructed as the outcome of the development process, are checked their correctness automatically.

DSF has put emphasis on the first point above. Its initial activities include the tasks to describe a simple business critical system in more than one formal method. The experience has led to several study documents to include a guideline for the application of formal methods in industrial settings, and a set of idioms, namely specification description fragments useful for writing similar specification descriptions. All the documents are made open to the public, which are downloadable from the DSF's Web site. Through the mentioned activities, we come to make sure that each method has its own advantage over others, and no single method is a panacea. The best we can say is to choose a method best suitable for a particular objective at hand, without committing to one single method. The idea is pretty Japanese; regarding a method as a god, the whole would be the Seven Gods of Fortune. We may pray for each god for a particular benefit. Last, on the second direction, automated verification of program codes would be desirable if it could come true. It is known, however, that such automation cannot be possible generally in theory. Our approach is to find restricted problem settings, still applicable to program codes developed in industry. The activity is undertaken as an academic research in parallel to the DSF activities.

(Shin Nakajima)



Encouraging Interactions Among Asian Researchers —Towards holding NII-based international seminars

Research communities are usually formed through academic meetings. Researchers present their new findings when they gather in these locations, and are criticized, encouraged, or given the opportunity of working together. They gain a great deal through research and personal interactions. Needless to say, Asian researchers can also participate in these meetings held often in Europe and America. However, they meet less frequently, and it is not easy to become part of the communities.

Unlike in the past, the level of research conducted in Asia has risen to a point where discussions are now possible on a global level. I therefore believe that an Asian community should be established and a mechanism formulated from which the ongoing work and research results are communicated to the world. The new type of seminar that looks promising will be an Asian version of the famous Dagstuhl Seminar in Germany. The most notable feature of the Dagstuhl Seminar is that the Seminar aims to encourage interactions between researchers who are active worldwide through discussions on important issues in each area of informatics. It is not of a structure where programs are prepared beforehand and researchers make presentations. On the first day, each of the participants presents the issues in the areas he/she is involved with and provides a brief introduction to the research he/she is engaged in. Then all the participants vote to determine the program for the entire week of the Seminar. The participants dine together, and their seats are switched each time by lottery. Hiking and other events are planned. During the week of the seminar, the participating researchers become very close.

The Seminar is extremely attractive, and the weekly programs are arranged two and a half years in advance. It would be great to have an Asian version of such seminar that is effective in both forming a community for researchers in Asia, and promoting research communication worldwide. It would be an appropriate project for NII to pursue as it aims to become a center of research activities in Asia. The organizers should not be limited to researchers from NII or other universities or research organizations from Japan. It is my hope that researchers from universities that have concluded tie-up agreements with NII will also function as organizers.

NII has initiated numerous international joint research projects. Each of them has been recognized by the global society, but we cannot say that the activities of NII are fully understood. International meetings held by NII once or twice a year are not sufficient, but if they were held regularly once or twice a month, more impact would be felt. Through sustained actions, we can make our activities more visible.

Although NII is not a university, it has a system for educating students in doctoral programs. This is possible because we participate in the Graduate University for Advanced Studies, where diverse inter-university research institutes are utilized for education. Although many excellent foreign students and working people study at NII, it is not well known because of its special systems. If NII gains more presence in Asia and understanding is fostered, I expect that we will attract a greater number of best students and researchers from other Asian countries.

(Zhenjiang Hu)

Current Research Topics of Reseach Staff of NII

Network Architecture	
Shoichiro Asano	●Integrated control technologies for next-generation all-optical networks ●Survival of network operation against natural calamities
Shunji Abe	●Researches on performance analysis based on communication traffic measurement and QoS control method ●Researches on mobile IP communication
Kensuke Fukuda	●Measurement and analysis of Internet traffic ●Network science
Information Network	
Shigeo Urushidani	●Dynamic resource optimization technologies for multi-layer networks ●Universal switching system architecture
Yusheng Ji	●Resource allocation and quality of service in communication networks ●Network traffic modeling and analysis ●Wireless ad-hoc and sensor networks
Motonori Nakamura	●Network Communication Systems ●Security/Authentication Technologies ●Network Operations and Administrations
Computer Architecture	
Kento Aida	●Parallel and distributed computing ●e-Science
Michihiro Koibuchi	●Computer system networks ●On-chip multiprocessor networks ●Large-scale high-performance computing systems
Hiromichi Hashizume	●Human interface with computer augmented reality ●Collaboration support systems ●Sensor applications
Software infrastructure	
Ichiro Satoh	●Middleware for ubiquitous, mobile and distributed computing
Soichiro Hidaka	●Bidirectional graph transformation ●Optimization of XML query language
Zhenjiang Hu	●Principle of Programming: Functional Programming, Programming Algebras ●Software Engineering: Dependable Software Construction, Bidirectional Model-driven Software Development ●Parallel Programming: Skeletal Parallel Programming, Automatic Parallelization
Software Engineering	
Shin Nakajima	●Dependable Software Engineering ●Formal Methods ●Model-Checking
Hiroshi Hosobe	●Theory and solution of soft constraints ●Constraint programming for graphical interfaces ●Hybrid concurrent constraint programming
Shinichi Honiden	●Autonomous Agents and Multiagent Systems ●Ubiquitos Computing ●Software Engineering
Nobukazu Yoshioka	●Agent oriented software engineering ●Agent Architecture ●Security Software Engineering
Tomohiro Yoneda	●Dependable VLSI system implementation based on asynchronous circuit technology ●Formal verification of real-time software
Kenji Tei	●Middleware for open wireless sensor networks ●Software Engineering for Cyber-Physical System

Digital Content and Media Sciences Research Division

The Division conducts research on various types of contents and media such as text and video in terms of analysis, creation, compilation and application, and their processing methods from the theories to the systems.

Human-Agent Interaction: Leading the Way to the Future
The Approach to Agent Design

Interaction in HAI(Human-Agent Interaction) refers to the various types of information produced during interchange with a human and an agent. It covers all of the information in interaction: dialogue, appearance, facial expressions, behavior, emotions and so on. Our research focuses on not the information provided through natural language but on non-verbal information because such non-verbal one is independent of background knowledge, cultures and can be implemented with a low-cost.

We classify such interaction into three categories: (1) interaction between a human and a robot (2) interaction between a human and an life-like agent, and (3) interaction between a human and a human mediated by agents. By comparing these three types of interaction and identifying the similarities and differences, we develop a methodology to design agents. Anthropomorphism is the key concept. When a human user recognizes various appliances as human-like, we are able to apply design methodologies developed in HAI to thats of such appliances.

Life-like agents in interaction (2) does not have a physical body like a robot. In modern-day society, we spend a lot of time using computers and cellular phones, and these agents can be created at a much lower cost than a robot, so they will play a larger and larger role as time goes on. For example, usage of a robot is absolutely assumed in HRI(Human-Robot Interaction). In contrast that, we study necessity of such a robot for HAI. This implies an important problem that which of an life-like agent, a robot and a human is most suitable as a good partner to assist a user in various cooperative tasks. We think HAI has an advantage that it is free from various restrictions in such conventional research fields like HRI, HCI(Human-Computer Interaction).

Also human-centric interaction design is HAI's characteristic. A human quite outperforms agents and robots in learning and adaptation. Thus we need to maximumly utilize user's ability for HAI, and try to develop concrete methodologies to bring out user's abilities with the minimum cognitive load. From this background, we are studying HAI through paradigm sift from "friendly machines to humans" to "friendly humans to machines".

(Seiji Yamada)

Computers Read Text

One could say that language information processing is the study of what exactly it is for a computer to read. For a computer, "reading" is, essentially, acquiring information from a text, and utilizing that information. Based on the assumption that text is a target of scientific observation, our research is devoted to the issues of modeling the semantics of the text. Depending of the models, text can serve as a meter stick by which to measure society, as well as a tool to see into people's mental activities.

For example, our normal discussions seldom consist of general descriptions, such as "dogs are smart". Instead, they include individual statements, such as "Yesterday I went to Ginza and met X." When computers collect these "facts" , the virtual world created within the computer should closely resemble our own. Proper nouns, such as place names, the names of people, and the like, have concrete counterparts in the real world, and as such serve an important role as pointers tying together the world of language and the real world. This illustrates how computers use "text" to understand society.

Language consists of give-and-take, so, for example, when we turn to a search engine to find information, that search engine is actually acquiring information from us. If we search for "Sky Tree height", it is clear that one attribute of "Sky Tree" is "height". Given millions or tens of millions of similar queries, it becomes possible for computers to acquire a considerable amount of human knowledge. This is an example of how computers read human mind.

Understanding meaning has been a perennial problem, and only now, after collecting and working with enormous volumes of data, along the lines of tens or hundreds of millions of documents, have we reached a basic contextual understanding of general text. The issue is that challenging. A close eye must be kept on the direction of language information processing researches.

(Akiko Aizawa)

Current Research Topics of Reseach Staff of NII

Foundations of Content Management	
Fuyuki Ishikawa	●Service-Oriented Computing (Web Services and Ambient Services) ●Application of Formal Methods
Isao Echizen	●Technologies and systems for multimedia content security ●Integrity of multimedia content ●Information hiding
Norio Katayama	●Data Management Technology for Video Corpus Analysis
Hiroyuki Kato	●Optimization for casual queries to database ●Fundamental issues on optimizing queries to XML databases
Atsuhiro Takasu	●Data mining and text mining ●Information extraction from document stream ●Distributed index processing
Akihiko Takano	●Informatics of Association ●Algebra of Programming
Shingo Nishioka	●Research on Scalable Association for Huge Corpus Access ●Interactive methods in information space based on association
Kazutsuna Yamaji	●Research data sharing and its metadata management ●Platform system activating the research community
Text and Language Media	
Akiko Aizawa	●Identification and linkage of text information ●Statistical language analysis and automatic construction of linguistic resources ●Language media and interfaces
Jun Adachi	●Information retrieval and integration of heterogeneous data ●Modeling and implementation of high-performance information retrieval systems ●Text mining
Keizo Oyama	●Research on techniques for utilizing web information ●Research on an integrated platform for scholarly information services ●Research on full text search technology
Yusuke Miyao	●Syntactic parsing, semantic parsing ●Information extraction ●Information retrieval
Pattern Media	
Asanobu Kitamoto	●Data mining from large-scale scientific image databases ●Earth and environmental informatics ●Digital archives for cultural heritage
Kazuya Kodama	●A study on structure of multi-dimensional image information and communication systems of distributed shared image environment with real-time quality control
Imari Sato	●Physics-based object shape and reflectance modeling ●Creating spatially immersive displays for human computer interaction
Shin'ichi Satoh	●A Study on video analysis, retrieval, and knowledge discovery based on broadcast video archives ●A study on image retrieval
Akihiro Sugimoto	●Sensing and understanding human activities in our daily life ●Automatic modeling of 3D objects ●Computer vision under the existence of digitization errors
Gene Cheung	●image/video coding and streaming ●immersive media communication
Hiroshi Mo	●A study on case based video indexing ●A study on intelligent video structuring
Duy-Dinh Le	●Semantic representation for video indexing and retrieval ●Advanced video search engines ●Face annotation and retrieval ●Video mining ●Efficient methods for handling high
Human and Knowledge Media	
Kenro Aihara	●Computer supported lifelong learning by using digital archives about historical and artistic objects ●Integration of user's context in real- and virtual World
Frederic Andres	●Model Driven Archicture knowledge management ●Image learning ontology ●Semantic tracking & computing
Ikki Ohmukai	●Personal communication and interation in semantic web environment ●Information sharing and distribution based on personal network
Helmut Prendinger	●Life-like characters and avatars in virtual worlds ●Participatory science and collaboration in the 3D Internet ●Automatic content creation ●Emotion and sentiment recognition from text
Mayumi Bono	●Understanding Multimodal interaction ●Understanding Conversational Structures in Multi-party Interaction
Seiji Yamada	●Human-Agent Interaction ●Interactive Information Gathering/Retrieval

Information and Society Research Division

We remain dedicated to aiding in the creation of a society in which information is integrated into the real world, based on interdisciplinary research on information and systems technologies and on issues in the human and social sciences.

Coping with the Multifaceted Character of Universities —Establishing Information Security Policies

In 2005, the National Information Security Center (NISC) Japan established government-wide standards to improve information security levels at public institutions. Under these new standards, national universities have been pressingly obligated to improve information security measures.

Information security measures consist of three elements: improving confidentiality, improving integrity, and improving availability. The objectives of the government-wide standards are to improve confidentiality by preventing information leakage, to improve integrity by preventing the falsification of data, and to improve availability by not interrupting administrative services. However, universities, which use information networks for research and education purposes, face challenges that differ from government institutions and private enterprises.

For example, university researchers may establish their own servers and use them for research. If they happen to include personal information or other sensitive data, there is a potential risk for information leakage in the event of outside attacks. However, indiscriminately forbidding the use of these servers would prevent research activities from being carried out. Therefore, there is a need to establish rules on the treatment of confidential information that are adapted to the needs of universities.

Another part played by universities is in the development of previously unimagined, new software. For example, file sharing software is ground breaking technology that makes decentralized distribution of information possible. Although issues such as copyright infringement may arise if such technologies are misused, shutting them down across the board discourages the growth of new technology. This is why it is critical to establish rules that do not hinder creative research activities.

To address these various needs, it is essential to have the cooperation of specialists in both legal and technological fields. Together, the Working Group for the Information Security Policy for National Universities and Institutions (National Institute of Informatics) and the Network Guideline Working Group (Institute of Electronics, Information and Communication Engineers) have drafted a set of standardized and practical information security regulations that are appropriate for higher education institutions.

In the field of informatics, the creation of original technologies that were previously unimaginable may sometimes lead to legal issues that could not have been anticipated at the time applicable laws were established. Forestalling these issues allows researchers to be more at ease when using information technologies. In recognition of such efforts, the head of our working group accepted an information security distinguished service award at the Prime Minister's residence on February 4, 2008.

(Hitoshi Okada)

New Generation Infrastructure Service for Researchers

The NII started providing an infrastructure service for researchers, branded as Researchmap. It helps researchers with website production and their daily operations. First, a researcher enters his or her name and profile to create his or her front page. "This page provides an overall picture of the researcher. It is designed to reflect users'wishes regarding how they portray themselves. It allows researchers to add data about their research results, works and materials and customize the style, layout and other details of the screen at their discretion. There are many researchers who wish to make themselves and their activities known to the public. More than 4200 researchers from 68 different research areas in the humanities, social sciences and natural sciences have already signed up.

Why did Researchmap gain the support of so many researchers in such a short period of time? It would not have been accepted if it was cumbersome to create a web page, no matter how attractive the resulting page was. Many researchers want to advertise their own papers and books, but it is arduous to manually enter these deliverables on a one-by-one basis, and it becomes more onerous over time. Researchmap supports the use of existing databases. There are many large databases of academic papers, including the CiNii service run and managed by the NII. With respect to books, a sufficient amount of information is stored on Amazon.com and elsewhere. Users may set the system to automatically and exclusively retrieve information relating to themselves. It embodies the concept of information recycling. It helps prevent any data or entry omissions, thereby creating a web page that is highly accurate.

Its Social Networking Service (SNS) also appeals to the researchers. It provides the most updated online collaboration tools specially designed for the researchers for free. More than 100 online communities have been built, and used by thousands of researchers daily.

(Noriko Arai)

Science2.0型研究人材双方向コミュニケーションサービス researchmap

Current Research Topics of Reseach Staff of NII

Information Use	
Noriko Arai	●Designing collaborative learning environment ●Knowledge sharing, distance learning ●Mathematical logic
Kouichirou Ueki	●Development of the next generation information system
Noriko Kando	●Evaluation of information access technologies ●Exploratory search and user interface ●Cognitive research for exploratory search ●Extracting attitudes and relations from text ●Cross-lingual information access
Hironobu Gotoda	●Similarity search for 3D models ●Visualizing citation links among research papers
Teruo Koyama	●Term extraction from text corpora ●Structurization of terms ●Structural analysis of terms ●Knowledge representation and use
Nobuhiro Furuyama	●Speech-Gesture Coordination ●Perception-Action Cycle in Communication
Akira Miyazawa	●Union catalogue database construction and usage ●Metadata representation and construction ●Character codes as a fundamental tool for data representation ●D: Data processing utilitiesndexing
Science Information	
Sumio Kakinuma	●Science and Technology Policy Studies ●Scientometrics ●Sociology of Science ●Research platforms and cyberinfrastructure
Morio Shibayama	●Metrical analysis of research trends and research evaluation ●Statistical study on change of research environment ●Study on indentification of creativity in research activities
Yuan Sun	●Research on Bibliometric Indicators for Research Evaluation ●Network Analysis on Academic Research Collaborations ●Research and Development of Web-based Adaptive Cognitive Diagnostic Tests
Masaki Nishizawa	●Investigation study on network structure of information sciences related research and its trends ●Empirical analyses on the role of Grants-in-Aid for Scientific Research for promotion of basic research ●Empirical analyses on network for industrial-government-university cooperation in Japan
Information Public Policy	
Masashi Ueda	●Network policy for broadband society ●Social and economic analysis of open source software
Hitoshi Okada	●Research on Critical Growth Factors of E-Commerce and E-Money ●Research on University Information Security Policy Portal (UISPP)
Tetsuro Kobayashi	●Social and political consequences of ICT use ●Social network and human communication ●Social capital theory
Noboru Sonehara	●Digital commerce (dCommerce) system ●Intellectual property rights lifecycle management system

Grand Challenge

NII promotes studies on the following topics that may lead to breakthroughs in informatics.

- Breakthroughs algorithms
- Dependable software
- Content value creation
- Bridging the semantic gap affecting image media
- ICT governance: its social system and legal system

Projects

Cyber Science Infrastructure (CSI)

- Science Information Network SINET4
  Organization for Science Network Operations and Coordination
- Integrated middleware for CSI
  Center for Grid Research and Development
- Academic Content Service
  Organization for Scientific Resources Operations and Coordination
- UPKI (Inter-University PKI) joint public key infrastructure for universities
  Organization for Science Network Operations and Coordination
- Research and Development on Resources linkage for E-science (RENKEI Project)

Informatics for future value creation

- Cyber information infrastructure for the information-explosion era
  Jun Adachi
- Quantum information processing project
  Yoshihisa Yamamoto
- Science Grid
  Kenichi Miura
- Next-generation Informatics Research Infrastructure
- Development of the Fastest Database Engine for the Era of Very Large Database and Experiment and Evaluation of Strategic Social Services Enabled by the Database Engine
  Masaru Kitsuregawa

Next-generation software strategies

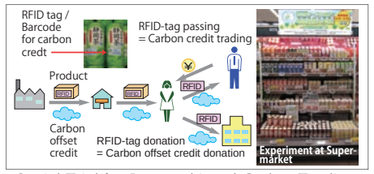
- Top SE (Education Program for Top Software Engineers)
  Shinichi Honiden
- Development of Dependable Network-on-Chip Platform
  Tomohiro Yoneda

Information environment/ content creation

- Associative information access for spontaneous learning
  Akihiko Takano
- Generic Engine for Transposable Association (GETA)
  Akihiko Takano
- Content integration and handling technology for digital archiving
  Jun Adachi
- Thinking content - The Smartive Project
  Shinichi Honiden
- Research Infrastructure for Evaluation of Information Retrieval and Access Technologies – NTCIR (NII Test Collection for IR Systems)
  Noriko Kando

A solutions-seeking approach

- Global health tracking system: BioCaster
  Nigel Collier
- Technologies to reduce environmental impact based on IT
  Ichiro Satoh



<Social Trial for Personal-Level CarbonTrading>

Social/public contribution

- Cultural Heritage Online in Japan
  Yuzo Marukawa
- IMAGINE –Federated associative search for heterogeneous information resources
  Akihiko Takano
- Information sharing system – NetCommons
  Noriko Arai
- Data-centric Social System Design Science
  Noboru Sonehara

<想 IMAGINE>

Integrated informatics

- The Bio-portal-in-Japanese Project
  Asao Fujiyama

Funding Program for World-Leading Innovating R&D on Science and Technology

NII is encouraging cutting-edge research and the strengthening of Japan's international competitiveness. In fiscal 2009, NII also decided the program in the Council for Science and Technology Policy as a program with the aim of benefiting the citizens of Japan and society with the research and development results.

Quantum information Processing Project

Using quantum entanglement, a central concept of quantum mechanics, NII is researching and developing based on Japan's trailblazing approach in four fields - measuring, standards, communication and information processing technology. NII aims to form a trend that leads the world.

(Principle Investigator : Yoshihisa Yamamoto)

Development of the Fastest Database Engineering for the Era of Very Large Database and Experiment and Evaluation of Strategic Social Services Enabled by the Database Engine

NII is working on the development of an ultra highspeed database engine for an era of superlarge databases, and the development of a nonconventional high-performance database engine with strategic social service proof and evaluation centered on this engine. Through high-speed data analysis, NII builds proofing systems for potential next generation strategic society services (cyberphysical services) and checks engine efficiency.

(Principle Investigator: Masaru Kitsuregawa)

Research Center

Center for Grid Research and Development

The Center for Grid Research and Development is responsible for development and maintenance of NAREGI Version 1 grid middleware, its deployment to the Cyber Science Infrastructure, and support of grid operation.

Research and Development Center for Informatics of Association

The Center seeks associative calculation mechanisms for large-scale contents, and develops practical information technology to enhance associative ability of human.

Strategic Research Projects Incubation Center

The Center plays a role in developing potential projects and incubating them into strategic and organized projects by providing research support.

Research and Development Center for Academic Networks

The Research and Development Center for Academic Networks is responsible for conducting research and development as well as construction of the cutting-edge infrastructures of the academic network and the UPKI (Inter-University Public Key Infrastructure) for Japanese universities, both forming the core of the Cyber Science Infrastructure (CSI) by cooperating with Japanese universities and relevant organizations.

Research and Development Center for Scientific Information Resources

The Center coordinates and operates with the related organizations in conducting advanced research and development about their circulation and generation, common of the academic digital content on the Cyber Science Infrastructure (CSI).

GRACE Center: Center for Global Research in Advanced Software Science and Engineering

This Center produces top-level researchers (Top RE) and educates top-level software engineers (Top SE) by building global research organizations and promoting research, practice, and education together for advanced software engineering.

Research Center for Community Knowledge

The objective of this research center is to study how "common knowledge" is formed and developed in the cyber space. More precisely, we research and develop the next generation's knowledge & information sharing infrastructure, which is named "NetCommons".

Global Research Center for Quantum Information Center

Promote activities such as cutting-edge research and personnel development to establish NII as a world-class international hub for quantum information.

Organization for Management and Outside Collaboration on R&D

Organization for Science Network Operations and Coordination

The Organization coordinates and operates the construction of Science Information Network, middleware and others as part of the core of Cyber Science Infrastructure (CSI).

Organization for Scientific Resources Operations and Coordination

The Organization coordinates and operates the management of scientific resources and the provision of services as part of the core of the Cyber Science Infrastructure (CSI).

Organization for Value Creation in Informatics

Meeting future social and technological requirements through value creation in informatics, the organization is making continuous research efforts are made to overcome grand challenges by organizing all Japanese universities and research institutions in each research area.

Organization for Promoting Cooperation with Society and Industry

Promoting research activities in informatics to contribute to society and the public and to reinforce government-industry-academia collaboration, and aiming at sharing research results and their values with society and industry, the organization is developing innovative model and frameworks for promoting cooperative activities.

Research Cooperation

NII actively promotes research funded by Grants-in-Aid for Scientific Research, joint research with private organizations, and externally funded research (such as commissi

Grants-in-aid for Scientific Research (FY2010) (as of March 2011)

Research Categories	Number	Awarded Amount(thousands of yen)
Specially Promoted Research	1	93,340
Scientific Research (A)	3	33,410
Scientific Research(B)	12	59,800
Scientific Research(C)	13	16,250
Exploratory Research	6	6,500
Encouragement of Young Scientists(A)	3	14,300
Encouragement of Young Scientists(B)	15	19,890
Research Activity Start-up	2	2,184
Scientific Research in Priority Areas	5	136,800
Special Purposes	9	7,000
Scientific Research on Innovative Areas	2	18,720
計	71	408,194

Other grants (FY2010) (as of March 2011)

	Number	Awarded Amount(thousands of yen)
Other grants	2	1,048,000

University-Industry Cooperation and Collaboration (FY2010) (as of March 2011)

	Number	Amount Received(thousands of yen)
Joint Research with the Private Sector, etc.	13	18,208
Commissioned Research	27	392,686
Endowments	14	38,583
Others	2	6,210

■Collaborative Research

As an inter-university research institution, the NII provides opportunities for mutual exchange and research among researchers in universities and research institutions in Japan, while actively promoting many collaborative research projects. As of March 2010, it carried out 103 collaborations and accept a member of collaborative scholars of a total of 529.

NII Visiting Researchers(FY2010) (as of March 2011)

Categories		Number
Visiting Researchers	(Foreign Research Scholars)	25
〃	(JSPS Postdoctoral Fellowship for Foreign Researchers)	5
〃	(Others)	8
Cooperative Scholars		24
Requested Researchers*		81
Project Researchers		73
Special Joint Researchers		35
Total		251

*Of the whole body of Project Researchers, twelve have currently been accepted under the postdoctoral researcher system established by the NII.

Intellectual Properties

NII creates, collects, and manages intellectual property and promotes the use of this intellectual property to contribute to society.

Total Number of Inventions and Applications for Patents (total number sincce FY2004) (as of March 2011)

Total	90
Attribution : Organization Attribution	86
: Individual Attribution	4
Applications Number	105 (Domestic Number 80、foreign number 25)
Registration Number	15 (Domestic Number 14、foreign number 1)

Graduate Education Activities

NII provides graduate education under the three main forms described below, in its efforts to train leading researchers capable of combining a broad view with advanced specialization. Students develop the ability to address challenges by capitalizing on NII's unique strengths, including comprehensive informatics research systems and a practical environment in which theoretical research and practical development are combined.

(1) Participation in the Graduate University for Advanced Studies (also known as "Sokendai")
(2) Cooperation with graduate universities
(3) Special collaboration with research students

>>>> Department of Informatics, The Graduate University for Advanced Studies

■Establishment of the Department

The Department of Informatics (advanced Ph.D. program), which began at the Graduate University for Advanced Studies with the participation of the NII in April 2002, saw its first class of students graduate in March 2005.
And the Graduate University for Advance Studies introduced A five-year doctor course program from 2006. (Admission Quota - A five-year doctor-course program: 4 / A three-year doctor course program: 6) The Graduate University for Advance Studies is a graduate university composed of 21 majors in six subjects, five of which (corresponding to 20 majors) are shared among inter-university research institutes.


Guidance for new students

■Aims and Structure of the Department

The Department's goal is to foster outstanding young international IT researchers and technicians. Students work toward obtaining a Ph.D.
The Department covers the following six research areas, and offers a total of over 70 subjects.

- Fundamental Informatics
- Foundations and Infrastructure Science
- Software Science
- Information and Media Sciences
- Intelligent Systems Science
- Information Environment Science


Graduate students office

■Description

Since its start, the Department of Informatics has proactively accepted students from overseas. For this reason, the department features lively cultural exchanges among its diverse student body.
The Department also features a large number of students with full-time jobs, with such students accounting for about half of the department's total enrollment.

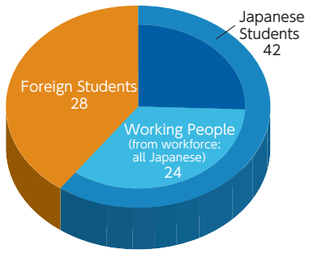
Enrollment (as of April 2011)

A five-year doctor course program	A three-year doctor course program	Research Student	Total
27 (15)	43 (13)	1 (1)	71 (29)

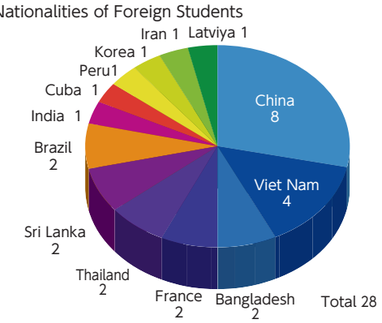
( ) Foreign students among total

Students Data (as of April 2011)

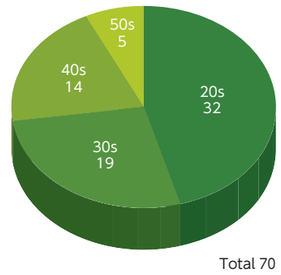
■Current Students



Nationalities of Foreign Students



■Age distribution



Career options

Year of Graduation	University/Institution	Company	Not yet determined	Total
FY2010	4(2)	3(1)	0	7(3)
FY2009	8(5)	3(1)	1(1)	12(7)
FY2008	5(1)	2(0)	1(1)	8(2)
Total	17(8)	8(2)	2(2)	27(12)

( ) Foreign students among total

>>>> Cooperation with Graduate Universities

NII actively cooperates with the graduate university of Tokyo, Tokyo Institute of Technology, Waseda University and JAIST. NII also accepts graduate students from these institutions for additional instruction.

Cooperation with graduate Universities

University	Graduate School	
The University of Tokyo	Graduate School of Information Science and Technology	FY2001～
Tokyo Institute of Technology	Graduate School of Information Science and Engineering	FY2002～
	Interdisciplinary Graduate School of Science and Engineering	FY2003～
Waseda University	Graduate School of Fundamental Science and Engineering	FY2005～
	Graduate School of Creative Science and Engineering	FY2005～
	Graduate School of Advanced Science and Engineering	FY2005～
JAIST (Japan Advanced Institute of Science and Technology)	School of Information Science	FY2009～
Kyushu Institute of Technology	Graduate School of Computer Science and Systems Engineering	FY2010～
	Faculty of Computer Science and Systems	FY2010～

>>>> Special Collaboration with Research Students

NII accepts students from other universities as research students in special collaborative projects, fostering both research and education.
These students not only benefit from our extensive research databases and our infrastructure for information exchange, but also perform research under the instruction of NII research staff.

Universities which research students for special collaboration belong to (as of April 2010)

University	Graduate School
Tokyo Metropolitan University	Graduate School of Humanity
Keio University	Graduate School of Media and Governance
	Graduate School of Science and Technology
Tokyo University of Science	Graduate School of Engineering
RWTH Aachen University	
Universitat Politècnica de Catalunya	
University of Paderborn	
Wuhan University of Science and Technology	
Instituto Superior Tecnico	

The number of students from other universities for special collaboration or cooperation between graduate universities is shown in the table on the right.

Students from other universities (as of April 2011)

Master Course	Ph.D. Course	Research Students	Total
39	32	2	73

Top SE and edubase : Education Services for IT specialists

GRACE Center provides Top SE education program, edubase Cloud and Space for education environment for IT specialist, and edubase Portal as a portal site aimed at continuously disseminating and developing good IT educational materials. These services aim at cultivating the leading IT specialists who have the ability to take the initiative in software development in companies and other entities.

Top SE :

intellectual manufacturing education founded on science

http://www.topse.jp/

The Top SE education program is a practical education program aiming to cultivate software engineers who have acquired highly advanced development techniques based on the concept, "intellectual manufacturing education based on science."
Many young software engineers and researchers from industry are joining the practical program on the basis of practices.

Top SE Certification

edubase Cloud :

An IT laboratory where you can test your ideas without restraint

http://edubase.jp/cloud/

edubase Cloud can create an environment in which you can acquire necessary IT resources when needed, and can test your ideas without restraint. Utilization of Cloud in the actual training grounds is expected, from basic technology of Cloud to Project Base Learning in the IT field.

edubase Space :

Creation of Intelligence in the Ubiquitous Environment

http://edubase.jp/space/

edubase Space offers an ideal educational environment in advanced IT human resource development, in which students are encouraged to discover problems and cultivate their imagination. It supports education conducted in various styles, including lectures, discussions, group work, as well as distance learning. A classroom equipped with the latest IT equipment can also be used as an experimenting ground in the Ubiquitous environment.

edubaes Stream :

Portal site for Learning Anytime Anywhere

http://stream.edubase.jp/

edubase Stream provides video educational materials of the cutting edge software science and engineering developed by universities and institutes in Japan, in addition to conventional educational material. The site synchronizes video materials with the sides to allow us to lean software technologies easily anytime anywhere only with the Internet ready browser.

<edubase stream website>

International Exchange

As Japan's sole comprehensive academic research institute in the field of informatics, the NII presents research results to the world and strives to contribute globally through efforts related to informatics – by promoting active international exchange among researchers and students and helping to establish informatics research bases – as a partner in various international joint projects.

Overview

NII established the Global Liaison Office (GLO) in order to actively promote international cooperation with prominent overseas institutes. The GLO is concluding International Exchange Agreement (MOU) with the organizations and implementing a variety of measures that promotes international research exchanges.

Data

Number of MOUs at April, 2011
70 institutions from 19 countries
NII Internship Program 2010
104 students from 15 countries
MOU Grant/Non-MOU Grant 2011
26 persons to 9 countries/53 persons from 17 countries

Intercommunication of researchers

April, 2011

Program		Number of researchers
Japan Society for the Promotion of Science (JSPS)	Postdoctoral Fellowships for Foreign Researchers	2
	Postdoctoral Fellowships for Foreign Researchers (Short-term;for researchers from Western countries)	0
	Invitation Fellowship Program for Research in Japan	0
Other researchers accepted (visiting researchers, visiting professor [full-time])		27

For research cooperation (Number: 61 Institutes)

▶Ireland
The University of Limerick
(Lero - the Irish Software Engineering Reserch Centre)

▶Republic of Italy
Torino University, Department of Informatics

▶United Kingdom of Great Britatin Northern Ireland
Department of Computer Science Faculty of Engineering Science, University College London
Faculty of Mathematics and Computing, Open University
University of Bath
University of Bristol
Department of Computing at Imperial College London
The Computing Laboratory, University of Oxford
School of Computer Science & Electronic Engineering, University of Essex

▶Republic of Austria
Vienna University of Technology

▶Spain
Universitat Politècnica de València (UPV)

▶Czech Republic
Czech Technical University in Prague

▶Federal Republic of Germany
Faculty of Applied Informatics, University of Augsburg
German Research Center for Artificial Intelligence (DFKI)
The Faculty of Applied Science of the University of Freiburg
The RWTH Aachen University (Faculty of Mathematics, Computer Science and Natural Sciences)
German Academic Exchange Service (DAAD)
University of Munchen, Faculty of Mathematics, Informatics and Statistics
Saarland University

▶French Republic
Universite de Nantes Laboratoire d'Informatiquede Nantes-Atlantique
Institut National de Recherche en Informatique et en Automatique (INRIA)
Institut National Polytechnique de Grenoble (INPG)
Universite Joseph Fourier-Grenoble 1
Pierre and Marie Curie University (UPMC) Laboratory of Computer Sciences, Paris6 (LIP6)
Institute National Polytechnique de Toulouse (INPT)
Université Paul Sabatier (Université de Toulouse III)
National Center for Scientific Research (CNRS)

▶Portuguese Republic
Instituto de Engenharia de Sistemas e Computadores Investigação e Desenvolvimento em Lisboa (INESC-ID)

▶Republic of Singapore
School of Computing, National University of Singapore

▶Kingdom of Thailand
Chulalongkorn University
Asian Institute of Technology
Kasetsart University
National Electronics and Computer Technology Center, National Science and Technology Development Agency (NECTEC)

▶Republic of Korea
Seoul National University, Department of Computer Science and Engineering

▶People's Republic of China
Department of Automation, School of Information Science and Technology, Tsinghua University
Institute of Computational Mathematics and Scientific/Engineering Computing, Academy of Mathematics and System Sciences, Chinese Academy of Sciences
School of Electronics and Information Engineering, Tongji University
School of Electronics Engineering and Computer Science of Peking University
School of Electoronic, Information and Electrical Engineering of Shanghai Jiao Tong University
Hong Kong University of Science and Technology (HKUST)
Uninersity of Science and Technology of China (USTC)

▶People's Republic of Bangladesh
University of Dhaka

▶Socialist Republic of VietNam
International Research Center Multimedia, Information, Communication and Applications (MICA) Hanoi University of Technology
Hanoi University of Technology
Vietnam National University of Ho Chi Minh City
Vietnam National University, Ho Chi Minh city, University of Science

▶United States of America
School of Engineering and Computer Science University of Michigan-Dearborn
College of Engineering,University of Washington, Seattle
Indiana University
University of Maryland, Department of Computer Science
New Jersey Institute of Technology
International Computer Science Institute (ICSI-Berkeley)

▶Canada
University of Waterloo, Faculty of Mathematics
University ofAlberta, Faculty of Science, Department of Computing Science, Alberta Ingenuity Centre for Machine Learning (AICML)
School of Computer Science, McGill University
Simon Fraser University (SFU)

▶Australia
Australia-Japan Research Centre, the Australian National University
National ICT Australia Limited(NICTA)
Faculty of Engineering, Physical Sciencec and Architecture, the University of Queensland
Faculty of Engineering and Information Technologies, the University of Sydney

For development and operational cooperation (Number: 10 Institutes)

▶Republic of Korea
Korea Education & Research Information Service

▶United States of America
North American Coordinating Committee on Japanese Library Resources
Institute for Scientific Information, Inc.
Association of Research Libraries (ARL)

▶United Kingdom of Great Britain and Northern Ireland
The British Library

▶Federal Republic of Germany
Hochschulbibliothekszentrum des Landes Nordrhein-Westfalen
German National Library of Science and Technology (TIB), University Library Hannover
German National Library of Medicine (ZB MED)

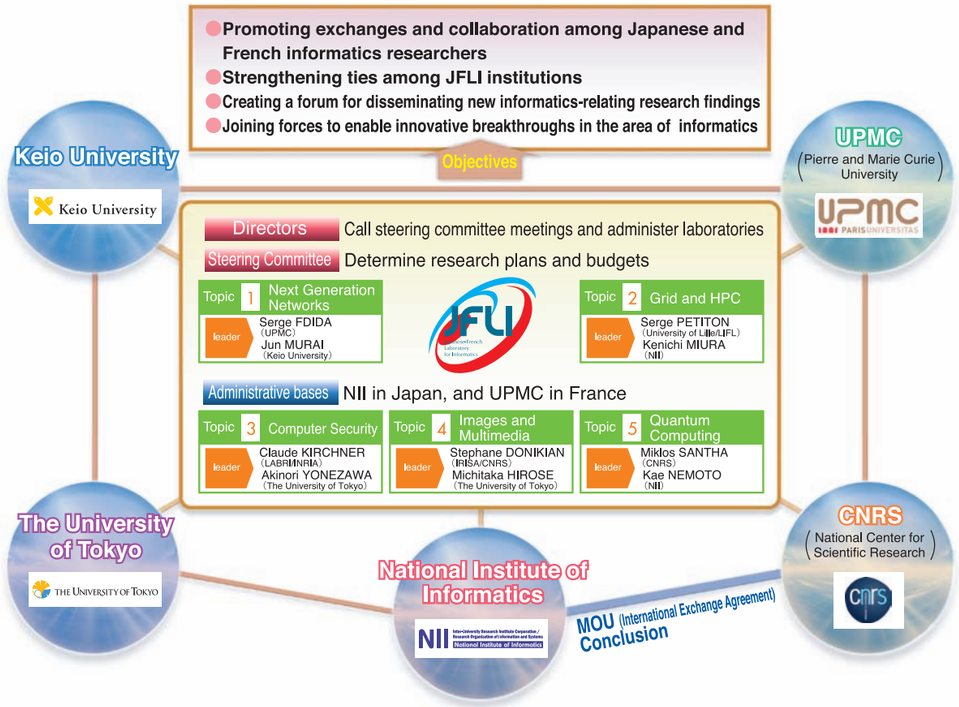
▶Taiwan
National Center for High-Performance Computing (NCHC)

▶Europe
DANTE (Delivery of Advanced Network Technology to Europe)

Japanese-French laboratory for Informatics (JFLI)

http://jfli.nii.ac.jp/

Japanese informatics researchers are involved in all kinds of exchanges with their French counterparts, pursue active collaborations with National Center for Scientific Research (CNRS) and other French institutes, and these initiatives continue to make significant headway and achieve solid results.
This idea of further merging our separate facilities into a collaborative framework that promotes closer research ties centering on a single collaborative institute is the concept behind the Japanese French Laboratory for Informatics (JFLI).
By addressing the five basic themes of next-generation networks, grid and High-Performance Computing (HPC), computer security, images and multimedia, and quantum computing, the five-institute JFLI will not only further strengthen computer science research between France and Japan, it will also serve as a forum for the exchange and dissemination of new findings among informatics researchers.
Based on collaboration among five research institutes in Japan and France, the JFLI is established in National Institute of Informatics in Japan and in Pierre and Marie Curie University (UPMC) in France.



Program of German Academic Exchange Service (DAAD Program)

NII has concluded an international exchange agreement with Deutscher Akademischer Austausch Dienst (DAAD), which is a funding agency in Germany. Based on it, we started the "Research at International Science and Technology Center" program, the content of which is to receive a maximum of 10 German postdoctoral researchers per year from 2009 to 2012. This program is subject to only two institutes, NII and the International Computer Science Institute (ICSI), U.S. Berkeley.
As of April 2011, we have received eight postdoctoral researchers and they have conducted research under their supervisor in the field of informatics. In addition, each postdoctoral researcher receives research funding in this program.

NII Shonan Meeting

http://www.nii.ac.jp/shonan/

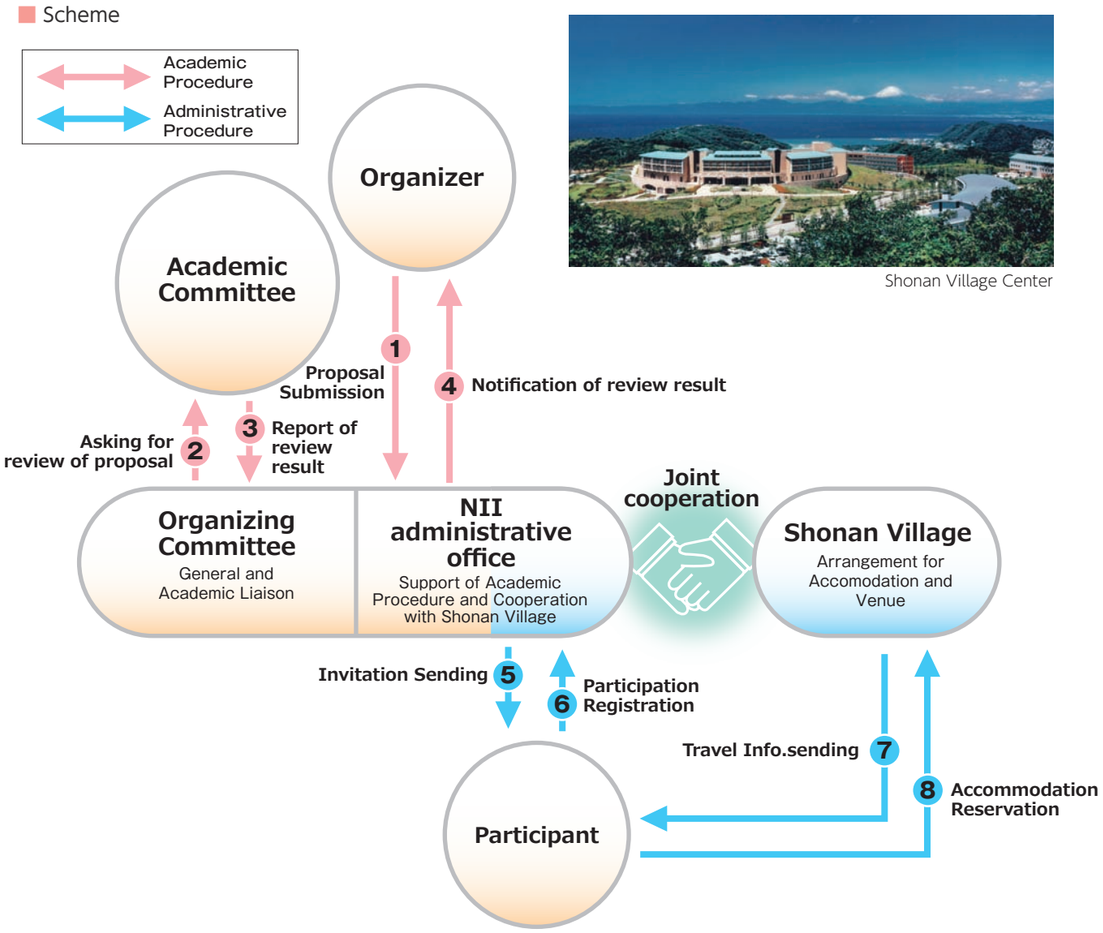
NII started in February 2011 the NII Shonan Meeting, as the first seminars in the form of the Dagstuhl seminars* in Asia. The NII Shonan Meeting gathers together global leading researchers in the field of informatics and provides a place for sharing knowledge. Through this, researchers attempt to discuss and solve current unresolved problems, and aim to make progress in the informatics. It has continued to be held at the Shonan Village Center, a location with good access to Narita International Airport. In an environment with Mt. Fuji to the rear and the Shonan ocean below, NII aims for it to become a hub for informatics in Asia.

(*) Dagstuhl : This seminar in Germany is the only top-level seminar in the world on informatics. It is held almost every week in Dagsthul, Germany. It is well known for its week-long residential stays at which delegates focus on topic-based discussion.

Support System

Staff at the NII Shonan Meeting secretariat and the Shonan Village Center are in charge of running the seminar, send out invitations, give guidance on accomdation and make preperations on the day for meetings. The program includes hiking in the nearby countryside and historical walks around Kamakura. This helps to deepen exchange between participants.

Scheme



Shonan Village Center

NII Library

The NII Library holds a number of books and periodicals on informatics, including on-line journals as part of its role as an informatics research/education center.
Library collaborates with the nearby Meiji University Library to provide access to information of academic documents for students of the Graduate University for Advanced Studies.

Inventory, Magazine titles (end of March 2011)

Document type	Books	Bound journals	Journals (in title)
Domestic Documents	12,393	8,829	207
Foreign Documents	11,842	7,875	180
Total	24,235	16,704	387

Major on-line journals and databases

	Service	Publisher
1	ACM Digital Library	Association for Computing Machinery
2	APS online	American Physical Society
3	CUP online	Cambridge University Press
4	IEL	IEEE,IEE
5	MathSciNet	American Mathematical Society
6	OUP online	Oxford University Press
7	Springer Link	Springer
8	Science Direct	Elsevier B.V.
9	Wiley Interscience	John Wiley & Sons.
10	IEICE	The Institute of Electronics, Information and Communication Engineers

Facility, Equipment

	Reading room	Stack room
Area	140㎡	271㎡
Seats	8	3
PC for search	2	
Other equipment	Automatic Book Circulation Machine (Sumitomo 3M ABC-III)	
	Micro reader printer (Konika Minolta SP7000)	
	Copier (DocuCentre-ⅢC2200)	


Reading room 1


Reading room 2


Stack room

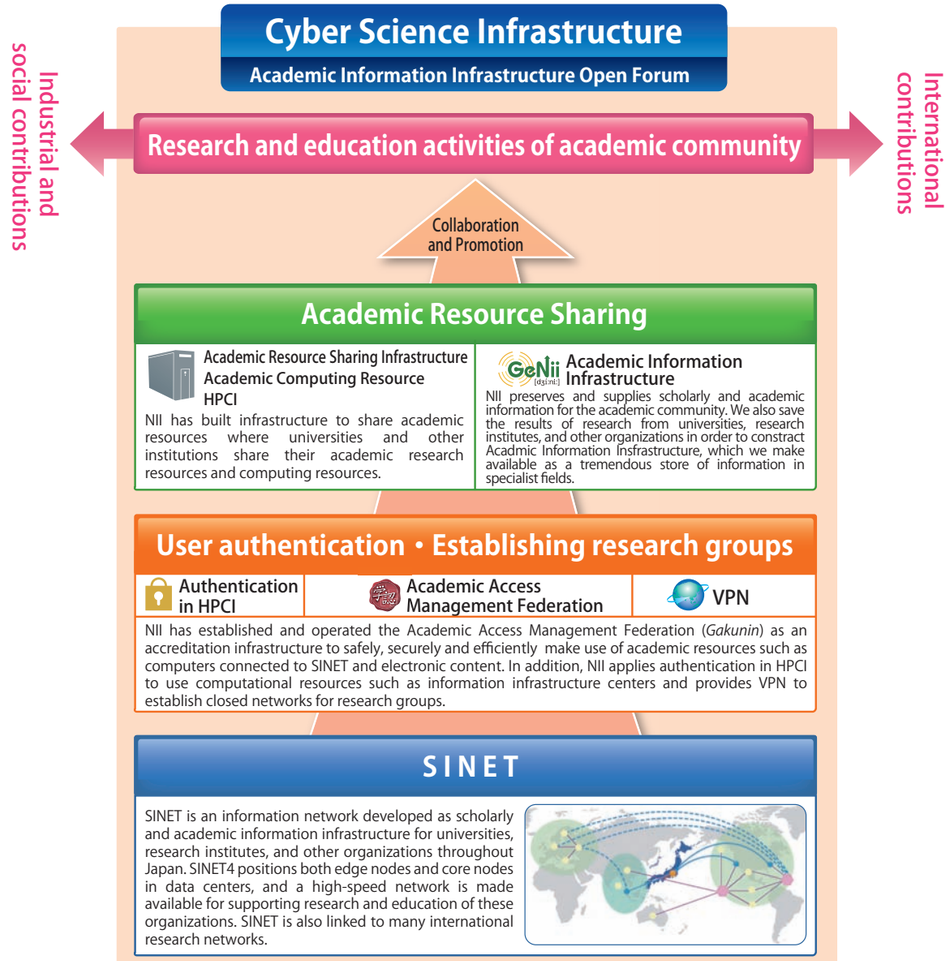
Subscribed journals

Consolidation of Cyber Science Infrastructure (CSI)

http://csi.jp/

NII is promoting the consolidation of the Cyber Science Infrastructure (CSI) through cooperation with universities and other organizations. CSI means an information environment that incorporates and utilizes various research activities and results from universities and research institutions – such as supercomputers and other distinctive scientific utilities and resources, scientific software and databases, and human resources that Japanese universities and research institutions possess – over a super high-speed network, transcending the borders of organizations or scientific fields. This infrastructure will guarantee an environment that enables the promotion of cutting-edge higher education as well as research and development of technology in universities, research institutions, and industry. NII puts in strategic efforts to the following areas, as expanding the various development projects and operations it has implemented to date within the framework of the CSI.

1. Establishment of science information network, grid environment, and UPKI through cooperation between NII, the university IT centers and other organizations
2. Establishment of the infrastructure for next-generation scientific resources through cooperation between NII, university libraries, academic societies and other organizations



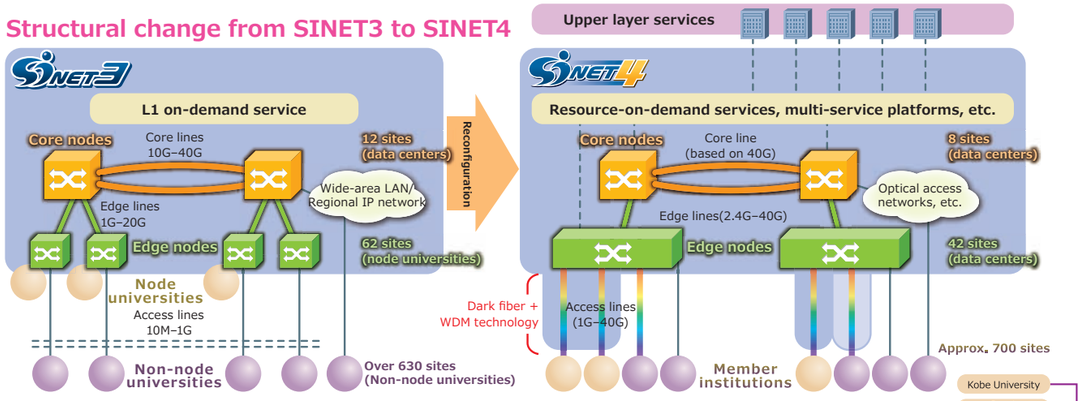
NII, universities and other research institutions will collaborate and cooperate closely to facilitate the above, and Japan's academic community will work as one to prepare and vigorously promote the framework for advancing CSI construction.

Science Information Network (SINET4)

http://www.sinet.ad.jp/

The Science Information Network (SINET) is an information and communication network connecting universities and research institutions throughout Japan via nationwide connection points (nodes). It is designed to promote research and education as well as the circulation of scientific information among universities, research institutions, and similar entities. SINET is also connected to research networks such as Internet2 in the U.S. and GÉANT2 in Europe to facilitate dissemination of research information and collaborations over networks.
SINET4 began operations in April 2011, and it replaces the previous SINET3. SINET4 plays an important role as the core component of the Cyber Science Infrastructure(CSI).

Structural change from SINET3 to SINET4



Characteristics of SINET4

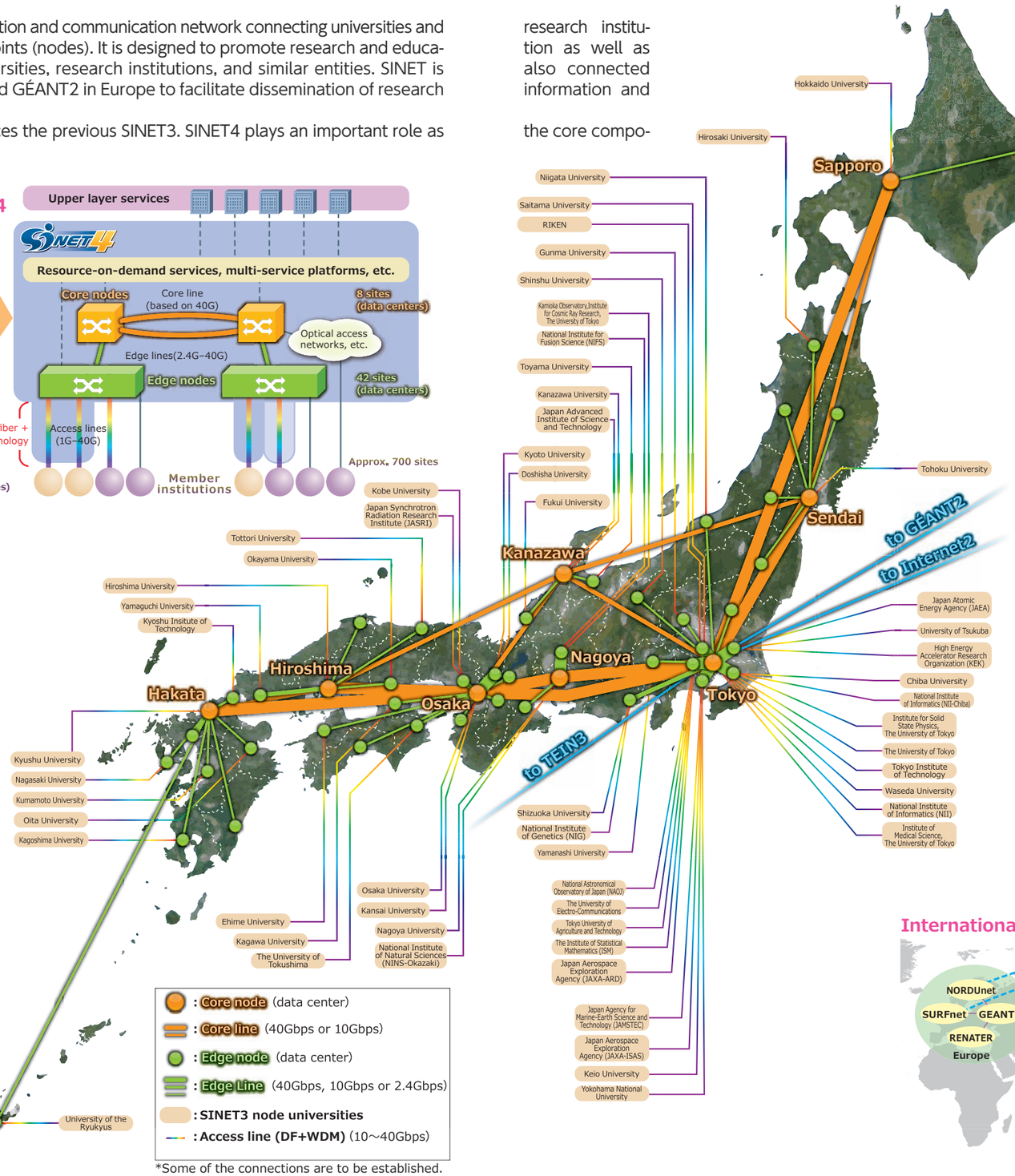
①Higher network speed The effective network bandwidth has been increased and the rerouting function has been improved by reconfiguring the network and adopting solutions including dark fiber and WDM technology. This has made the network even more cost effective.

②Provision of diverse services SINET4 inherits all of SINET3's services, with services such as resource-on-demand strengthened and expanded.

③Higher edge node stability SINET4 positions both edge nodes and core nodes in data centers, improving the reliability of the network including its availability, maintainability, and security.

④Establishment of an environment for high-speed access lines By undertaking shared procurement of access lines, a faster access system has been created for member institutions other than those on site (SINET3 node universities). In addition, installment of nodes is scheduled to be completed within FY2011 in all prefectures in Japan.

⑤Upper layer deployment Installation of interfaces and service-providing platforms to support the upper layer is being considered.



*Some of the connections are to be established.

Participating SINET Institutions

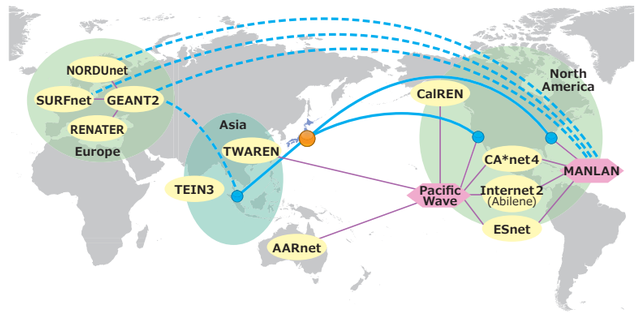
(as of March 31, 2011)

National universities	86
Municipal universities	59
Private universities	297
Junior colleges	61
Technical colleges	51
Inter-University Institutes	16
Others	170
Total	740

SINET4 Services (Classification bynetwork layer and QoS)

	IP (L3)	Ethernet (L2)	Lambda/ Dedicated (L1)
QoS-guaranteed			On-demand BW-specified L1VPN Lambda L1VPN
High Priority	L3VPN(QoS) Multicast (QoS) Application-based QoS	On-demand VPLS(QoS) L2VPN(QoS)	
Best Effort	L3VPN Multicast Multi-homing IPv4 IPv6	On-demand VPLS L2VPN	

International network collaboration



Establishment of Authentication Infrastructure

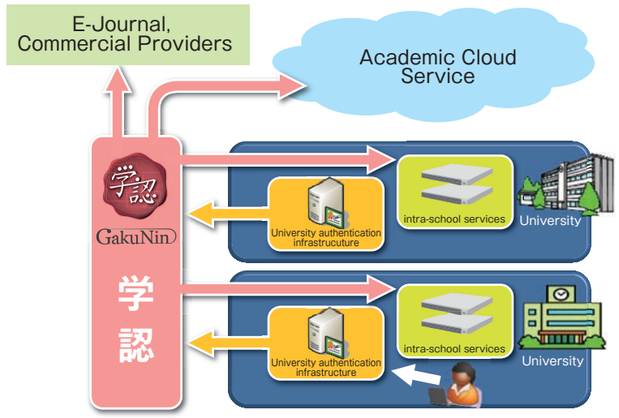
Academic Access Management Federation (GakuNin)

https://www.gakunin.jp/

To safely and securely use network academic resources, it is necessary to check (verify) users on the network. NII's Academic Access Management Federation (GakuNin), through ties to university authentication infrastructure, is a system that brings about, as well as intra-school services, one-stop authentication of affiliated universities, external academic cloud services and industrial electronic journals.

Through the use of GakuNin, with one account, users can use all the academic resources on the network. NII has the objective of greatly improving research efficiency for academics.

In addition, NII is researching and developing to use this for electronic book circulation for GakuNin's research education body and for authentication of inter-organization research groups. NII is also researching and developing new services on the network.



Issuing Server Certification

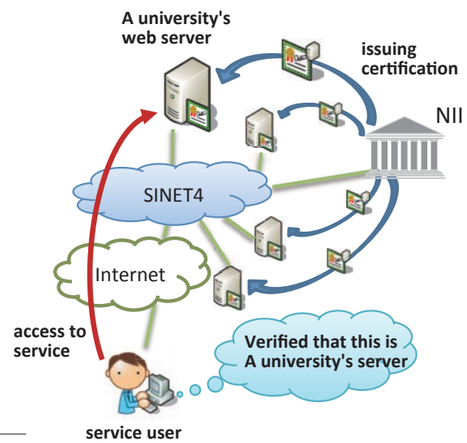
https://upki-portal.nii.ac.jp/

NII has issued highly secure server certification that meets the unified international WTCA (Web Trust for CA) standard for online servers connected to the academic information network (SINET).

Server certification certifies online server operators (domain names) and attempts to improve security such as making it easy to identify phishing sites.

It can also simultaneously realize online browsers and communication encoding between online servers, and also protect matters such as personal information that has been entered on online browsers.

Through the proliferation of server certification, NII is working to improve SINET's security.



Server certification issuance situation (as of March 2011)

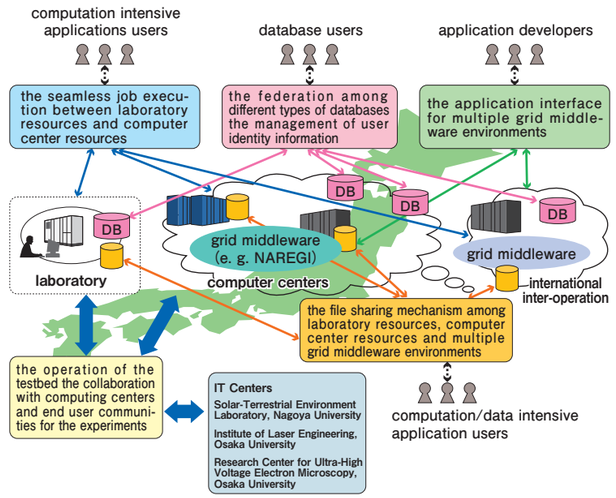
Number of certificates issues	4,500
Number of institution such as universities	214 institution

NAREGI Middleware/e-Science community

Expansion of the Grid Environment toward the e- Science communities

http://www.e-sciren.org/

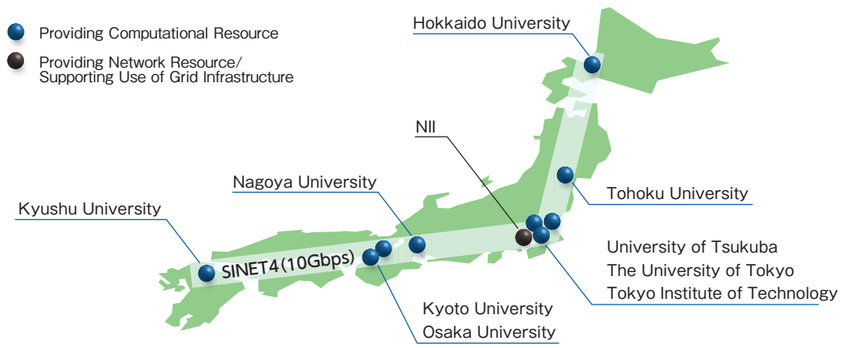
From FY 2008 through 2011, we have started "Resource linkage for e-Science (RENKEI)", as a part of a project entitled "Research and Development on Systems Integration and Collaborations for Realizing e- Science".
The objective of this project is to develop software that will enable the sharing and linking of small-scale resources at the departmental/research laboratory level, with the large-scale resources of university IT centers, as well as with overseas grids operating under different environment, including computing resources, data, databases, and applications. We believe this project will create the seamless linking of small-scale and large-scale computational environment, thus strengthening the research capabilities of the e-science communities.



Construction of the Science Grid and Realization of Cyber Science Infrastructure (CSI)

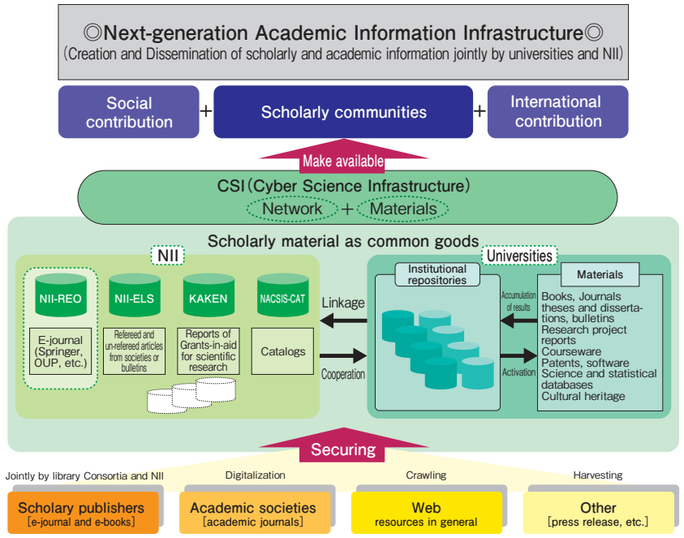
http://www.naregi.org/

NII has introduced "NAREGI Middleware" grid infrastructure software that has been developed at this laboratory to a part of the supercomputer resources at places such as information infrastructure centers. We have cooperated for the building of grid infrastructure and have started trial uses of grid infrastructure between information infrastructure centers at nine universities nationwide from fiscal 2009, and is providing this to users. Through these efforts, users of computer resources can efficiently and effectively use computer resources that are held at places such as information infrastructure centers.
In addition, through the use of the same authentication technology with GakuNin in an authentic combination environment in a grid infrastructure, NII aims to reduce the load of users and grid infrastructure managers.



Establishment of Next-Generation Academic Information Infrastructure

Next-generation Academic Information Infrastructure is an important element of Cyber Science Infrastructure (CSI). It serves as an information platform that will secure Scholarly and Academic Information that is essential to the scholarly community while also ensuring its stable supply. At the same time, it collects and organizes the results of education and research that are produced at universities and research institutes, enhances their value, and disseminates them to society at large.



Support for Linkage between Institutional Repositories

http://www.nii.ac.jp/irp/

Institutional repositories comprise a series of services provided by universities to members of their communities, in order to manage and transmit digital data created by universities and their members.
NII has conducted a collaborative program with universities to support the operation of institutional repositories. It involves the extension and integration of existing scholarly and academic information services at NII and the enhancement and improvement of information dissemination from universities.

>>>> Activities

Since FY 2005, NII has entrusted to universities various tasks related to promoting the development of institutional repositories.
It also entrusts surveys and R&D for developing new services through collaboration between institutional repositories and improving their user-friendliness.
In addition to those entrusting projects, it supports universities and other academic institutions for content enhancement, system linkage and community formation.

Tasks entrusted \ FY	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010
Area 1 (Development and operation of institutional repositories)	19 institutions	57 institutions	70 institutions	68 institutions	74 institutions	24 institutions
Area 2 (Advanced R&D)	–	14 projects	22 projects	21 projects	21 projects	8 projects
Area 3 (Support for community activities)	–	–	–	–	–	5 projects

GeNii (NII Scholarly and Academic Information Portal)

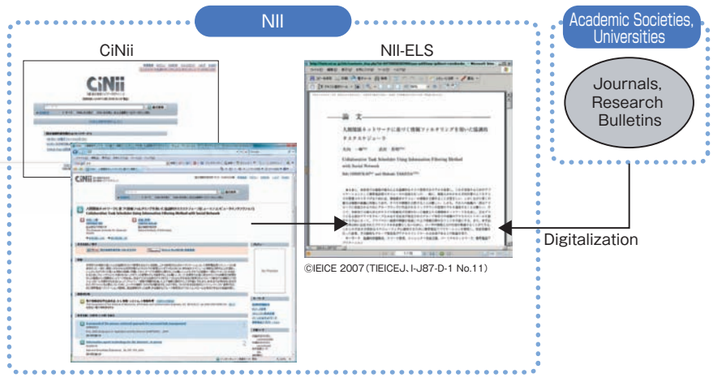
http://ge.nii.ac.jp/

GeNii is a web-based service offering comprehensive scholarly and academic information created by NII in collaboration with university libraries, academic societies, and researchers.
Currently GeNii presents information in five major areas; (1) academic papers (CiNii), (2) books/journals (Webcat Plus), (3) research results (KAKEN), (4) specialized academic information (NII-DBR), and (5) institutional repositories (JAIRO). These areas feature individual search engines suited to the relevant content, while the GeNii Integrated Search System provides a tool for cross-referenced searching to help users quickly find the information they need.

>>>> CiNii (NII Scholarly and Academic Information Navigator)

http://ci.nii.ac.jp/

- CiNii provides citation information, primarily in Japanese, together with navigation tools for searching both text and citation references.
- Basic search is available to anyone via the internet, while citations and fee-based electronic library content are available to registered users only.
- We are expanding the pool of available data and improving text hit rates by linking various database services, including university institutional repositories, J-STAGE, and Japana Centra Revuo Medicina (Ichushi) Web.



- We are currently promoting intersystem links with university libraries and other facilities by providing search APIs (application program interfaces) such as OpenURL and OpenSearch.

Database volume by content type (as of March 2011)

Content		Items	Links to full text
NII electronic library service (NII-ELS)	Academic journals	Bibliographies, 本文 3.12 million	All
	University research bulletins	Bibliographies = 0.99 million (with full text = 0.43 million)	Some
NII citation index database (CJP)		Bibliographies = 1.77 million Cited papers 19.28 million	
Japanese Periodical Index		Bibliographies = 9.69 million	

NII Electronic Library Service (NII-ELS)

- The NII Electronic Library Service is a vast digital archive encompassing recent as well as past research papers, providing access to page images of a comprehensive collection of research papers sourced from journals published by academic societies and universities research reports. Searching and browsing is available via CiNii.

NII-ELS bibliography (as of March 2011)

Participating organizations	Journals (with full text of articles)	Research papers
1,423 (academic societies 327)	4,215	3.5 million

KAKEN (Grants-in-Aid for Scientific Research)

http://kaken.nii.ac.jp/

- This site presents a brief overview on themes (themes when initially ad-opted) and results (e.g., reports and reviews) of the research themes-funded by grants-in-aid for scientific research from the Ministry of Edu-cation, Culture, Sports, Science and Technology and the Japan Society for the Promotion of Science.
- Provides access to the latest scientific information in Japan.
- The research result report is available in a PDF file. (Since fiscal 2008)

Stored documents (as of March 2011)

Research themes
640,000

JAIRO (Institutional Repositories Portal)

http://jairo.nii.ac.jp/

- This will enable crossover searches of academic information (research papers published in scholarly journals, academic dissertations, study reports, etc.) accumulated in institutional repositories in Japan.
- Displays statistics on frequently accessed and new content.

Stored content(as of March 2011)

Institutional Repositories	Contents
174	1,090,000

NII-DBR(Academic Research Database Repository)

http://dbr.nii.ac.jp/

- This site features specialized databases prepared by Japanese academic societies and research groups.
- Cross-searching of two or more databases is possible, in addition to the standard individual database search.

Stored databases(as of March 2011)

Databases	Contents
29	2.10 million

Webcat Plus

http://webcatplus.nii.ac.jp/

- Webcat Plus aims to create a thought space in which amassed knowledge stored from the enormous volume of books published from the early Edo period until today can be freely searched. The space would integrate all kinds of information sources associated with books, including archived catalogs from the National Diet Library and 1,000 university libraries across the country, visual images of recently published books, a tables of contents database, inventory catalogs from antiquarian bookstores, and electronic book database. The data would be organized by book, work, and character.
- As a mechanism to extend your curiosity to hitherto new levels, without being overwhelmed by the sheer volume of information, an associative search function that approximates human thought has been provided, seeking related information by exemplification.
- In addition, with "Matched search," a function to explore in greater detail by automatically classifying the search results on the spot as you go, the latest keyword search engine is provided.
- Another feature is the Association X Bookshelf, which enables organized temporary storage of information on books, works, and characters obtained from a string of information searches. On first look, it may seem like another ordinary electronic bookshelf, but by pressing the "Association" button in the middle of the bookshelf, the bookshelf will part in the middle, and books related to the information that you have established will appear, one after another, from the back of the shelves.

What is Associative search?

Associative search is a search technology that conducts searches for documents (search results) that are similar to another document (search conditions), based on an overlap of words between one document and another. In other words, it looks for close partners using the grouping of commonly used words as the key. Relying on a group of words you have selected, it searches for books that match your interest from a staggering quantity of more than 10 million books.

Catalog Information Service

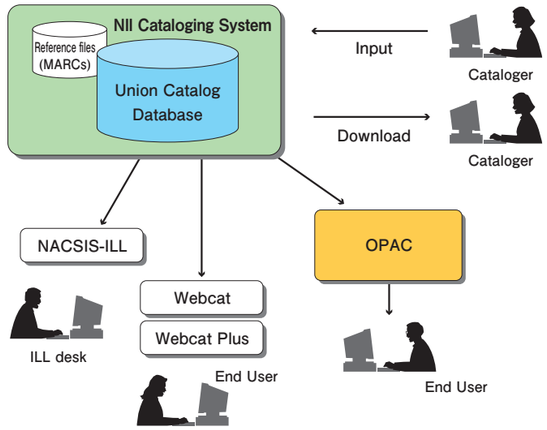
The Catalog Information Service consists of the Cataloging System and the Interlibrary Loan System (ILL).

Cataloging System (NACSIS-CAT)

The NACSIS-CAT Cataloging System offers union catalog databases of academic documents (books and serials) held by university libraries and other such institutions throughout the country. These databases were compiled to support scholarly research and can be searched to determine instantly where specific materials are housed. To improve efficiency, standardized cataloging data (MARC) are referred to when constructing databases, and university libraries and other institutions share the work of inputting records online. The System also includes a function for referencing similar databases in other countries (OCLC in the USA, HBZ in Germany).
The union catalog of books and serials consisting of the compiled databases can be freely accessed via the worldwide web online search service (Webcat Plus).

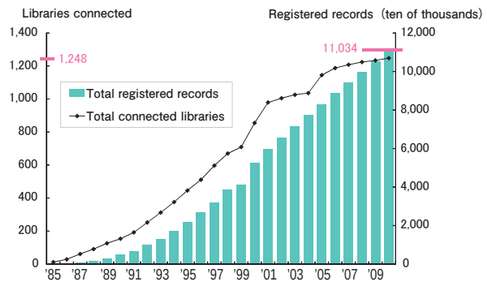
Interlibrary Loan System (NACSIS-ILL)

The Interlibrary Loan System (NACSIS-ILL) supports the exchange of books and serialized research dissertations among libraries to facilitate the provision of documents to researchers at universities and other institutions.
The service applies the latest information from the union catalog databases constructed by NACSIS-CAT, resulting in improved efficiency and prompt delivery of documents to users.
And may use the interlibrary loan service between overseas university libraries through collaboration with overseas ILL systems (such as the OCLC system in the US and KERIS in the Republic of Korea).
The efficiency of the system has been enhanced with an offsetting service for ILL document copying and other charges.

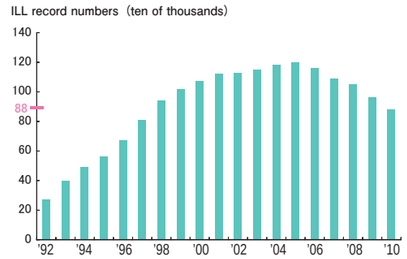


Outline of cataloging system

The National Center for Science Information Systems (NACSIS) was the forerunner of the National Institute of Informatics (NII). The acronym NACSIS is still used in the names of some NII services.



Trends in number of libraries connected and number of records registered



State of use of the ILL system

NII Repository of Electronic Journals and Online Publications (NII-REO)

http://reo.nii.ac.jp/

- The NII Repository of Electronic Journal and Online Publications (NII-REO) archives the content of electronic journals and promotes their use as part of a joint effort with the University Library Consortia to ensure stable, sustainable access to electronic content.
- The terms and conditions applying to use of this content are based on contracts signed with publishers.

Stored content (as of March 2011)

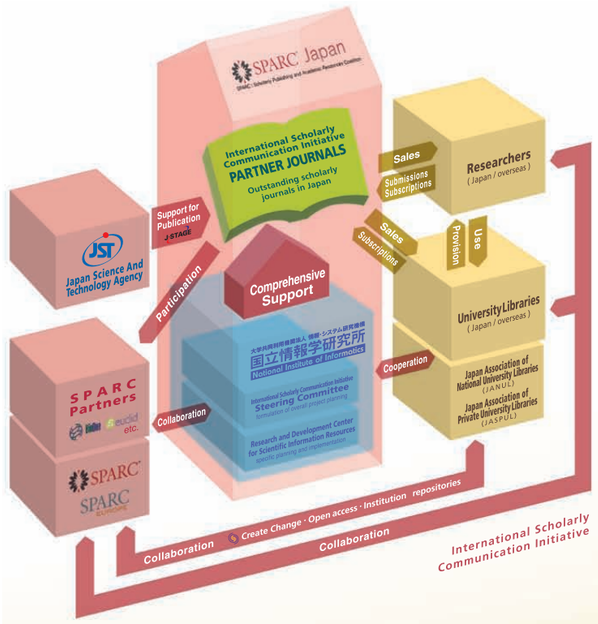
Publisher	Number of titles	Number of articles	Collecting year
IEEE Computer Society	about 30	about 300,000	1988-
Kluwer online	about 500	about 350,000	1997-2005
Oxford University Press	about 200	about 860,000	1849-2003
Springer	about 1,100	about 2,090,000	1847-1996

International Scholarly Communication Initiative (SPARC Japan)

http://www.nii.ac.jp/sparc/

This project began in FY2003 for strengthening the electronic journals of the scholarly publications of Japan's academic societies, with a view to keeping in the hands of Japanese researchers the outstanding research results that are currently published abroad and further promoting the international dissemination of research results.

Academic journals published in Japan are earning great respect internationally. In collaboration with scholarly organizations, university libraries, SPARC (USA), and SPARC Europe, we are helping to establish a structure to ensure ongoing electronic publishing of these journals in a way that is economically feasible. In recent years, particularly, there have been positive initiatives in dissemination and advocacy activities as well as support for the creation of institutional repositories, with a view to establishing an "Open Access" model for barrierfree access to research results.



Education and Training Programs

http://www.nii.ac.jp/hrd/

The National Institute of Informatics provides a range of training programs for university and other academic personnel responsible for scientific and academic information at universities and elsewhere.

User Training

NII offers database/operation training courses for those working in NACSIS-CAT/ILL services. Regional courses are also offered in conjunction with university libraries. NII also advances the development of self-learning materials that can be used on the web.

- NACSIS-CAT Training Courses (Book course/Serial course)

This course provides the opportunity to learn the structure of NACSIS-CAT, its contents, data uploading methods (input standards), and operation rules.

- NACSIS-ILL Training Course

This course provides the opportunity to learn the structure of NACSIS-ILL, its contents, and operation rules.

Advanced Training Programs

NII provides opportunities for academic research support staff at universities and research institutes to learn the latest in specialized and advanced technologies.

- NACSIS-CAT/ILL Workshop
- Seminar for University Librarians

Cooperation for User Training Sponsored by Universities

To support guidance and user training on NII services sponsored by universities and academic societies, NII offers a number of services, for example providing training texts or materials, curriculum advice, and assignment of user IDs.

Dissemination of Research Results

NII holds lectures and symposia and issues publications under the general aim of disseminating research findings on informatics widely throughout society, and informs details by NII's website and e-mail newsletter.

Open House

NII, a research institution, which is widely open to the public, holds "Open House" two days once a year to present its activities and research results to the public as well as to researchers and Ph.D. candidates.

NII Open House (June, 2010)

Symposia and Study Meetings

NII announces results of research and communicates information by holding symposia and workshops addressing research subjects and the latest issues in informatics from broad-ranging perspectives, welcoming researchers from the front lines of the field in Japan and around the world.

Exhibitions

NII attempts to disseminate its research results and promote its information service through presentations in various exhibitions

Library Fair & Forum (November, 2010)

Open Lectures and Seminars

NII also holds open lectures and seminars.

■NII Public Lectures

NII researchers have held public lectures on a wide range of themes related to informatics - a total of eight per year, with no more than one held in any given month - at the National Center of Science in Hitotsubashi, Chiyoda Ward, Tokyo. Some content from past lectures has been made available to the public as streaming media from the NII website. * in Japanese

NII Public Lectures (July, 2010)

■Karuizawa Saturday Salon

The NII hosts seminars on issues and topics related to informatics for both researchers and the general public several times a year at the International Seminar House for Advanced Studies (Inose lodge: Karuizawa, Nagano Prefecture).

- Videos of lectures and recitals are available on the NII website * in Japanese
- Publication of Karuizawa Doyo-Konwakai Koenshu: Chi to Bi no Harmony ("Collection of Lectures from the Karuizawa Saturday Salon: Harmony of Intelligence and Beauty") * in Japanese

Karuizawa Saturday Salon (September, 2010)

Publications

NII publishes books and periodicals detailing its research findings.

■NII Series (Maruzen Library)

This series of commercial books introduces and describes the details of NII research using familiar examples that are easily understood by the general public. * in Japanese

NII Series (Maruzen Library)

■NII Technical Report

NII Technical Reports are issued as individual publications such as research papers, reference materials, and manuals covering the results of NII research, to serve generally as updates on the NII's research activities. These reports are available through the NII website.

NII Technical Report

■Progress in Informatics

Progress in Informatics is an international peer-reviewed journal published by the NII, aiming at the promotion of research and development in the broad area of informatics. The journal provides the international academic community with a venue for discussion and a means of exchanging information covering a wide range of fields involving informatics applications. The published articles consist not only of original research papers but also of surveys and project reports which contribute internationally to the progress of research and development. We ask for submissions for articles all the time.

Progress in Informatics

■Please access to our website for further information
http://www.nii.ac.jp/

Public information magazine

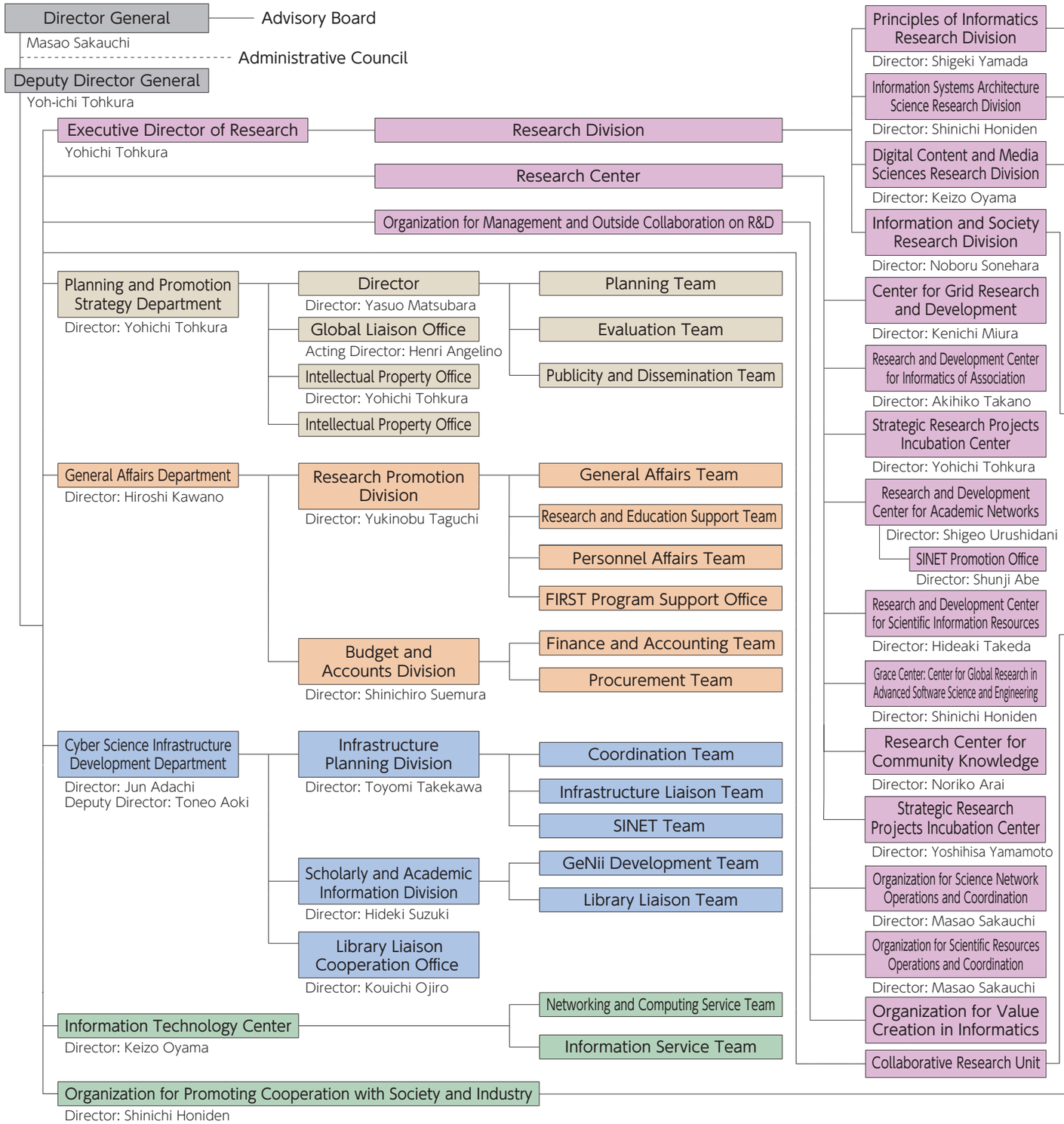
NII Today (Japanese/English)
Catalogue of NII (Japanese/English)
Outline of NII (Japanese/English)
Annual Report (Japanese)

NII Today (Quarterly)

■NII on Twitter ☺
http://twitter.com/jouhouken/

@jouhouken
National Institute of Informatics

Organization (as of April 2011)



Professor	Katsumi Inoue Makoto Tatsuta Shigeki Yamada	Ken-ichi Kawarabayashi Kae Nemoto Yoshihisa Yamamoto	Ken Satoh Ken Hayami Keiichi Kuma	Hideaki Takeda Asao Fujiyama
Associate Professor	Ryutaro Ichise Nigel Henry Collier Nobutaka Ono	Tetsunari Inamura Kunihiko Sadakane	Takeaki Uno Hiroko Satoh	Makoto Kanazawa Keiji Matsumoto
Assistant Professor	Shoko Utsunomiya	Timothy Byrnes		
Professor	Shoichiro Asano Shin Nakajima Kento Aida	Shigeo Urushidani Hiromichi Hashizume Motonori Nakamura	Zhenjiang Hu Shinichi Honiden	Ichiro Satoh Tomohiro Yoneda
Associate Professor	Shunji Abe Hiroshi Hosobe	Yusheng Ji Takashi Matsumoto	Michihiro Koibuchi Nobukazu Yoshioka	Kensuke Fukuda
Assistant Professor	Soichiro Hidaka	Kenji Tei		
Professor	Akiko Aizawa Akihiro Sugimoto Shingo Nishioka	Jun Adachi Atsuhiro Takasu	Keizo Oyama Akihiko Takano	Shinichi Satoh Seiji Yamada
Associate Professor	Kenro Aihara Norio Katayama Helmut Prendinger	Frederic Andres Asanobu Kitamoto Yusuke Miyao	Isao Echizen Kazuya Kodama Kazutsuna Yamaji	Ikki Ohmukai Imari Sato
Assistant Professor	Fuyuki Ishikawa Mayumi Bono	Hiroyuki Kato Duy-Dinh Le	Hiroshi Mo	Gene Chenug
Professor	Noriko Arai Noboru Sonehara	Sumio Kakinuma Akira Miyazawa	Noriko Kando	Teruo Koyama
Associate Professor	Hitoshi Okada Masaki Nishizawa	Hironobu Gotoda Nobuhiro Furuyama	Morio Shibayama	Yuan Sun
Assistant Professor	Kouichirou Ueki	Masashi Ueda	Tetsuro Kobayashi	
Visiting Professor	Henri Angelino (Full-time) Kiyoshi Agusa Hiroki Arimura Katsuro Inoue Mizuhito Ogawa Kunio Kashino Shu Kuramoto Kazunobu Konishi Sumio Sugano Yoshiaki Tanaka Teruo Higashino Kazuaki Murakami Shoji Yuen Shinichi Watanabe Jennifer Marjorie Corbett Alex Hauptmann William John Munro Joerg Schmiedmayer	Satoshi Akutsu Katsushi Ikeuchi Kazunori Ueda Yoshiyasu Okuhara Eiji Kamioka Sadao Kurohashi Motoshi Saeki Masaaki Sugihara Junichi Tsujii Yoshiaki Fukazawa Hong Mei Yoshinori Yokoyama A Min Tjoa Vaclav Hlavac Bashar Nuseibeh Amal El Fallah Seghrouchni	Michael E Houle (Full-time) Hideharu Amano Hiroshi Ishiguro Hitohide Usami Manabu Okumura Masaru Kitsuregawa Masao Kuwahara Ryoichi Sasaki Masato Takeichi Yuichi Nakamura Hideo Matsuda Hiroshi Yasuda Fu Qiang Liu Frederic Benhamou Artur Ekert Muller Gunter Antonio Ortega	Keijiro Araki Toru Ishida Hisamichi Okamura Masanao Ozawa Yasuo Kuniyoshi Jiro Kokuryo Yoichi Sato Yuzuru Tanaka Yoshiki Niwa Shinichi Mineo Hayato Yamana Katsuya Watanabe Anthony Finkelstein Gerald Milburn Kai Rannenberg Sebastian Uchitel
Visiting Associate Professor	Takeo Igarashi Hideaki Kikuchi Takeshi Naemura Yutaka Matsuo Youdai Watanabe	Shingo Oue Takashi Koga Hiroaki Nishi Yasuyuki Matsushita Andrei Doncescu	Eiji Oki Kenjiro Taura Yuko Noguchi Mio Murao Jin Song Dong	Haruhiko Kaiya Kazushige Terui Takahiro Hara Hironori Washizaki Vincent Oria
Visiting Assistant Professor	Masashi Inoue			
Coordinate Professor	Taisuke Sato	Yasuo Tan	Satoshi Tojo	
Coodinate Associate Professor	Tsuyoshi Murata			
Visiting Professor	Shinichi Iwasaki Toshinori Odaka Madoka Tsuchiya Akira Maeda	Sanya Uehara Mitsuo Kawato Akihiro Hada Kou Miyake	Shiro Usui Tsuyoshi Kitani Takashi Hotta Hiroshi Miyabe	Nobuyuki Osakabe Keiichi Kubota Takashi Hanazawa
Visiting Associate Professor	Yayoi Hirose			
Professor (by Special Appointment)		Michihiro Aoki Hideki Tanaka Takako Nakatani Shigetoshi Yokoyama	Shuichi Itahashi Yoshinori Tanabe Masami Nakamura	Hironobu Kuruma Toshihiko Tsumaki Kenichi Miura
Associate Professor (by Special Appointment)		Fumihiro Kumeno Nakasone Arturo Mamel Yuzo Marukawa	Kei Kurakawa Kazuhiro Minami	Eisaku Sakane Makoto Nonaka
Assistant Professor(by Special Appointment)		Takeshi Abekawa Yoshitaka Minami	Rihoko Kawai	Simon John Devitt
Project Assistant		Ryuji Masukawa		

Facilities / Location

National Center of Sciences

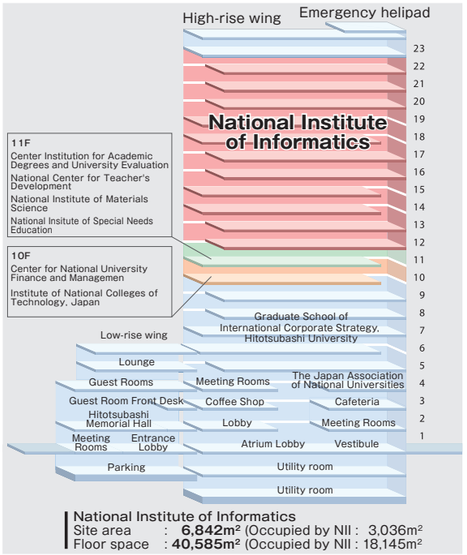
The National Center of Sciences was established as a center for scientific research in informatics, for academic exchanges, for the dissemination of scientific information, and to provide to society as a whole the benefits of an infrastructure of academic research in Japan. Construction was completed in December 1999. The Center consists of three principal institutions: the NII, the Hitotsubashi University Graduate School of International Corporate Strategy, and the Center for University Finance. The Center aims to provide a developed base for intellectual creativity through the comprehensive application of the academic functions of each institute. Conference facilities are located in the lower floor of the building, including the Hitotsubashi Memorial Hall. These are available for use for various activities, such as international conferences, lectures, and other academic meetings organized by national universities.

National Center of Sciences

National Institute of Informatics (NII)

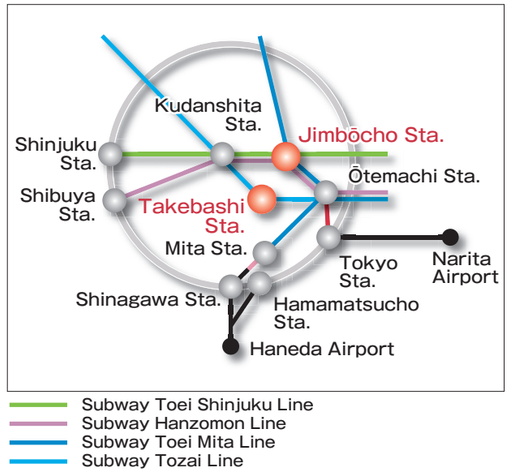
http://www.nii.ac.jp/

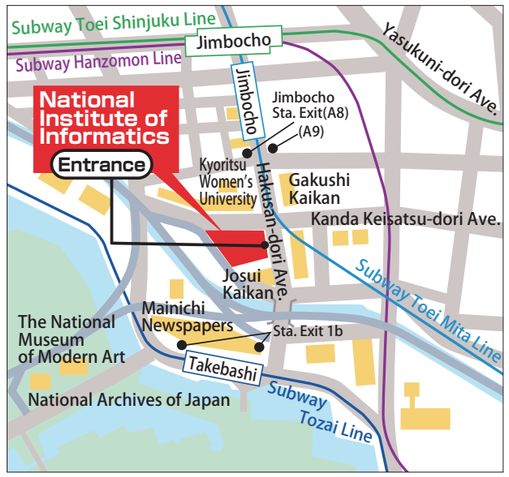
National Center of Sciences Bldg. 2-1-2
Hitotsubashi, Chiyoda-ku, Tokyo 101-8430
TEL: +81-3-4212-2000 (Exchange)



National Institute of Informatics
Site area : 6,842m² (Occupied by NII : 3,036m²)
Floor space : 40,585m² (Occupied by NII : 18,145m²)

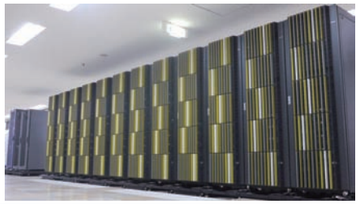
Route Map





Chiba Annex (Inage-ku, Chiba City)

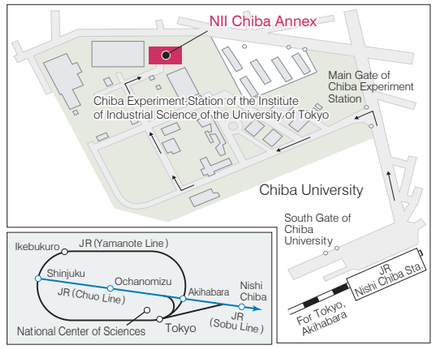
The Chiba Annex is a facility for computer systems and networking equipment used to operate the Science Information System and to provide scientific information services. It was built in November 1994 and is located in the Chiba Experiment Station of the Institute of Industrial Science of the University of Tokyo.



Chiba Annex

1-8 Yayoi-cho, Inage-ku, Chiba-shi, Chiba
263-0022
TEL: +81-43-285-4911 (Exchange)

Guide Map



Site area (rented) : 1,782m²
Floor space : 3,943m²

International Seminar House for Advanced Studies Inose Lodge (Karuizawa, Nagano Prefecture)

The International Seminar House for Advanced Studies, or Inose Lodge, was built on land donated by Dr. Hiroshi Inose, the first director general of NII. His idea was to create an ideal place for interdisciplinary and international discussions.

Uses

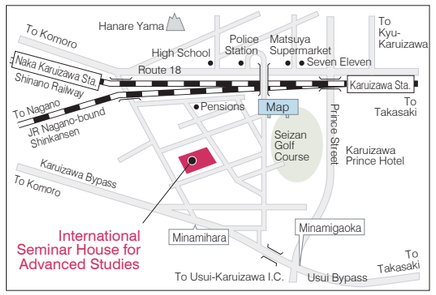
1) Domestic and international academic conferences, seminars, etc.
2) Public lectures and social gatherings, etc.
3) Research and training of NII researchers and staff.

International Seminar House for Advanced Studies Inose Lodge

http://www.nii.ac.jp/access/karuizawa/

1052-471, Okan Minamihara Nagakura,
Karuizawa, Karuizawa-cho, Kita Saku-gun,
Nagano 389-0111
TEL: +81-267-41-1083 FAX: +81-267-41-1075

Guide Map



Site area : 3,339m²
Floor space : 667m²

Staff/Budget

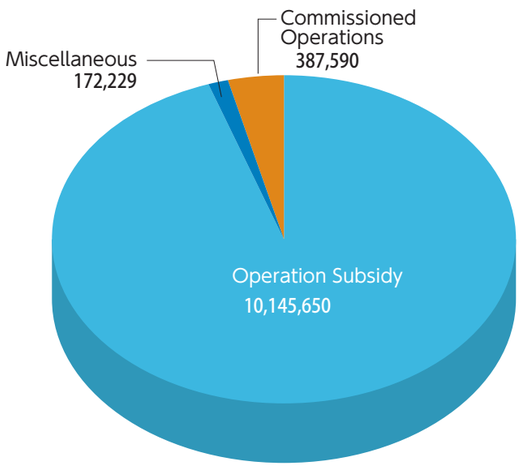
Staff (as of April 1, 2011)

	Director General	Deputy Director General	Professors	Associate Professors	Assistant Professors	Assistant	Subtotal	Other Employees	Total
Full-time Employees	1	1	36	33	13		84	49	132
Visiting Professors etc.			67	20	1		88		88
Organization for Promoting Cooperation with Society and Industry			15	1			16		16
Coordinate Professors			3	1			4		4
Specially Appointed Professors etc. (Project-based)			10	7	4	1	22		22
Other Outside Researchers									82
Support Staff									176
Graduate Students									131

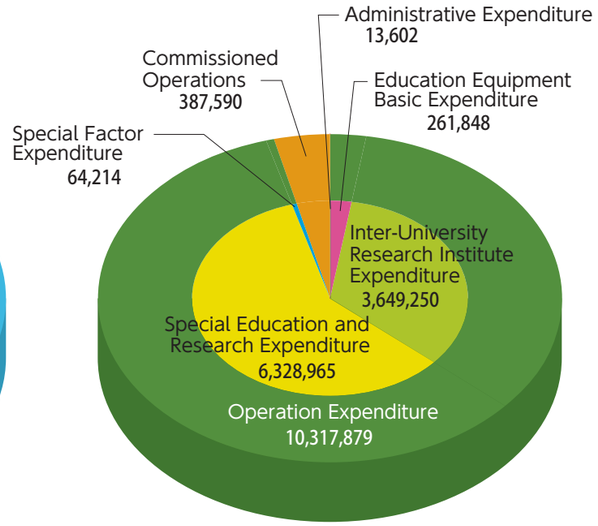
Budget (FY2011)

(unit: thousand yen)

Income 10,705,469



Expenditure 10,705,469



Administrative Council

Members advise the Director General regarding plans for NII projects and other important matters related to management and operations.

Setsuo Arikawa	President, Kyushu University
Haruhisa Ichikawa	Professor, The Department of Human Communication, The University of Electro-Communications
Masaru Kitsuregawa	Director, Center for Information Fusion, Institute of Industrial Science, the University of Tokyo
Hidehiko Tanaka	Professor, Graduate School of Information Security, Institute of information Security
Shojiro Nishio	Trustee, Osaka University
Toyoaki Nishida	Professor, Department of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University
Sadaoki Furui	President, Library, Tokyo Institute of Technology
Yoichi Muraoka	Professor, Faculty of Science and Engineering, Waseda University
Yoshifumi Yasuoka	Executive Director, National Institute for Environmental Studies
Miwako Doi	Chief Fellow, Corporate Research & Development Center, TOSHIBA Corporation
Mario Tokoro	President & CEO, Sony Computer Science Laboratories, Inc.
Yohichi Tohkura	Deputy Director General, NII
Shigeki Yamada	Director, Research and Development Center for Academic Networks, NII
Shinichi Honiden	Director, Information Systems Architecture Science Research Division, NII
Keizo Oyama	Director, Digital Content and Media Sciences Research Division, NII
Noboru Sonehara	Director, Information and Society Research Division, NII
Akihiko Takano	Director, Research and Development Center for Informatics of Association, NII
Shigeo Urushidani	Director, Research and Development Center for Academic Networks, NII
Noriko Arai	Director, Research Center for Community Knowledge
Yoshihisa Yamamoto	Director, Grobal Research Center for Quantum Information Science
Jun Adachi	Director, Cyber Science Infrastructure Development Department, NII
Ken Satoh	Head, Department of Informatics, School of Multidisciplinary Sciences, The Graduate University for Advanced Studies

Advisory Board

Advisory Council for Research and Management Members provide advice and suggestions to the Director General regarding joint research programs and other important matters related to the operation of NII, in response to requests from the Director General.

Masanori Aoyagi	Director of the National Museum of Western Art
Setsuo Arikawa	President, Kyushu University
Kazuo Iwano	Senior Executives,Smarter Cities CTO, IBM Japan
Hideko Kunii	Chairpeson of Ricoh IT Solutions Co., Ltd.
Keiichi Kubota	Director General, NHK Science & Technical Research Laboratories
Hiromichi Shinohara	Director and Senior Vice President, Director of Research and Development Planning Department, NTT (Nippon Telegraph and Telephone) Corporation
Makoto Nagao	Librarian of the National Diet Library
Hideyuki Nakashima	President, Future University Hakodate
Shojiro Nishio	Trustee, Vice President, Osaka University
Masafumi Maeda	Managing Director, Executive, Vice President, the University of Tokyo
Hideo Miyahara	President, National Institute of Information and Communications Technology
Teruyasu Murakami	Senior Fellow, Nomura Research Institute, Ltd.
Yoichiro Murakami	President, Toyo Eiwa Jogakuin
Bob Williamson	Scientific Director, NICTA(National ICT Australia)
Gerard van Oortmerssen	Director, ICTRegie (ICT Research and Innovation Authority, Netherland)
Jeff Kramer	Senior Dean, Imperial College London
Marek Rusinkiewicz	Vice President and General Manager, Information and Computer Sciences Research Laboratory at Telcordia Technologies
Michael A. Keller	Director, Ida M. Green University Librarian, Director of Academic Information Resources, Publisher of HighWire Press, and Publisher of the Stanford University Press
Michel Cosnard	Chairman & CEO, INRIA(Institut National de Recherche en Informatique et en Automatique)
Nelson MORGAN	Director, ICSI(The Institute of Company Secretaries of India)
Tamer ÖSZU	University Research Chair, David R. Cheriton School of Computer Science, University of Waterloo
Wolfgang Wahlster	Director and CEO, DFKI(German Research Center for Artificial Intelligence)
Yanghee CHOI	Director, Multimedia and Mobile Communications Laboratory, School of Computer Science and Engineering Seoul National University
Yi ZHANG	Vice Provost, International Affairs Office of International Cooperation and Exchange, Tsinghua University
Takeo Kanade	Professor, The Robotics Institute, Carnegie Mellon University
Thaweesak Koanantakool	President, NSTDA(National Science and Technology Development Agency)

Professors Emeriti (NACSIS: National Center for Science Information Systems)

Kimio Ohno	Former Deputy Director General, NACSIS, Professor Emeritus, Hokkaido University
Atsunobu Ichikawa	Professor Emeritus, Tokyo Institute of Technology
Hitoshi Inoue	Former Deputy Director General, NACSIS
Tatsuo Nishida	Former Deputy Director General, NACSIS, Professor Emeritus, Kyoto University

Professors Emeriti (NII : National Institute of Informatics)

Takamitsu Sawa	Former Deputy Director General, NII, President, Shiga University
Mitsutoshi Hatori	Former Professor, Multimedia Information Research Division, NII, Professor Emeritus, Tokyo University
Yasuharu Suematsu	Former Director General, NII, Professor Emeritus, Tokyo Institute of Technology
Eisuke Naito	Former Professor, Human and Societal Information Research Division
Katsumi Maruyama	Former Professor, Information Systems Architecture Research Division, NII
Kinji Ono	Former Professor, Information Foundation Research Division
Takeo Yamamoto	Former Professor, Multimedia Information Research Division, NII, Professor Emeritus, University of Library and Information Science
Haruki Ueno	Former Professor, Principles of Informatics Research Division, NII
Masamitsu Negishi	Former Professor, Information and Society Research Division, NII
Kenichi Miura	Former Professor, Information Systems Architecture Research Division, NII Director, Center for Grid Research and Development

History

1973 October	Ministry of Education, Science, Sports and Culture proposes an "Improved Circulation System for Academic Information" in the Third Report (Basic Policies for the Promotion of Scholarship) of the Science Council.
1976 May	Research Center for Library and Information Science (RCLIS) is established at the University of Tokyo.
1978 November	"A New Plan for Academic Information Systems" is presented to the Science Council by the Minister of Education, Science, Sports and Culture. The Science Council issues a response in January 1980.
1983 April	Center for Bibliographic Information is established at the University of Tokyo, with the reorganization of the Research Center for Information and Library Science.
1986 April	National Center for Science Information Systems (NACSIS) is established, with the reorganization of the Center for Bibliographic Information, the University of Tokyo.
1997 March	International Seminar House for Advanced Studies, Inose Lodge (Karuizawa, Nagano Prefecture) is established.
2000 February	Operations move to a building in the National Center of Sciences (Hitotsubashi, Chiyoda-ku, Tokyo).
1997 December	An Advisory Panel on a Core Institution for Scientific Research in the Information Field is established by the Ministry of Education, Science, Sports and Culture.
1998 January	A proposal entitled "Promoting Computer Science Research" is published by the Science Council of Japan, calling for the establishment of a core institution for inter-university research in informatics.
1998 March	Advisory Panel on a Core Institution for Scientific Research in the Information Field issues its report.
1998 April	Coordination Office is established for the Core Institution for Scientific Research in the Information Field; committee is formed in May.
1999 March	Coordinating Committee of the Core Institution for Scientific Research in the Information Field issues its report.
1999 April	Preparatory Office is established for the Core Institution for Scientific Research in the Information Field; committee is formed in May.
1999 July	Preparatory Committee of the Core Institution for Scientific Research in the Information Field issues its interim report.
2000 March	Preparatory Committee of the Core Institution for Scientific Research in the Information Field issues its final report.
2000 April	National Institute of Informatics (NII) is established, with the reorganization of NACSIS and assumption of its functions.
2002 April	Ph.D. Program in Informatics is established in the Department of Informatics, Graduate University for Advanced Studies.
2002 September	Research Planning and Promotion Strategy Office is founded.
2002 October	International Course is established within Ph.D. Program in Informatics.
2003 January	Global Liaison Office is formed.
2003 April	Initiation of Project to Improve Infrastructure for International Circulation of Scholarly Information
2004 April	NII begins a new chapter as a member of the new Inter-University Research Institute Corporation / Research Organization of Information and Systems.
2005 April	The official service of GeNii (NII Academic Contents Portal) is launched.
2007 June	Science Information Network (SINET3) is launched.
2011 April	Science Information Network (SINET4) is launched.

Contact info for inquiries

Page			Contact	
15	Research Cooperation		Research Promotion Division, General Affairs Team	TEL +81-3-4212-2105, 2116 FAX +81-3-4212-2120 E-mail kaken@nii.ac.jp
16	Intellectual Properties		Intellectual Property Office	TEL +81-3-4212-2124 FAX +81-4212-2035 E-mail chizai_web@nii.ac.jp
17-18	Graduate Education Activities		Research Promotion Division, Research and Education Support Team	TEL +81-3-4212-2110 FAX E-mail daigakuin@nii.ac.jp
19	edubase Stream		Grace Center: Center for Global Research in Advanced Software Science and Engineering	TEL +81-3-4212-2830 FAX +81-3-4212-2697 E-mail edubase@grace-center.jp
20-23	International Exchange	MOU／JFLI Shonan Meeting	Planning and Promotion Strategy Department, Planning Team	TEL +81-3-4212-2165 FAX +81-3-4212-2150 E-mail kikaku@nii.ac.jp shonan@nii.ac.jp
24	NII Library		Information Technology Center, Library and Informtion Service Team	TEL +81-3-4212-2140 FAX +81-3-4212-2120 E-mail library@nii.ac.jp
25	Cyber Science Infrastructure (CSI)		Academic Infrastructure Division, Coordination Team	TEL +81-3-4212-2215 FAX +81-3-4212-2230 E-mail plan@nii.ac.jp
26-27	Science Information Network		Academic Infrastructure Division, SINET Team	TEL +81-3-4212-2269 FAX +81-3-4212-2270 E-mail support@sinet.ad.jp
28	Access Federation		Academic Infrastructure Division, Infrastructure Liason Team	TEL +81-3-4212-2218 FAX +81-3-4212-2230 E-mail upki-office@nii.ac.jp
29	NAREGI Middleware/e-Science community		Center for Grid Research and Development	TEL +81-3-4212-2857 FAX +81-3-4212-2803 E-mail naregi-office@nii.ac.jp
30	Institutional Repository		Scholarly and Academic information Division, Institutional Repository Desk	TEL +81-3-4212-2350 FAX +81-3-4212-2375 E-mail ir@nii.ac.jp
31-32	GeNii		Scholarly and Academic information Division, GeNii Desk	TEL +81-3-4212-2300 FAX +81-3-4212-2370 E-mail geniiadm@nii.ac.jp
33	Catalog Information Service		Scholarly and Academic information Division, CAT/ILL Desk	TEL +81-3-4212-2310 FAX +81-3-4212-2375 E-mail catadm@nii.ac.jp
34	NII-REO		Scholarly and Academic information Division, NII-REO Desk	TEL +81-3-4212-2303 FAX +81-3-4212-2370 E-mail reo@nii.ac.jp
34	SPARC Japan		Scholarly and Academic information Division, SPARC Desk	TEL +81-3-4212-2360 FAX +81-3-4212-2375 E-mail sparc@nii.ac.jp
35	Education and Training Programs		Scholarly and Academic information Division	TEL +81-3-4212-2177 FAX +81-3-4212-2375 E-mail edu@nii.ac.jp
36-37	Dissemination of Research Results		Planning and Promotion Strategy Department, Publicity and Dissemination Team	TEL +81-3-4212-2145 FAX +81-3-4212-2150 E-mail kouhou@nii.ac.jp
40-41	Facilities / Location		Research Promotion Division, General Affairs Team	TEL +81-3-4212-2000 FAX +81-3-4212-2035 E-mail soumu@nii.ac.jp