Introduction

As Japan’s only comprehensive academic research institute in the field of informatics, the National Institute of Informatics (NII) has a mission of promoting basic research in informatics from a long-term perspective together with practical research designed to solve issues that confront society. This research is developed in one of the 4 research divisions: Principles of Informatics, Information Systems Architecture Science, Digital Content and Media Sciences or Information and Society. Moreover as an inter-university institution the NII is the leader/coordinator of different national projects including researchers from other Japanese universities or industry e.g. “Quantum Information Science” or “Big Data Mathematics” or “Cyber Physical Systems”.

On the other hand as part of an Inter-University Research Institute, the NII also has the missions of operating a network (SINET4) linking universities and research institutes, creating an academic information infrastructure necessary for research and educational activities in the academic community, providing academic content and service platforms and, through those activities, it is a very important mission to develop human resources and making social and international contributions.

There are few institutions anywhere in the world that conduct research in informatics and simultaneously provide IT services and a network. We believe that operating our own systems and concentrating on the field of informatics, which is developing at a furious speed, are the best ways to stay on top of trends in IT and contribute to create cutting-edge information services with universities. Academic information infrastructure is indispensable to all academic disciplines. The NII aspires to help academia achieve breakthroughs by providing robust information infrastructure for researchers across a range of disciplines.

NII and its Cyber Science Infrastructure (CSI) have achieved significant development. We believe that ICT is widely recognized as the core enabler for scientific findings and social innovation. In the United States, the IT sector has accounted for 25% of economic growth since 1995, and the basic research that supports the industry plays a considerable role. While it is a traditional picture that new technologies generate services, the creation of non-conventional information and communication search that supports the industry plays a considerable role.

We respectfully ask for the continued understanding and support of all related parties.
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 development activities in information-related fields, including networking, software, university research institute, NII promotes the creation of a state-of-the-art academic the broader academic community, with a focus on partnerships and other joint efforts. NII advances informatics research ranging from natural science to human and social sciences, NII aims to create future value through new theories, methodologies, and application deployment, thereby contributing to the development of informatics.

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, seven research centers, the Organization for Management and Outside Collaboration on R&D.

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 and the society.

NII strives to further the international contribution of informatics through the active promotion of international exchanges between researchers and students and an approach focused on the formation of an informatics research center through international collaboration, in addition to publishing its research results internationally.

NII seeks to achieve harmony between society, culture, and social systems in addition to creating platforms and portals that make effective use of content to disseminate and enliven social and public activities in the field of academic, cultural, education, publishing, environmental, regional, and NPO activities.

In the Ph.D. program for informatics in the School of Multidisciplinary Sciences at the Graduate University for Advanced Studies, NII aims to nurture world-class researchers in the field of informatics and establish a base for the development of engineers with the skills to link the industry with academics to develop high-level human resources.
In recent years, scientists from around the world have turned their attention to the emerging field of quantum information science and technology. Quantum technology may have many promising applications, from secure communications to high-performance computation and beyond. Here, in the Quantum Information Science Group, we have been at the forefront of these developments. In 2009, we introduced a detailed architecture for a large-scale quantum computer. Furthermore, in 2011, in collaboration with NTT Basic Research Laboratories, we demonstrated hybrid quantum devices that may form the basic elements of such an architecture. Recently, in 2013, in a further collaboration with NTT Basic Research Laboratories, we undertook a rigorous analysis of the performance of a large-scale quantum computer. One of the central aspects of quantum computation is the need for fault tolerance, which ensures that imperfections in quantum computers can be controlled, allowing for reliable quantum computers to be built from realistic quantum devices. The purpose of our research was to investigate the practical cost of obtaining a quantum computer in a fault-tolerant manner. By carefully integrating the various layers of technology—from control of the quantum hardware to the structure of the quantum algorithm—we were able to precisely understand this cost. As part of this analysis, we considered an implementation of Peter Shor’s famous algorithm for factoring composite prime numbers. This allowed us to establish a clear benchmark against which other quantum computers may be compared. In addition, we found that to improve the performance of quantum computers, developing more efficient software may be significantly more important than improving the hardware. This result indicated that designing more efficient quantum circuits should be a priority.

Motivated by this challenge, we developed an online application—meQuanics—that was designed to harness the collective intelligence of the crowd. By translating the task of designing quantum circuits into a challenging game, we created an open-science platform to accelerate our research effort. By discovering more efficient quantum circuits we will lessen the stringent requirements for the basic elements of quantum computers, which will assist in the ongoing development of quantum technology by experimental scientists. Looking toward the future, our plan is to continue in our effort to design and develop practical quantum technology in collaboration with scientists at institutions around the world.

The World Wide Web was invented in the early 1990s in order to share academic information, but it soon moved beyond the realms of academia. It spread throughout our society quickly, and changed the way in which we distribute information. It was a revolutionary change in information distribution using the Web and now another revolution, named “Linked Data” or “Linked Open Data (LOD),” has just started. The Web is a network of information based on links between documents, creating a so-called “Web of Documents.” LOD forms networks in the same way but between data, creating what is known as a “Web of Data.” LOD creates a globally shared data environment similar to the web, and it enables users to access and link to data without worrying about which dataset it belongs to, who manages it, or where in the world they are based. Linking between individual data makes them all part of a single global dataset.

In our group, we are working to develop LOD technology and to promote technology amongst academic communities and the general public. In terms of technical development, we are working on a prototype system that will analyze how we describe and use concepts as they change with the times, and set out the ontology of change. We are currently applying them to species based on taxonomy. We are also working on demonstrations to show that it is possible to simply combine different types of data using LOD (Figure 1).

In terms of promoting technology amongst academic communities and the general public, we are working to establish and publish core datasets. For example, we are gathering and publishing integrated data on the scientific and Japanese names of different species, as well as information on museums. DBpedia is a project to extract large volumes of data from Wikipedia and share it via a data hub. We are managing the Japanese version, as part of which our role is to link a range of datasets within Japan (Figure 2).
The information and communication environment continues to evolve at a rapid pace, becoming ever faster and more convenient. One of the most important roles in that evolution is being played by wireless communications, as an integral part of users’ daily lives. Among various electromagnetic waves spreading through the spaces around us, including infrared, visible light and x-rays, the ones with longer wavelengths are increasingly important to use radio waves more efficiently. Current technologies for mobile phones are used to relay radio waves. Our research therefore extends to areas such as relay node selection and efficient relay methods. We are also doing research on ad hoc networks, whereby wireless communication takes place as required, without relying on existing infrastructure. Ad hoc networks are increasingly attracting attention in areas such as communication between vehicles, and mechanisms to enable autonomous communication in times of need, in the event of a disaster for instance. Such kind of network can also be used for gathering “big data” with large volumes of data illustrating various social phenomena. With almost all kinds of “things” around us being connected to the network, we are entering an age known as the “Internet of things” (IoT). With that in mind, we intend to keep on thinking about ways to transmit information faster, safer, and more efficiently.

Automotive control systems contain various different types of electronic control units (ECUs), all widely distributed among cars. As the sensors/ actuators and ECUs have fixed connections however, it is not easy to utilize the unused computational power of ECUs for other functions. What is more, the failure of an ECU directly leads to the loss of the function related to the ECU. Based on the idea of using intelligent sensors and actuators connected directly to a network, approaches to integrating individual ECUs into a centralized ECU on a many-core system have recently been studied. The aim of our research is to develop a highly reliable next-generation centralized ECU along these lines, using dependable network-on-chip architecture. Network-on-chip (NoC) is a scalable and flexible method of forming a many-core system, by creating a network on the chip itself and communicating between cores via packet switching. A number of projects in Europe are already looking into approaches to centralized ECUs based on NoC. What we are proposing is “multi-chip NoC,” whereby multiple NoC chips are seamlessly connected together. Multi-chip NoC technology enables various different configurations as necessary, simply by connecting multiple small, inexpensive NoC base chips together. Other benefits include redundancy at the chip level, which leads to tolerance to chip failure. Furthermore, if a router or link inside the chip fails, packets are distributed dynamically around it, enabling dependable routing. To detect CPU core failure, each task is executed on two cores, and the results are compared. When the comparison fails, the faulty core is found by temporarily executing the task on the third core, and then the system is dynamically reconfigured to exclude the faulty core.

We are also providing algorithms to allocate tasks, which are obtained from non-redundant Simulink descriptions, on cores redundantly, thereby enabling application and program developers to continue with development as normal, without worrying about duplication or other aspects of dependable task execution. In addition to all this, we are developing a simplified plant model to enable ECU evaluation easily in real time, and an evaluation kit that can demonstrate practical real-world applications.
To gather information and recognize real-world situations, systems need to perform both macro situation appraisal by sensing the environment (e.g., how many people? where are they?) and micro situation appraisal based on the movements of various different moving objects (people, vehicles, goods, etc.). As many of the subjects of situation appraisal are related to human activity in some way, it is particularly important to understand how people act in the real world.

We are conducting research based on trials in actual fields, with the aim of devising infrastructure systems and applications that are capable of recognizing and providing information on users’ actions via applications on users’ mobile devices (smartphones), and throwing light on technologies to estimate user situations.

[Understanding situations based on user inner feelings]

Services based on mobile devices in use around town are called “location-based services”, or LBS. In terms of context however, the user’s location alone is insufficient. It is important to ascertain the context that they are in, including internal factors such as their goals and feelings. This is what we mean by “situation”. A user’s situation includes factors such as their relationships with other people. As part of our research, we are trying to understand and estimate users’ feelings, and estimate their relationships with other people based on their log records, with the aim of understanding their situation.

[Information selection technology to increase migration]

To revitalize local economies, it is important to increase migration, by increasing the number of visitors on (4) conversations using Japanese Sign Language.

We are conducting research based on trials in actual fields, with the aim of understanding the mechanisms (rules/systems) behind multi-party and multi-modal interaction, by observing everyday conversations between people. Multi-party interaction refers to conversations involving three or more people, as opposed to one-to-one conversations. Multi-modal interaction refers to conversations taking place via various different means, including not only speech, but also gestures and gazes. In Japan, a great deal of effort is being put into focusing on robots that are able to interact with people, and human-like androids. Based on the question “can a robot join an idobata kaigi (water-cooler conversation)?”, the aim of the “Ido-Robo Project” is to put forward a framework for research into multi-party and multi-modal interaction through discussion.

Research as part of (2) SC activities at Miraikan is focused on verbal communication of knowledge between scientifically knowledgeable SC and visitors to the museum, who may or may not be scientifically knowledgeable. In terms of (3) joint construction of a fire festival at Nozawa Onsen spa resort, our research involves observing how people interact with one another using gestures, gazes, and calling. Research on (4) conversations using Japanese sign language revolves around observation of how people interact with one another using sign language, whereby their main linguistic modality relies on using parts of their body (hands).

In terms of methodology, we are (a) identifying problem areas by observing behaviors, (b) recording and manually annotating video footage, and then analyzing annotated videos, (c) developing methods of understanding interaction, including automatic annotation and machine learning, and (d) feeding our analyses back into research fields.

Until now, most research about interaction has involved recording data in a controlled environment, such as a laboratory, and then extracting human interaction mechanisms. The aim of our research is to identify rules and systems without interfering with real-world contexts.
We fielded a randomized controlled trial* during the Upper House elections in 2013, to examine the effects that election campaigning via Twitter has on voting and related political attitudes. Rigid random assignment made it possible to test the causal effect of online election campaigning for the first time in Japan. We examined the effects of tweets made by the Mayor of Osaka, Toru Hashimoto, by running a field experiment for roughly one month prior to the voting date. Our findings indicated that following Hashimoto on Twitter led to an increase in positivity towards Hashimoto himself and his party, the Japan Restoration Party. There was no discernible effects however on voting, or issue attitudes and knowledge of the issue position of Japan Restoration Party. It indicates that, while election campaigning on Twitter has no discernible effects with regard to communicating policies, users are likely to feel more positively towards politicians and political parties if they continue to see messages from them on their timelines. It should be noted that correlational analysis using large volumes of tweets and their associations with election results cannot reveal any causal effects of online election campaigning. In this regard, our experiment is noteworthy in that it was for the first time able to clearly demonstrate the causal effects, thanks to the rigid random assignment which is the hallmark of scientific experiments. Identifying the effects of new types of political communication is crucially important in the debate surrounding Public Offices Election Act. We used an online survey to recruit Twitter users to the experiment who didn’t currently follow any of Toru Hashimoto, Shinszo Abe or Goshi Hosono. We then randomly assigned the participants who agreed to be part of the experiment into a treated group and a control group. We asked participants in the treated group to follow all three politicians, and instructed participants in the control group to follow Shinszo Abe and Goshi Hosono only. That meant that any difference in the post-treatment measures between the treated and control groups would be attributed to following Toru Hashimoto on Twitter. Participants began following the politicians roughly one month prior to the voting date. Post-treatment measurements were then fielded immediately after the voting deadline on the day of the election.

The results indicated that, while feeling thermometer score towards Hashimoto (on a scale of 0-100) had fallen by 3.86 in the control group during the experiment, it had only fallen by 0.19 in the treated group (Figure). Feeling thermometer score towards the Japan Restoration Party meanwhile fell by 0.49 in the control group during the experiment, but increased by 3.5 in the treated group. This shows that reading tweets from Hashimoto helped to prevent any deterioration in his personal image, and actually increased positivity towards his party. As there was no discernible effect on participants’ policy attitudes or knowledge of issue position of Japan Restoration Party however, following Hashimoto made no difference in terms of encouraging participants to vote for his party. This suggests that, rather than facilitating policy communication, election campaigning on Twitter has a mere exposure effect as users continue to see messages from politicians on their timelines, and could help to form positive attitudes towards politicians and candidates.

People have different views when it comes to using and protecting personal information. Although we all agree on the basic premise that personal information should be protected, opinions differ greatly regarding the extent to which we should provide information. There are also widely differing attitudes regarding what we should get in return. We are conducting research into individual views such as these, on the subject of protecting and using personal information.

In order to do that, we are using a technique called ‘Conjoint analysis’. This involves setting out a number of subjects for assessment and asking respondents a series of questions, in order to ascertain the correlation between elements in a trade-off situation and highlight how people think and behave. As part of our research, we are asking randomly selected online participants to compare nine different cards displayed on screen, and then to choose which statements regarding personal information they agree with, in order to extend to illustrate people’s attitudes by showing participants cards combining various different elements and repeatedly surveying which cards they prioritize.

Our findings to date indicate that even people who do not wish to provide their personal information are willing to provide certain information in return for points or other such benefits, and that people are willing to provide or post personal information via social media as a trade-off for enjoying the relevant services. Whereas many respondents said that they did not want to provide personal information when using travel cards, plenty said that they were happy to provide personal information when using commercial cards, based on the expectation of points or other benefits. Attitudes vary significantly depending on the situation, purpose and benefits received. Companies need to have a rough idea of the extent to which individuals will provide their personal information if they receive sufficient benefits in return, so that they can provide services accordingly. Companies should also establish mechanisms so that they can enter into contracts with those providing personal information based on an understanding that they, as the party obtaining and using information, are in a trade-off situation between costs and benefits. This is a potential shortcut to establishing a social environment in which personal information can be put to good use.

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*1: Randomized controlled trial

Experimetal method intended to perform rigorous causal inference, avoiding any bias
Main Projects to Promote

Artificial Brain Project – Can a robot get into the University of Tokyo?
Project director: Noriko Adachi

This project was launched mainly by the National Institute of Informatics to provide a dream for young people. It aims at opening up a new frontier by reintegrating the artificial intelligence field, which has been subdivided since 1980. Specific benchmarks are achieving a high score on the National Center Test for University Admissions by 2016 and passing the entrance examination for The University of Tokyo by 2021. We have been working to achieve these goals through this project. In 2012 and 2013 we conducted evaluation tasks at the NTCIR, CLEF international conference. Many NLP groups participated in these tasks. In 2013, the robot took the practice examination of the National Center Test for University Admissions held by a major preparatory school for university entrance examinations. The results indicated that the robot has an 86% probability of passing exams for 400 of about 800 universities.

Cyber-physical Integrated IT Infrastructure Project to Optimize Social Systems and Services
Research representative: Jun Adachi

We have been working with universities and industry to conduct research of a cyber-physical system (CPS) at a societal scale. CPS is expected to increase efficiency in social systems and services and create new value by integrating the information system (cyber) with the physical system (physical) that functions in the real world. The information system is used to link data from the real world that are obtained through diverse sensors with a range of information, and analyzes them. We also strive to contribute to society specifically through analysis of big data obtained in the real world, and research of a management system.

Quantum Information Network Project
Representative: Yoshishisa Yamamoto

Application of quantum technology is expected in many fields, such as information processing, communications, sensing and standards. This project aims to achieve a breakthrough by incorporating knowledge of the latest computer science and neuroscience into quantum information science. Specifically, we conduct research in three fields: a quantum artificial brain that can solve NP-complete, NP-hard problems with reasonable accuracy and high speed; quantum secure networks that prohibit eavesdropping no matter what advanced computation capabilities are introduced in the future; and a quantum simulator that reveals characteristics of quantum many-body systems.

ERATO Kawarabayashi Large Graph Project
Research Director: Ken-ichi Kawarabayashi

The Internet web structure and large networks, such as Facebook, Twitter and other social networks, are expanding daily, and it is expected to reach nearly 100 billion in the near future. With this, the information volume has been increasing much faster than the advance of hardware. Promptly dealing with problems that will arise in the future presents an urgent task. This project aims at developing high-speed algorithms that deal with probable problems in reality by taking advantage of the latest mathematical theories in theoretical computer science and discrete mathematics.

Research Center

Research and Development Center for Academic Networks

Develops and offers new services and functions for increasing the operational efficiency of the Science Information NETwork 4 (SINET4), which constitutes part of the Cyber Science Infrastructure (CSI).

Research Center for Knowledge Media and Content Science

Promote cutting-edge research on the analysis and use of knowledge content in academic fields.

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

Develop TopSE and TopRE by integrating research, practical application, and education in advanced software engineering.

http://grace-center.jp/?lang=en

Research Center for Community Knowledge

Develop next-generation information and communications technology and information sharing platform system by creating “NetCommons” and “RealDiResearchmap”.

Organization for Management and Outside Collaboration on R&D

Organization for Scientific Resources 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 Value Creation in Informatics

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

NII actively promotes research funded by Grants-in-Aid for Scientific Research, joint research with private organizations, and externally funded research. We also accept proposals for and carry out open collaborative research, in an effort to pave the way for new collaborations.

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**Grants-in-Aid for Scientific Research (KAKENHI) received in fiscal 2013**

<table>
<thead>
<tr>
<th>Representative</th>
<th>Number</th>
<th>Amount (thousands of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NII staff</td>
<td>83</td>
<td>275,503</td>
</tr>
<tr>
<td>Co-researcher</td>
<td>55</td>
<td>27,881</td>
</tr>
</tbody>
</table>

Grants-in-Aid for Scientific Research (KAKENHI) provide funding to support a wide range of existing research through meetings at International Seminar House in Karuizawa, as well as research initiatives started from basic to applied research. Staff and researchers actively apply for KAKENHI, and have been quite successful.

In addition to being selected as research representatives, we are also engaged in a large number of research projects as co-researchers (meaning that we receive a share of funding), in cases where other institutions have been made research representatives. As we need co-researchers for KAKENHI for which NII has been selected, we also engage in collaborative research along the same lines too.

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**Conducting a range of cooperative research with different companies**

Cooperative research with private institutions and other external bodies [http://www.nii.ac.jp/research/collaboration/kyoudou/](http://www.nii.ac.jp/research/collaboration/kyoudou/)

We take on researchers and receive research funding from private institutions and other external bodies, for the purpose of engaging in cooperative research with NII researchers. Projects last for one year at a rule, but at the same time there is an option to extend some contracts over several years.

1. Receiving funding
   - We receive funding required for cooperative research from private institutions and other external bodies.
   - Cooperative researchers work with their respective institutions.

2. Taking on researchers
   - We take on researchers from private institutions and other external bodies, to carry out cooperative research at NII while continuing with their regular job.
   - Essential overheads are covered under our research costs up to a certain point.

3. Taking on researchers and receiving funding
   - We take on researchers and receive funding to carry out cooperative research.

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**Taking on engineers and researchers from other private institutions and other external bodies, and providing graduate level instruction**


We take on engineers and researchers currently working for private institutions and other external bodies, as well as private researchers working with universities and other institutions.

- Providing graduate level instruction to students who have graduated from university or are deemed to have reached an equivalent academic level.
- Essential overheads are covered up to a certain point.

Research periods are up to one year, but can be extended to the following fiscal year and beyond if deemed necessary.

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**Paving the way for wide-ranging collaboration with outside researchers and conducting research aimed at creating value**

NII open collaborative research [http://www.nii.ac.jp/research/collaboration/kyoudouu02](http://www.nii.ac.jp/research/collaboration/kyoudouu02)

Proposal accepted in fiscal 2014

<table>
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</tr>
<tr>
<td>Co-researcher</td>
<td>57</td>
</tr>
</tbody>
</table>

Total: 70

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**Intellectual Properties**

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

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**Total Number of Inventions and Applications for Patents (total number since FY2004)**

<table>
<thead>
<tr>
<th>Total Number</th>
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</thead>
<tbody>
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<tr>
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<tr>
<td>Foreign number</td>
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</tr>
<tr>
<td>Domestic Number</td>
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</tr>
<tr>
<td>Foreign number</td>
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**List of Japanese patents owned**

<table>
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<th>Patent number</th>
<th>Patent</th>
<th>Registration number</th>
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</thead>
<tbody>
<tr>
<td>4621519</td>
<td>Quantum Key Distribution Method, Communication System, and Computer Device</td>
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**List of registered trademarks**

<table>
<thead>
<tr>
<th>Trademark mode</th>
<th>Trademark number</th>
<th>Trademark description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NII</td>
<td>4621519</td>
<td>Quantum Key Distribution Method, Communication System, and Computer Device</td>
</tr>
</tbody>
</table>
TopSE and edubase: Education Services for IT specialists

GRACE Center provides TopSE education program, edubase Cloud and edubase Space for education environment for IT specialist, and edubase Stream 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.

Intellectual manufacturing education, founded on science

TopSE

http://www.topse.jp/english/

The TopSE 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.

Creation of Intelligence in the Ubiquitous Environment

edubase Space

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.

An IT laboratory where you can test your ideas without restraint

edubase Cloud

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.

Portal site for Learning Anytime Anywhere

edubase Stream

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.

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 (SOKENDAI)

Establishment of the Department

The Department of Informatics (3 year doctoral programs), which began at SOKENDAI with the participation of the NII in April 2002, saw its first class of students graduate in March 2005. And SOKENDAI introduced a five-year doctor course program from 2006. SOKENDAI was Japan’s first university to provide doctoral programs solely with the objectives of encouraging original and international academic studies that transcend conventional disciplinary frameworks and developing cutting-edge academic disciplines to create new directions in science.

Aims and Structure of the Department

The Department’s goal is to foster outstanding young international IT researchers and technicans. 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 Science
- Intelligent Systems Science
- Information Environment Science

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 of Informatics welcomes international students. There is active cross-cultural exchange among students. The Department also has a large number of students holding full-time jobs. They account for approximately 30% of all students in the department.

Enrollment

<table>
<thead>
<tr>
<th>Department of Informatics</th>
<th>A five-year doctor course program</th>
<th>A three-year doctor course program</th>
<th>Research Student</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 (21)</td>
<td>48 (22)</td>
<td>0</td>
<td>78 (43)</td>
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</tr>
</tbody>
</table>

* 1 foreign students among total

Students Data

Current Students

<table>
<thead>
<tr>
<th>Nationalities of Foreign Students</th>
</tr>
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<tbody>
<tr>
<td>Japan 43</td>
</tr>
<tr>
<td>China 14</td>
</tr>
<tr>
<td>Brazil 1</td>
</tr>
<tr>
<td>Peru 1</td>
</tr>
<tr>
<td>Latvia 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nationalities of Foreign Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand 1</td>
</tr>
<tr>
<td>Thailand 7</td>
</tr>
<tr>
<td>Vietnam 7</td>
</tr>
</tbody>
</table>

Age distribution

- 50s 8
- 40s 7
- 30s 25
- 20s 38
- Total 78

TopSE Certification

edubase Space

Cloud server room

edubase Stream

Guidance for new students

Graduate students office

Lecture

Graduate Medal ceremony

Students Data

(as of April 2014)

Current Students

<table>
<thead>
<tr>
<th>Nationalities of Foreign Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan 43</td>
</tr>
<tr>
<td>China 14</td>
</tr>
<tr>
<td>Brazil 1</td>
</tr>
<tr>
<td>Peru 1</td>
</tr>
<tr>
<td>Latvia 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nationalities of Foreign Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand 1</td>
</tr>
<tr>
<td>Thailand 7</td>
</tr>
<tr>
<td>Vietnam 7</td>
</tr>
</tbody>
</table>

Age distribution

- 50s 8
- 40s 7
- 30s 25
- 20s 38
- Total 78
Cooperation with Graduate Schools

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

Cooperation with Graduate Schools

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
Graduate School of Creative Science and Engineering
Graduate School of Advanced Science and Engineering FY2005~
JAIST (Japan Advanced Institute of Science and Technology) | School of Information Science FY2009~
Ryukoku Institute of Technology | Graduate School of Computer Science and Systems Engineering FY2010~
The University of Electro-Communications | Graduate School of Information Systems FY2012~

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 of students (FY2013)

University | Student
--- | ---
Ochanomizu University | Keio University
Chiba University | University of Tsukuba
The University of Electro-Communications | The University of Tokyo
Tokyo Institute of Technology | Tokyo University
Australian National University | Grenoble Institute of Technology
University of Groningen | Royal Institute of Technology
Saitama University | University of Shonai
Tohoku University | University of Naruto
University of Pittsburgh | University of Marin

Students from other universities (FY2013)

Master Course | Ph.D. Course | Total
--- | --- | ---
33 | 20 | 53

Career options (past three years)

| Year of Graduation | University/Institution | Company | Not yet determined | Total |
--- | --- | --- | --- | ---
FY2012 | 7 (5) | 0 (0) | 2 (2) | 9 (7) |
FY2011 | 6 (1) | 3 (0) | 1 (0) | 10 (1) |
FY2010 | 8 (3) | 1 (0) | 2 (1) | 11 (4) |
Total | 21 (9) | 4 (0) | 5 (3) | 30 (12) |

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.

International Exchange Agreement

As of April 2014

| Country | Organization |
--- | ---
France | NII Centre National de la Recherche Scientifique (CNRS)
| CRAM / Université de Lyon

Research Exchange with Universities and Institutions

FY2013

| MOU Grant | Non-MOU Grant |
--- | ---
536 persons to 18 countries | 50 persons to 24 countries

Intercommunication of researchers

FY2013

| Program | Number of researchers |
--- | ---
Japan Society for Promotion of Science (JSPS) | 536 persons to 17 countries |
NII International Fellowship Program for Researchers | 50 persons to 24 countries

International Exchange Agreement

As of April 2014

| Country | Program |
--- | ---
United Kingdom | Department of Computer Science, Faculty of Engineering, University College London
| NII Centre for Semantics and Information Technology (NTSS) |
Japan | University of Tokyo, Tokyo Institute of Technology, Waseda University
| Keio University, University of Electro-Communications

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

\section*{NII Shonan Meeting}

In February 2011, the NII launched the NII Shonan Meetings, the first Dagstuhl-style seminar* held in Asia. The purpose of the NII Shonan Meetings is to resolve various challenges in the field of informatics by assembling the very best researchers from around the world to engage in intensive discussions on issues in the field of informatics in an atmosphere that promotes close interaction. This meeting is based on a partnership agreement concluded with Kanagawa Prefecture.

The meeting’s venue, the Shonan Village Center, provides an environment in which participants can focus on research activities in a setting that provides both spectacular natural beauty and easy access from Narita Airport. We have organized over 35 seminars to date.

*Dagstuhl Seminar: A key seminar series in the field of informatics, held roughly every week, in Dagstuhl, Germany. The series is based on a structure whereby participants live in close quarters for one week for intensive discussions on various topics under a specified theme for each seminar.

\section*{Support System}

The Office of NII Shonan Meetings and Shonan Village Center staff handle various activities on behalf of seminar management, including issuing invitations, providing information on lodging and accommodations, and preparing venues on meeting days.

The program also includes various activities intended to deepen interaction between participants, including hikes in nearby natural areas and historical walking tours of Kamakura.

\section*{The Recent Topics of the NII Shonan Meetings}

1. Intelligent Information Processing - Chances of Crowdsourcing Nov. 18-21, 2013, 21 participants
2. Cognitive Social Robotics: intelligence based on embodied experience and social interaction Nov. 11-14, 2013, 23 participants
3. Implicit Computational Complexity and appreciations: Resource control, security, real-number computation Nov. 4-7, 2013, 24 participants
5. Conduction for computation structures and programming languages Oct. 7-10, 2013, 31 participants
6. Compact Data Structures for Big Data Sep. 27-30, 2013, 31 participants
8. Many-cores and On-chip Interconnects Sep. 23-25, 2013, 21 participants

\section*{NII Shonan Meeting Memorial Symposium}

To mark the first anniversary of the start of the NII Shonan Meeting, we organized a symposium on the theme of “For Making Future Value From Asia” in November 2012. The keynote lectures were given by Professor J.D. Ullman of Stanford University who is world-famous for his research on database theory; Professor R.A. Kowalski of Imperial College, London, who is a first-class virtual logic programming researcher; and Professor M. Kitsuregawa, the current Director General of the National Institute of Informatics.

Over the period of two years since the launch, the NII Shonan Meeting has steadily gained visibility, and both project applicants and themes have broadened. We will continue to implement further activities in the future as a venue where Japanese and Asian researchers can manifest leadership.

\section*{Call for proposal}

We welcome your proposal any time through a whole year, although submission is closed in June 15th, September 15th and December 15th. After the proposal is reviewed and approved by NII’s Scientific Committee, the result will be notified.

Contact: The Office of NII Shonan Meetings shonan@nii.ac.jp
International Exchange

Consolidation of Cyber Science Infrastructure (CSI)

In December 2009 NII has signed a special agreement for 3 years with the German Academic Exchange Service (DAAD) that has allowed German post-doc to stay for one year at NII to conduct their research under the mentoring of NII researchers. This program existed also at the International Computer Science Institute (ICSI) in Berkeley, USA. During 3 years NII has received 10 new post-docs. The contract has been renewed for 5 years until 2017 introducing more flexibility to welcome more German post-docs. We accepted four new researchers in fiscal year 2013.

Japanese-French Laboratory for Informatics (JFLI)

The Japanese-French Laboratory for Informatics (JFLI) was created in 2009 as a hub for the collaboration in informatics between Japan and France and regroups French National Center for Scientific Research (CNRS), Pierre and Marie Curie University - Paris 6, The University of Tokyo (Graduate School of Information Science and Technology), the NII and Keio University. 2012 will see an extended cooperation between the same partners who have decided to create an International Mixed Unit (UMI), which will focus on 5 main topics: (1) Next Generation Networks, (2) High Performance Computing, (3) Software, Programming Models and Formal Methods, (4) Virtual Reality and Multimedia and (5) Quantum Computing.

Agreement with German Academic Exchange Service (DAAD)

http://glo.nii.ac.jp/

http://csi.jp/

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A Network that Extends Across Japan and Beyond

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 GEANT in Europe to facilitate dissemination of research information and collaborations over networks.

The current SINET4 will be upgraded to SINET5, which is due to come into operation in April 2016. SINET4 plays an important role as the core component of the Cyber Science Infrastructure (CSI).
Science Information Network 4 (SINET4)


Characteristics of SINET4

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

2. Provision of diverse services
   As well as retaining all of the services available under SINET3, SINET4 also features improved and expanded capabilities in areas such as resource-on-demand.

3. Higher 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.

Schematic of Configuration of Supported Network Services

Organization for Science Network Operations and Coordination

The administration of the Science Information Network is done in collaboration and cooperation between nationwide research institutes for information technology at universities and research institutes, and the Research and Development Center for Academic Networks at the NII based on the Organization for Science Network Operations and Coordination, which is a joint organization of universities, research institutions and the NII.

SINET4 Network Services

We have designed a user-friendly and expanded services, for example resource on-demand (L1/L2) functionality, performance improvement software, and a portal page.

SINET4 Services

(Classification by network layer and QoS)

SINET4 Service Menu

Resource-on-demand services

When the user specifies an origin, a destination, duration, bandwidth to make a VPN reservation on the web display, the path is automatically set up and ready to use at the specified time.

Private Cloud Environment via SINET

We have built a framework that allows cloud service providers (email, storage, remote access, etc.) to connect directly to SINET. SINET users can access these services in a safe environment.

http://www.sinet.ad.jp/service/other/cloud_services
Establishment of Authentication Infrastructure

**Academic Access Management Federation in Japan (GakuNin)**

https://www.gakunin.jp/docs/en/fed/about

Aiming to improve usability and to cut the operation cost of internal systems, many universities are now switching to the cloud services. The Academic Access Management Federation (GakuNin) is a structure that allows the use of a university’s authentication infrastructure not only for internal services, but also for other collaborating universities and commercial services including the cloud, thus facilitating the safe and secure use of academic services on the Internet by identifying individuals and organization. With Single Sign-On, users can seamlessly and automatically log-in to multiple internal and external services just with a single log on procedure simply. For universities, building an authentication infrastructure compatible with GakuNin, this raises the baseline of security measures and reduces the cost of ID management.

GakuNin strives to maintain reliability by annual assessment of the IdPs operated by universities and institutions. GakuNin also provides LoA1 (Level of Assurance 1) certification services through the Open Identity Exchange (OIX) in the United States. Universities that have been certified for this high level of authentication infrastructure are able to use the US government services, including the databases of the National Institutes of Health (NIH).

**Issuing Server Certification**

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.

![Image of Authentication Infrastructure](https://upki-portal.nii.ac.jp/)

**Server certification issuance situation**

(AS of March 31, 2014)

<table>
<thead>
<tr>
<th>Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IDP: Identity Provider</td>
<td>128</td>
</tr>
<tr>
<td>SP: Service Provider</td>
<td>111</td>
</tr>
</tbody>
</table>

**Features**

- Only one ID/password to remember.
- Single Sign-On (SSO)
- Accessible from anywhere in the world.
- Need no other software than a web browser.

Construction of the Authentication Infrastructure and network infrastructure for the High-Performance Computing Infrastructure (HPCI)

High Performance Computing Infrastructure (HPCI) aims to build computational environment, which meet the needs of various users in academics and industries, by federating the K computer in Kobe as a core system and supercomputers in universities and research institutes in Japan. The HPCI has an single sign-on authentication mechanism, which allows users to gain access to any computing resources by using a common login account to improve usability. NII is constructing and operating the certificate authority and the authentication portal, in collaboration with the K computer and universities, which is the core of the single sign-on authentication mechanism. A high-security mechanism based on electronic certificates is adopted to ensure security and reliability when using the HPCI. With these features, users access their accounts only once, get advantage of the HPCI in a reliable secure and convenient way. Additionally NII operates Science Information NETwork, SINET4. SINET4 provides network infrastructure in HPCI for using remote supercomputers and sharing large experimental data.
Support for Linkage between Institutional Repositories

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

In order to contribute to improving next-generation academic content platforms, NII promotes open access, and supports collaboration and the building of institutional repositories to communicate the outcome of educational research at universities and elsewhere. So far, NII has supported content enrichment, system collaboration and community formation at academic institutions in Japan. As a result, institutional repositories have now been built and are operational at more than 400 institutions.

JAIRO Cloud (shared repository service)

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

For institutions that find it difficult to independently build and operate their own repositories, NII provides a shared repository system environment in the form of a cloud service based on our institutional repository software WEKO (http://weko.at.nii.ac.jp/).

Data

Institution using the service: 196

Japan Alliance of University Library Consortia for E-Resources (JUSTICE)

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

Aiming to implement a range of activities to provide stable and continuous access to academic information, including e-journals, JUSTICE is a leading large-scale consortium with approximately 500 participating national and private university libraries. To support the activities, NII has set up Library Liaison Office that functions as the JUSTICE Secretariat and is staffed from university libraries.

Electronic archives

We carry out the following activities to protect and provide electronic academic information on a permanent basis.


Back numbers of international electronic journals (approx. 3.7 million) and an electronic collection of humanities and social science material (approx. 300,000 items) are stored on NII servers and provided to universities in Japan. The electronic resources are maintained in collaboration with JUSTICE.

CLOCKSS http://www.clockss.org/clockss/Home

An international project to ensure the long-term survival of, and guarantee access to electronic journals. NII participates in the project as the archive node for Asia and are doing promotion activities for universities in Japan. The electronic resources are maintained in collaboration with JUSTICE.

Catalog Information Service


The Catalog Information Service consists of the Cataloging System (NACSIS-CAT) and the Interlibrary Loan System (NACSIS-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 union catalog of books and serials consisting of the compiled databases can be freely accessed via the worldwide web online search service (CiNiiBooks).

Interlibrary Loan System (NACSIS-ILL)

The Interlibrary Loan System (NACSIS-ILL) supports the exchange of books and journal articles 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.

Education and Training Programs

We provides a range of training programs to develop human resources who support academic information infrastructure in Japan at universities.

User Training (Catalog Information Service / JAIRO Cloud (shared repository service))

Advanced Training (Web services for academic information, academic literacy education)

Comprehensive Training (Comprehensive themes involving academic information infrastructure for developing core human resources)
Publishing and Communicating Academic Information

NII accumulates and structures the outcome of educational research produced at universities and research institutions, and provides access through a user-friendly interface.

Academic Information Platforms Essential to Researchers and Students

CiNii (NII Scholarly and Academic Information Navigator)

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

This is a database service that can be exhaustively searched for academic information such as articles, books and journals. NII is expanding the pool of data available and improving text hit rates by linking various database services. In addition, NII is promoting intersystem links with university libraries and other facilities by providing search APIs (application program interfaces) such as OpenSearch.

CiNii Articles — Searching for Japanese research papers —

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

"CiNii Articles" enables you to search for information on academic articles published in academic society journals, university research bulletins or articles included in the National Diet Library's Japanese Periodicals Index Database. It is available free of charge for anyone. In viewing paid content, special rates and other privileges are offered to institutional fixed-price users (registration by institution) or users with an ID (individual registration).

CiNii Electronic Library Service (NII-ELS)

Offering texts in academic journals and research bulletins in electronic form through CiNii Articles.

Collection Status

(as of March 31, 2014)

<table>
<thead>
<tr>
<th>NII-ELS</th>
<th># of full text documents</th>
<th># of academic societies and universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.03 million</td>
<td>4,856</td>
<td>428</td>
</tr>
<tr>
<td>4,856</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Full-text document (PDF)

Enter any keyword

Link to full-text

Link to references and cited articles

CiNii Books — Searching for books in university libraries —

http://ci.nii.ac.jp/books/?l=en

CiNii Books is a service that enables searching of information on books and journals that are held in university libraries in Japan.

Collection Status

(as of March 31, 2014)

<table>
<thead>
<tr>
<th>NII-ELS</th>
<th># of holding information</th>
<th># of member libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 million</td>
<td>1,259</td>
<td></td>
</tr>
<tr>
<td>1,259</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Searching Japan’s Latest Research Information

KAKEN (Database of Grants-in-Aid for Scientific Research)

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

This site presents a brief overview on themes (themes when initially adopted) and results (e.g., reports and reviews) of the research themes funded by grants-in-aid for scientific research from the Ministry of Education, Culture, Sports, Science and Technology and the Japan Society for the Promotion of Science. It provides access to the latest scientific information in Japan. The research result report is available in PDF (FY2008 onwards).

Stored documents

(as of March 31, 2014)

<table>
<thead>
<tr>
<th>Research themes</th>
<th>730,000</th>
</tr>
</thead>
</table>

Crossover Searches of Academic Information Accumulated in Institutional Repositories in Japan

JAIRO (Institutional Repositories Portal)

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

This enables crossover searches of academic information (research papers published in scholarly journals, academic dissertations, study reports, etc.) accumulated in institutional repositories in Japan. Users are able to access full-text of each repository, as well as linking to CiNii.

Stored content

(as of March 31, 2014)

<table>
<thead>
<tr>
<th>Institutional Repositories</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>343</td>
<td>2,000,000</td>
</tr>
</tbody>
</table>

International Scholarly Communication Initiative (SPARC Japan)

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

SPARC Japan was launched in FY2003 based on cooperation with academic societies and university libraries, and in collaboration with SPARC (USA) and SPARC Europe. The aim is to promote further dissemination of the outcome of academic and scientific research in Japan, as well as to promote the digitization and international distribution of academic journals published by Japanese academic societies, and to contribute to improvements in the international infrastructure for the distribution of academic information. The basic plan of action for the fourth term (FY2013-2015) is to “implement open access under a framework of international collaboration, to promote the distribution of academic information, and to strengthen the ability to disseminate information.” As well as promoting collaboration with university libraries and researchers, the project aims to understand the issues around open access, and to study the measures that universities should adopt.
Dissemination of Research Results

NII holds lectures and symposia and issues publications under the general aim of disseminating research finding 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.

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

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.

Publications
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

WEB
NII Website http://www.nii.ac.jp/en/
Please access to our website for further information
NII Video Channel http://www.nii.ac.jp/event/videos/
See movies of NII lectures and symposia on NII Video Channel
Twitter http://twitter.com/jouhouken/
@jouhouken official account
Facebook https://www.facebook.com/jouhouken

NII Library
The NII Library holds a number of books and periodicals on informatics, including online 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.

<table>
<thead>
<tr>
<th>Inventory, Magazine titles</th>
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<td>Domestic Documents</td>
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<td>Foreign Documents</td>
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<td>Total</td>
<td>28,709</td>
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<table>
<thead>
<tr>
<th>Major online journals and databases</th>
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</thead>
<tbody>
<tr>
<td>Service</td>
</tr>
<tr>
<td>ACM Digital Library</td>
</tr>
<tr>
<td>APS online</td>
</tr>
<tr>
<td>CUP online</td>
</tr>
<tr>
<td>IEL</td>
</tr>
<tr>
<td>MathSciNet</td>
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<tr>
<td>OUP online</td>
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<tr>
<td>Springer Link</td>
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<td>Science Direct</td>
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<tr>
<td>Wiley Online Library</td>
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<td>IEEECE</td>
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Facility, Equipment

<table>
<thead>
<tr>
<th>Facility, Equipment</th>
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</thead>
<tbody>
<tr>
<td>Reading room</td>
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<tr>
<td>Area</td>
</tr>
<tr>
<td>Seats</td>
</tr>
<tr>
<td>PC for search</td>
</tr>
<tr>
<td>Other equipment</td>
</tr>
<tr>
<td></td>
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<thead>
<tr>
<th>National Institute of Informatics News</th>
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<tr>
<td>ISSN 1884-0787 (Online)</td>
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<tr>
<td>ISSN 1883-1974 (Print)</td>
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<td>Jun. 2014</td>
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NII Special 1
That’s Collaboration 1
NII Interview
That’s Collaboration 2
NII Special 2
Latest Trends and Challenges in Anonymization Technology
Get Control of Personal Data Back in Our Hands
For Flexible Use and Protection of Personal Information
Toward Revision of the Act on the Protection of Personal Information
Legal System
Protection of Privacy: Essential Cooperation Between Technology and the
Compatibility of the Use and Application of Personal Data and the

See movies of NII lectures and symposia on NII Video Channel

Please access to our website for further information

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<td>NII Video Channel</td>
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<td><a href="http://www.nii.ac.jp/event/videos/">http://www.nii.ac.jp/event/videos/</a></td>
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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.

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<td>PC for search</td>
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<td>Other equipment</td>
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NII Today (Quarterly)
Can Privacy and the Use and Application of Data Be Compatible?
Feature
Personal Data
No.64 of the Japanese edition
NII Today corresponds to
This English language edition

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ISSN 1884-0787 (Online)
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Jun. 2014
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Legal System
Protection of Privacy: Essential Cooperation Between Technology and the
Compatibility of the Use and Application of Personal Data and the
Organization / Staff / Budget

Organization Chart

(as of April 2014)

Director General
Research Strategy Office Deputy Director General

Research Division
Principles of Informatics Research Division
Information Systems Architecture Science Research Division
Digital Contents and Media Sciences Research Division
Information and Society Research Division

Research Center
Research and Development Center for Academic Networks
Research Center for Knowledge Media and Content Science
GRACE Center: Center for Global Research in Advanced Software Science and Engineering
Research Center for Community Knowledge
Global Research Center for Quantum Information Science
Global Research Center for Cyber Physical Systems
Global Research Center for Big Data Mathematics

Organization for Management and Outside Collaboration on R&D
Organization for Value Creation in Informatics
Organization for Science Network Operations and Coordination
Organization for Scanned Resources Operations and Coordination

Cyber Science Infrastructure Development Department
Academic Infrastructure Division
Scholarly and Academic Information Division
Library Liaison Cooperation Office
Advanced IT Center

General Affairs Department
Planning Division Office for Social Collaboration
General Affairs Division
Budget and Accounts Division

Global Liaison Office
Pre & Post Research Center Group
Mathematical Informatics Takeuchi Uro Ken-ichi Kawasaki Hiyoshi Ryota Kobayashi Ken-ichi Hayama Yusuke Yoshida
Mathematical Logic Makoto Kanazawa Makoto Tatsuta
Quantum Informatics Shoko Utsunomiya Kawai NematKei Matsumoto Tim Burren
Material and Life Informatics Hiroko Satoh Asao Fujisawa
Intelligent Informatics Hiyato Ichise Tetsuji Inamura Katsumi Inoue Nobukazu Ono Nippon Collier Ken Satoh Hideaki Takeda Shigeki Yamada

Network Architecture Shunjir Aine Komukai-Fukuda
Information Network Oshino Tomoharu Yoichiro Kaneko Hiromasa
Computer Architecture Furo Inada Yoko Kobayashi Toshiyuki Ikeda
Software Infrastructure Hiroshi Saitoh Soichiro Mizuta Zhangjian Hu
Software Engineering Hazumi Sakamoto Shin Nakajima Shinichi Homden Nobukazu Yoshieka Tomohiro Iyama Kenji Tani

Foundation of Communication Fuyuki Ishikawa Kaoru Edohara Norio Kitaoka Hidetoshi Kato Atsuhiko Takeshita Akito Takano Kazutaka Yamagishi
Text and Language Media Akiko Aizawa Jun Adachi Keiichiro Oyama Yusuke Miyaya Jamichi Yamaguchi
Pattern Media Naoaki Katozawa Kiyoru Kodama Imai Sato Shin'Shi Satoh Akihito Sugimoto Gen'e Choung Hoshino Duy Qinh Le
Human and Knowledge Media Hiroshi Arakawa Fredrick Andres Yuki Okumura Hitamori Tondorgin Masaomi Bono Seiji Yamada

Information Usage Noriko Arai Kouchi Hiroshi Ueki Norio Kando Hirokazu Gotoda Tetsu Koyama Takeshi Aizawa Akira Miyazawa
Science Information Fuyuki Sun Masuki Nishizawa Information Public Policy Hidetsu Okada Tetsuro Kobayashi Noboru Somehara

Coordination, Infrastructure & Liaison Team
SINET Team
SINET Promotion Office
Academic Authentication Systems Office
Library Liaison Team
Gehnsi Development Team
Library Support Team

Content System, Development Office
Planning Team
International Affairs and Education Support Team
Publicity Team
Collaboration Support Team
FIRST Support Team
General Affairs Team
Personnel Affairs Team
Finance and Accounting Team
Procurement Team

Staff

<table>
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<tr>
<th></th>
<th>Director General</th>
<th>Deputy Director General</th>
<th>Professor</th>
<th>Associate Professor</th>
<th>Lecturer</th>
<th>Assistant Professor</th>
<th>Subtotal</th>
<th>Other Employees</th>
<th>Total</th>
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<td>2</td>
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<td>32</td>
<td>9</td>
<td>76</td>
<td>58</td>
<td>134</td>
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<td>Specially Appointed</td>
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<td>Support Staff</td>
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<td>165</td>
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Budget (FY2014)

- Income: 10,299,217
- Expenditure: 10,299,217

Commissioned Operations 620,797

Operation Subsidy 9,594,051

Miscellaneous 174,369
Organizations

Advisory Board

Consists of domestic and overseas members with extensive and advanced knowledge on science information research, and responds to consultations from the Director General regarding issues on development and construction of Cyber Science Infrastructure.

Professors Emeriti

NACSIS: National Center for Science Information Systems

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History

1973 October Ministry of Education, Science, Sports and Culture proposes an “Improved Circulation System for Academic Informa-
tion” 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.


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.

1984 December The NACSIS-CAT catalog information service is launched.

1986 April National Center for Science Information Systems (NACSIS) is established, with the reorganization of the Center for Bib-

liographic Information, the University of Tokyo.

1987 April The Science Information Network (SINET) is launched.

1988 April The NACSIS-IR information search service is launched.

1994 November Chiba Annex (Inage-ku, Chiba City) is built.

1995 March International Seminar House for Advanced Studies, Ise Lodge (Kasaiwa, Nagano Prefecture) is established.


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.

March Advisory Panel on a Core Institution for Scientific Research in the Information Field issues its report.

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.

April Preparatory Office is established for the Core Institution for Scientific Research in the Information Field, committee is formed in May.

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.

February Operations move to a building in the National Center of Sciences (Hitodsubashi, Chiyoda-ku, Tokyo).

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.

2004 April Program in Informatics is established in the Department of Informatics, Graduate University for Advanced Studies.

September Research Planning and Promotion Strategy Office is founded.

October International Course is established within Ph.D. Program in Informatics.

2005 January Global Liaison Office is formed.

April Initiative 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 Organiza-
tion of Information and Systems.

2005 February Organization for management and Outside Collaboration on Science Information Network.

April The official service of GeNII (NII Academic Contents Portal) is launched.

2007 April The Planning and Promotion Strategy Department is established.

June Science Information Network (SINET3) is launched.

2009 April NII Scholarly and Academic Information Navigator (CiNii) and the KAKEN database of grants-in-aid for scientific research are revamped.

Japanese Institutional Repositories Online (AIR) is officially launched.

June The Academic Information Infrastructure Open Forum is established.

2010 February The first NII Shonan Meeting takes place.

2011 April Science Information Network (SINET4) is launched.

April The Library Liaison Office is established.

November CiNii Books is launched.

2012 April Japanese Institutional Repositories Online Cloud (AIR@Cloud) is launched.
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 Hall. These are available for use for various activities, such as international conferences, lectures, and other academic meetings organized by national universities.

National Institute of Informatics (NII)

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

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

Chiba Annex

National Institute of Informatics

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

Guide Map

National Center of Sciences

National Institute of Informatics

Route Map

Guide Map

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

The International Seminar House for Advanced Studies (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/

Guide Map

International Seminar House for Advanced Studies Inose Lodge

Site area : 3,339㎡
Floor space : 667㎡
<table>
<thead>
<tr>
<th>Contents &amp; Contact</th>
<th>E-mail</th>
<th>TEL</th>
<th>FAX</th>
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<tr>
<td>Research Cooperation (p.14)</td>
<td><a href="mailto:kaken@nii.ac.jp">kaken@nii.ac.jp</a></td>
<td>03-4212-2170</td>
<td>03-4212-2150</td>
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<td>Intellectual Properties (p.15)</td>
<td><a href="mailto:chizai_web@nii.ac.jp">chizai_web@nii.ac.jp</a></td>
<td>03-4212-2124</td>
<td>03-4212-2150</td>
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<tr>
<td>Top SE and edubase : Education Services for IT specialists (p.16)</td>
<td><a href="mailto:secretariat@grace-center.jp">secretariat@grace-center.jp</a></td>
<td>03-4212-2729</td>
<td>03-4212-2697</td>
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<td>Graduate Education Activities (p.17)</td>
<td><a href="mailto:daigakuin@nii.ac.jp">daigakuin@nii.ac.jp</a></td>
<td>03-4212-2110</td>
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<td>International Exchange (MOU) (p.19)</td>
<td><a href="mailto:international@nii.ac.jp">international@nii.ac.jp</a></td>
<td>03-4212-2165</td>
<td>03-4212-2150</td>
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<td>International Exchange (Shonan Meeting) (p.20)</td>
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<td><a href="mailto:support@sinet.ad.jp">support@sinet.ad.jp</a></td>
<td>03-4212-2269</td>
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<td><a href="mailto:upki-office@nii.ac.jp">upki-office@nii.ac.jp</a></td>
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<td><a href="mailto:ir@nii.ac.jp">ir@nii.ac.jp</a></td>
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<td>Catalog Information Service (NACSIS-CAT/ILL) (p.31)</td>
<td><a href="mailto:catadm@nii.ac.jp">catadm@nii.ac.jp</a></td>
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