Contact Info for Inquiries

Contents & Contact	E-mail	TEL	FAX
Research Cooperation（p.14） ●Planning Division, Office for Social Collaboration, Collaboration Support Team	kaken@nii.ac.jp	03-4212-2170	03-4212-2150
Intellectual Properties（p.15） ●Planning Division, Office for Social Collaboration, Big Project and Intellectual Property Team	chizai_web@nii.ac.jp	03-4212-2124	03-4212-2150
Top SE : Education Services for IT specialists（p.16） ●Research Center, GRACE Center: Center for Global Research in Advanced Software Science and Engineering	secretariat@grace-center.jp	03-4212-2729	03-4212-2697
Graduate Education（p.17） ●Planning Division, International Affairs and Education Support Team	daigakuin@nii.ac.jp	03-4212-2110	03-4212-2150
International Exchange (MOU)（p.19） ●Planning Division, International Affairs and Education Support Team	international@nii.ac.jp	03-4212-2165	03-4212-2150
International Exchange (Shonan Meeting)（p.20） ●NII Shonan Meeting Administrative Office	shonan@nii.ac.jp	03-4212-2165	03-4212-2150
International Exchange (DAAD/JFLI)（p.22） ●Planning Division, International Affairs and Education Support Team	international@nii.ac.jp	03-4212-2165	03-4212-2150
Science Information Network（p.24） ●Academic Infrastructure Division, SINET Team	support@sinet.ad.jp	03-4212-2269	03-4212-2270
Authentication Infrastructure（p.28） ●Academic Infrastructure Division, Academic Authentication Systems Office	gakuninoffice@nii.ac.jp	03-4212-2218	03-4221-2230
Institutional Repositories（p.30） ●Scholarly and Academic Information Division, Institutional Repository Desk	ir@nii.ac.jp	03-4212-2350	03-4212-2375
Catalog Information Service (NACSIS-CAT/ILL)（p.31） ●Scholarly and Academic Information Division, CAT/ILL Desk	catadm@nii.ac.jp	03-4212-2310	03-4212-2375
Education and Training（p.31） ●Scholarly and Academic Information Division	edu@nii.ac.jp	03-4212-2177	03-4212-2375
CiNii（p.32） ●Scholarly and Academic Information Division, CiNii Desk	ciniiadm@nii.ac.jp	03-4212-2300	03-4212-2370
SPARC Japan（p.33） ●Scholarly and Academic Information Division, SPARC Desk	sparc@nii.ac.jp	03-4212-2351	03-4212-2375
Public Relations / Media Relations（p.34） ●Planning Division, Publicity Team	media@nii.ac.jp	03-4212-2145	03-4212-2150
NII Library（p.35） ●Scholarly and Academic Information Division, Support Team, Library Desk	library@nii.ac.jp	03-4212-2142	03-4212-2180
Facilities / Location（p.40） ●General Affairs Division, General Affairs Team	soumu@nii.ac.jp	03-4212-2000	03-4212-2120

NII Inter-University Research Institute Corporation
Research Organization of Information and Systems
National Institute of Informatics

National Center of Sciences Bldg.
2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo 101-8430
TEL +81-3-4212-2000
http://www.nii.ac.jp/

NII Inter-University Research Institute Corporation
Research Organization of Information and Systems
National Institute of Informatics

2015

Introduction

The popularity of computer science has soared in the US in recent years. The number of students majoring in computer science at Stanford University is said to have increased to several hundred. At Stanford as well as some Japanese universities, students do not have to choose a major when they enroll, and are instead allowed to make the decision after taking a look at various disciplines. However, a big difference between Stanford and Japanese universities is that the number of places in each department at the Japanese universities is fixed. Therefore, if many students wish to take the same course, those that lose out must choose a different discipline. In contrast, Stanford University honors the students' wishes and accepts all students into their chosen discipline. This means that Stanford's computer science department has expanded greatly in recent years. There may be some debate about which method is ultimately best, but Stanford's approach certainly gives a sense of freedom that is typical of the west coast of North America.

The point that I would like to emphasize with this narrative is that when students look ahead to their own futures, many of them, without coercion from anyone, feel that they should study information technology (IT). There is no question that business services and scientific methods have changed remarkably as a result of IT. Consequently, the number of computer science graduates produced in the US is an order of magnitude greater than the number produced in Japan. In light of such a dramatic increase in demand for a grounding in IT, we at National Institute of Informatics (NII) wish to implement “full use of IT and IT education” in Japan, and address measures that will lead to more students learning the fundamentals of IT.

Together with this research and education, NII is also promoting the establishment of state-of-the-art academic information infrastructure. Budgetary steps were taken this financial year for upgrading the Science Information Network (SINET)—which connects universities and research institutions nationwide—to a 100 gigabit-per-second (Gbps) network and extending it across the whole of the country as well as between Japan and the United States, beginning in April 2016. This was strongly supported and endorsed by the Japan Association of National Universities (JANU), the Japan Association of Public Universities (JAPU), and the Federation of Japanese Private Colleges and Universities Associations (FJPCUA); the Science Council of Japan (SCJ) also granted its recommendation. The upgrading of SINET to 100 Gbps is the result of support received from many people, for which we at NII are sincerely grateful. We will push forward with the migration work during this financial year.

In contrast to SINET's current speed of 40 Gbps, the upgrading of networks to 100 Gbps is already well underway in Europe and the United States. This is why it is so significant that it is now possible to upgrade the whole of Japan to 100 Gbps and implement a world-class network. Today, with the phrase "big data" in frequent use, environments that can easily exchange vast amounts of data are vital at the forefront of science. This network enhancement will also make a major contribution to the adoption of cloud computing by universities. One survey has shown that the usage rate of approximately 75% of over 300,000 servers in operation in thousands of companies across the world is less than 5%, which suggests that consolidating university computer resources could greatly reduce costs. This reduction could also be expected to contribute to the trend toward accelerating the implementation of open science. Traffic flowing off-site will increase rapidly with the adoption of cloud computing, but this will be supported by the 100-Gbps SINET.

The basic concept of cloud computing is that users pay only for what they use, because in the beginning, they do not know how much they will need. Therefore, purchase agreements that differ from conventional server procurement are required, and it appears that even in the US, this aspect of cloud computing remains disordered. NII is considering developing proper templates for such procedures. Going beyond the level of simple network connections, we will make increased efforts toward implementing various services with diverse academic institutions, in the spirit of "thinking together, creating together."

NII is one of very few institutions in the world to simultaneously operate a venture such as SINET and conduct fundamental informatics research. Recently, in the field of IT, there has been a tendency to emphasize only a "by IT" approach, but we would like to balance this with an "of IT" approach and strengthen our agile research system. This financial year, we opened a new research center called the “Cloud Infrastructure R&D Center,” as well as the “Cyber Security Preliminary Center”—a preparatory-stage organization aimed towards establishing a future center. By chance, the US National Science Foundation (NSF) has launched a new $10 million research project in cloud computing. Cloud resources have previously been received from cloud vendors, but this project is very different in that it initiates cloud research at universities. Cloud research could be said to have entered its second stage. At NII, we also want to promote a totally different kind of next-generation cloud research.

Please take a look at NII's activities and let us know what you think. We thank you for your continued support.

April 2015
Director General,
National Institute of Informatics
Masaru Kitsuregawa

Contents

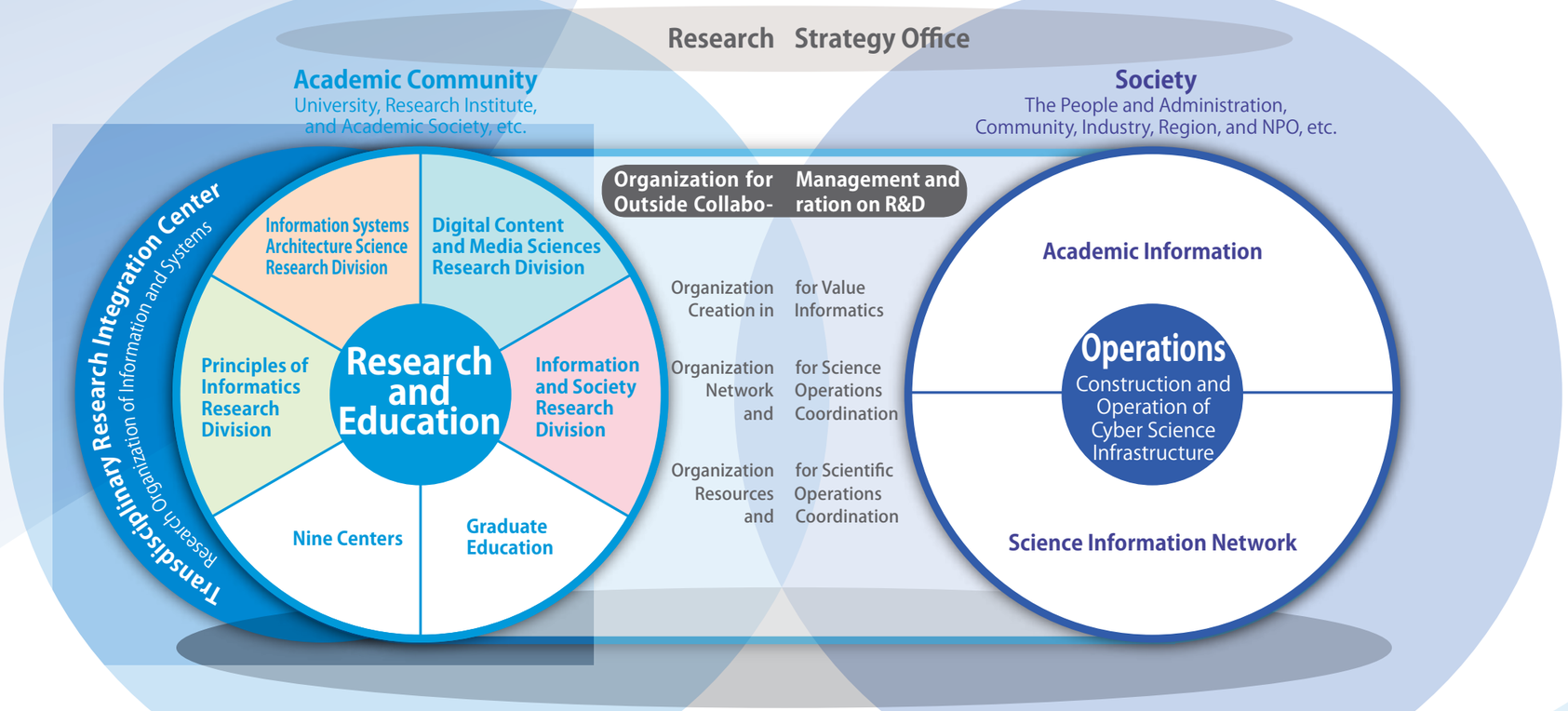
Inter-University Research Institutes

Inter-University Research Institute Corporations are Japanese research institutes that facilitate joint university research. As research institutes that cover a range of fields and can be used by all universities, the Inter-University Research Institute Corporations provide free of charge to researchers nationwide the kind of large, cutting-edge equipment, tremendous volumes of academic data, high-value data, and analytical procedures that individual universities would have difficulty maintaining.

The National Institute of Informatics was established in 2000 and was incorporated into the Research Organization of Information and Systems, an Inter-University Research Institute Corporation, in 2004.

Future Value Creation through Informati cs 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.



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

Research

Seeking to establish a new academic discipline through the promotion and systemization of a wide range of 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.

Partnerships between industry, academic and government sectors

NII encourages close partnerships between universities, public research institutions and private institutions to conduct project-based joint studies, as well as human resource development and to promote the utilization of its research results in society.

Interdisciplinary information processing

To further the development of new domains through synergistic efforts between cross-functional interdisciplinary research and diverse academic disciplines, NII undertakes cross-functional transdisciplinary integration research at the Transdisciplinary Research Integration Center of the Research Organization of Information and Systems.

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.

International exchange

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.

Social contribution

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.

Graduate education and human resource development

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.

Advancing Integrated Research and Education in the Field of Informatics

"Informatics" is a new academic discipline that includes not only computer science and information technology, but also the human, social, and life sciences. NII advances informatics research aimed at creating future value and contributing to society and public, as well as promoting interdisciplinary approaches to information processing, cooperation between industry, government, and academia, and international research/business activities.
Because informatics is a broad field, NII conducts its research through four research divisions. NII also has nine research centers, as well as a unit for management and outside collaboration on R&D, and it has established a framework that facilitates interdisciplinary collaboration by eliminating barriers between divisions and centers.
In addition, NII advances projects aimed at making specific contributions to society on topics such as artificial brains, cyber-physical integrated IT infrastructure, and large graphs.

Research Division

Principles of Informatics Research Division

We conduct research aimed at establishing new principles and theories in informatics, and opening up new fields of study.

Information Systems Architecture Science Research Division

We conduct research into the architecture and systems behind computers, networks and other forms of hardware and software.

Digital Content and Media Sciences Research Division

We conduct research into methods of analyzing, generating, storing, using and processing text, images and various other content and media, from theories to actual systems.

Information and Society Research Division

We conduct interdisciplinary research combining information and systems technology with human and social sciences, for a society in which the information world merges with the real world.

Research Center

Research and Development Center for Academic Networks

Develops and offers new services and fuctions for increasing the operational efficiency of the Science Infomation 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 "ReaD&Researchmap".

Global Research Center for Quantum Information Science

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

Global Research Center for Cyber-Physical Systems

Promote researches on cyber and physical(real) world collaboration aiming at solving social issues and creating new values through the research.

Global Research Center for Big Data Mathematics

Engaged in cutting-edge research and human capital development to establish NII as a world-class hub for Big Data Mathematics with a central focus on developing high-speed algorithms.

Center for Cloud Research and Development

Upon the updating of the Science Information NETwork (SINET), we established a cloud-based cutting-edge science information platform to promote research and education, and support university reform.

Center for Detaset Sharing and Collaborative Research

Establish and Provide datasets useful for informatics research, research and develop platforms for using datasets, and conduct research on joint use in informatics.

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.

Principles of Informatics Research Division

Current Research Topics of Reseach Staff of NII

Mathematical Informatics

Takuya Akiba	Algorithms and data structures for large-scale data processing/algorithm engineering/ empirical algorithmics
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
Ryota Kobayashi	Data mining / Computational neuroscience / Machine learning
Ken Hayami	Numerical Analysis, Numerical Linear Algebra / Development and analysis of iterative methods for large systems of linear equations, least squares problems / Numerical solution of inverse problems
Yuichi Yoshida	Property testing / sublinear time algorithm / constraint satisfaction problem / approximation algorithm

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

Shoko Utsunomiya	Coherent Ising machine using a laser network / Quantum information processing and quantum computing
Kae Nemoto	Quantum information/computation / Quantum optics / Theoretical physics
Keiji Matsumoto	Quantum information and computation

Material and Life Informatics

Hiroko Satoh	Chemoinformatics / Computer chemistry / Molecular modeling / Data chemistry
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 / Systems biology / Systems resilience
Nobutaka Ono	Blind signal separation / Microphone array / Acoustic signal processing
Ken Satoh	Multi-agent Systems under Incomplete Information EnvironMulti-agent Systems under Incomplete Information Environment / Juris-Informaticsment / Juris-Informatics
Hideaki Takeda	Knowledge sharing system / Semantic Web / Design theory

Information Systems Architecture Science Research Division

Current Research Topics of Reseach Staff of NII

Network Architecture

Shunji Abe	Researches on performance analysis based on communication traffic measurement and QoS control method / Researches on mobile IP communication
Hiroki Takakura	Cybersecurity / Highly-reliable network / Anomaly detection
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
Takashi Kurimoto	Network system architecture / Network protocol
Yusheng Ji	Resource allocation and quality of service in communication networks / Network traffic modeling and analysis / Wireless ad-hoc and sensor networks

Computer Architecture

Kento Aida	Parallel and distributed computing / cloud computing / grid computing
Michihiro Koibuchi	Computer system networks / On-chip multiprocessor networks / Large-scale high-performance computing systems
Masahiro Goshima	Processor Architecture / Memory Architecture / Digital Circuit Technology
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
Kanae Tsushima	Programming languages / functional programming / program debugging /development support

Software Engineering

Kazunori Sakamoto	Software Testing / Source Code Analysis and Transformation / Programming Language / Programming Education
Shin Nakajima	Dependable Software Engineering / Formal Methods / Model-Checking
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	Software architecture / self-adaptive system

Digital Content and Media Sciences Research Division

Current Research Topics of Reseach Staff of NII

Foundations of Content Management

Fuyuki Ishikawa	Description, analysis, and guarantee of functions and quality in the integration of Web services / Description, analysis, and verification of requirements and specifications in software development
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	text and sensor data mining / structual pattern matching / cyber-physical database system
Akihiko Takano	Informatics of Association / Algebra of Programming
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	Data analysis of web user behavior and improvement of access to information / Web information retrieval technology / Full text search technology
Yusuke Miyao	Syntactic parsing, semantic parsing / Information extraction / Information retrieval
Junichi Yamagishi	Speech information processing / speech-based human machine interaction / speech-based assistive technology

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
Kenshi Takayama	Computer Graphics / user interface / geometric modeling
Gene Cheung	3D imaging / immersive visual communication / graph signal processing
Yinqiang Zheng	3D Reconstruction, Photometric Computer Vision、Hyperspectral Imaging
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	Image Learning Ontology / Semantic / Collective Intelligence / MindFlow / Social Project Management
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 / Intelligent Interactive Systems
Yi Yu	Multimedia content analytics /multimedia service / multimedia data mining

Information and Society Research Division

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	Stereoscopic displays / Acoustic rendering systems / Similarity search for 3D models
Takayuki Mizuno	Statistical analysis, modeling, prediction and control of socioeconomic phenomena based on big data / Econophysics

Science Information

Yuan Sun	Development of multidimensional assessment methods for university research and education evaluation / Research on how to diagnose and support learners in web-based learning environments
Masaki Nishizawa	Quantitative investigation of academic research findings in media report Articles/ Investigation study on network structure of information sciences related research and its trends/ Empirical analyses on network for industrial-government-university cooperation in Japan/
Masako Furukawa	Higher-level utilization of educational resources / Development and evaluation of e-learning materials / Learning analytics and standardization

Information Public Policy

Hitoshi Okada	Research on Critical Growth Factors of E-Commerce and E-Money / Research on University Information Security Policy Portal (UISPP)
Tetsuro Kobayashi	Political communication / Political psychology / Mediated communication
Noboru Sonehara	Research on spatiotemporal privacy-protection framework / Human and society data commons

Principles of Informatics Research Division

Close Up!

Applicable to webpage rankings

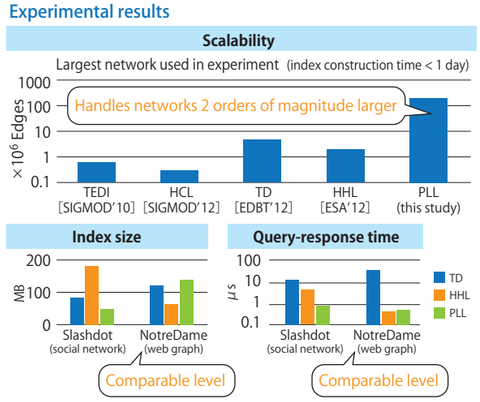
Fast and accurate shortest-path queries in large complex networks

Yuichi Yoshida

A shortest-path query asks for the distance between two specified points in a given network. Shortest-path queries have wide application in, for example, rankings using pages currently being viewed in web searches, rankings using friendships in social networks, and analyzing the properties of these networks. Focusing on these networks in particular, our research aims to develop a method that achieves a better trade-off than existing methods with regard to pre-processing time, index size, and query-response time.

The index created using our method has an extremely simple structure. Specifically, for each vertex, the distances to several other vertices are saved. These are called the labels of that vertex. When two points, u and v, are specified as a query, a common vertex, w, is searched for among the labels of the two points. The distances between u and w and between v and w can be found using the labels, and the sum of these distances is outputted. A breadth-first search from all vertices would be the simplest way of creating the labels, but it is not practical, as the index would become extremely large. Therefore, our method introduces simple pruning. This pruning makes good use of the fact that complex networks have hubs, and this has enabled us to handle networks that are two orders of magnitude larger than those handled using existing methods.

Experimental results



Digital Content and Media Sciences Research Division

Close Up!

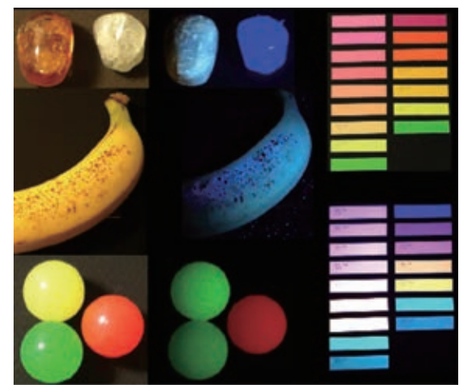
Towards novel development of visual media

Spectral analysis technology focused on fluorescent characteristics of objects

Imari Sato

The color and brightness of an object's surface varies dramatically, depending on the lighting conditions, and this is a major factor that makes object recognition using image processing technologies so difficult. In this regard, color-constancy research has proposed various algorithms for estimating an object's color with the effects of lighting removed; meanwhile, image synthesis research has proposed various techniques for accurately generating an object's appearance under complex light sources. Many of the computer vision technologies involved in estimating the appearance and color of objects assume that the surface of the target object consists of reflective components only. However, many of the objects around us, for example white paper, paints, and plants, contain not only reflective but also fluorescent components.

Our research focuses on the fluorescent characteristics that real objects possess, and by modeling the reflective components and fluorescent properties of target objects, reproduces the rich feel of the actual objects. In addition, we are working to develop an inverse rendering technique (a technique that acquires lighting models and object information (material/shape) from measurements of real scenes) based on the fluorescent properties of real objects. Through efficient modeling of the reflective/fluorescent properties of real objects from few measurements, we are investigating the estimation of detailed shapes using only images, and the estimation of the spectral characteristics of cameras and scene-lighting conditions from single images.



Information Systems Architecture Science Research Division

Close Up!

Parallel and distributed computing infrastructure

Implementing advanced information infrastructure using various network-based computing resources

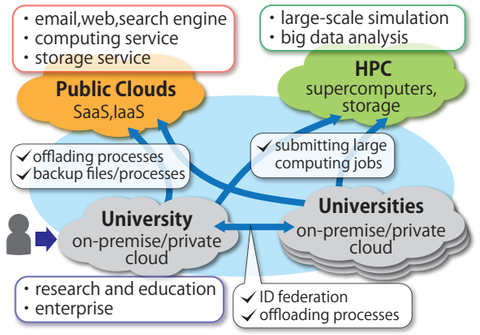
Kento Aida

Due to advances in computer and network technology, it is now possible to make use of various computing resources via networks. Our group is conducting research into parallel and distributed computing infrastructure (e.g., clusters, grids, and clouds) for integrated use of multiple network-connected computing resources. We are currently advancing the following research focusing on the Inter-Cloud, which allows integrated use of multiple clouds as shown in the diagram.

● Architecture: This research investigates parallel and distributed computing infrastructure architecture, and by developing software for creating and operating the Inter-Cloud as well as authentication software, it aims to realize computing infrastructure that allows anyone to easily use the Inter-Cloud.

● Scheduling: This research selects optimum computing resources for executing application programs on parallel and distributed computing infrastructure, and it investigates scheduling techniques to assign programs to the selected resources. Through algorithm and software development, it aims to maximize the infrastructure's computing power.

● Application: Our research places importance not only on infrastructure development, but also on research into application programs that can be executed on the infrastructure. By developing application programs that make effective use of computing resources within parallel and distributed computing infrastructure, this research aims to solve problems of optimization, simulation, and other unresolved application-related problems.



Information and Society Research Division

Close Up!

Connecting people and information access systems

Understanding interactive exploratory search processes and supporting users

Noriko Kando

Our research team is investigating the following:

· How do people search for information?

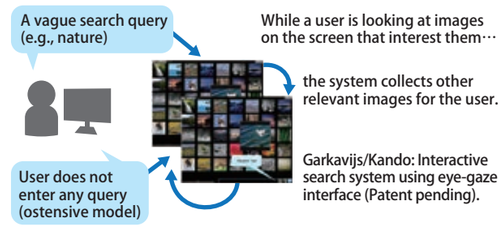
· What kind of functionalities are desirable for supporting users' information seeking?

· How can we evaluate the effectiveness and success of information seeking?

To many people, information seeking is a vital part of daily life, but the purposes of information seeking are varied, and it is not always possible to express what one wants to know as an explicit query. This is particularly true when investigating something in a field that one knows little about, or when investigating something vague. While searching on a broad theme, we gradually acquire knowledge and further our inquiry by comparing, analyzing, and combining information. We might sometimes search for fun without having a specific information needs in mind.

Our team looked at how users conduct searches when they have diverse information needs that cannot be expressed as short queries. On this basis, we have proposed various search user interfaces aimed at supporting users in interactive exploratory searches; for example, an "ostensive search model" that allows the user to begin a search without a query, multifaceted search, and a gaze-based search interface.

Gaze Learning Access and Search Engine, GLASE



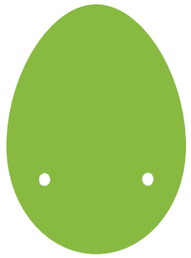
- The system estimates the user's interest from their gaze and continuously collects relevant images using continuous online learning to rank. It also follows changes and shifts in user interest during the search.
- In experiments, compared to a mouse-based system, the gaze-based system obtained 39% more feedback from users and found the desired images 13.7% faster.
- Possible applications include searches in which the user's feelings and impressions are important, searches in which the desired outcome cannot be expressed well in words, and support for users with physical or cognitive impairments.

Main Projects to Promote

Artificial Brain Project – Can a robot get into the University of Tokyo?

Project director : Noriko Arai

This project was launched mainly by NII to provide a dream for young people, aiming 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. When the robot took the practice examination of the National Center Test for University Admissions held by a major preparatory school in 2013, the results indicated that it has an 80% probability of passing exams for about 400 of about 800 universities. In 2014, the robot's scores in subjects such as Japanese and English improved, and its deviation scores of 54.2 and 50.5, respectively, were above average. The robot's overall score also improved to 47.3.



Todai Robot character

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.

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 systems (CPS) at a social 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.

In the "Cyber-physical Integrated IT Platform Project to Optimize Social Systems and Services" commissioned by the Ministry of Education, Culture, Sports, Science, and Technology, we are examining methods of managing and processing large amounts of CPS data derived from the real world, as well as conducting empirical testing of new IT platform technologies. We are also involved in one of the themes in the Strategic Innovation Promotion Program (SIP) implemented by the Cabinet Office, titled "Technologies for maintenance, renovation, and management of infrastructures," with the aim of making a specific contribution to society by providing an integrated management platform for infrastructure sensing data.

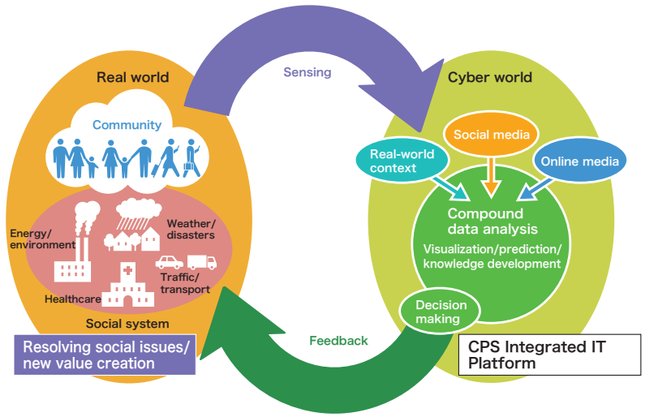
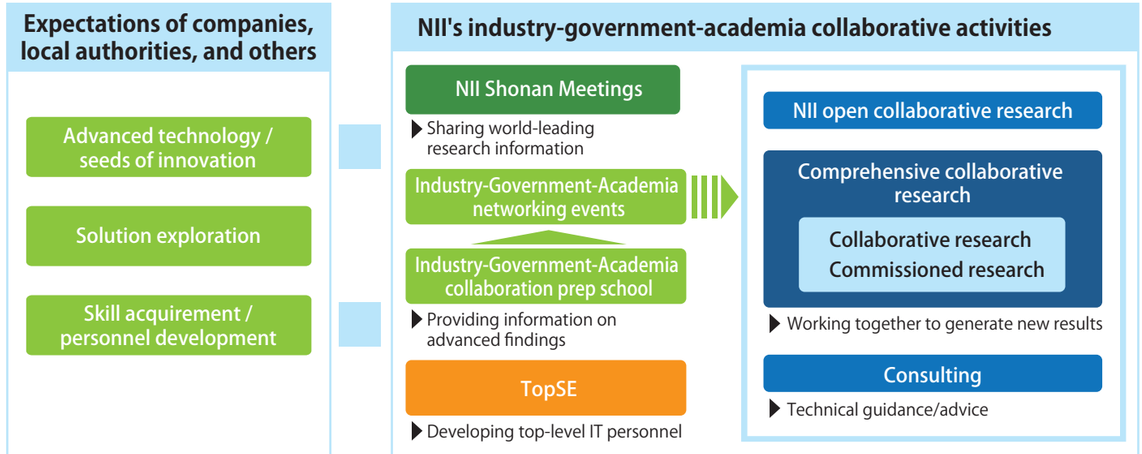


Figure: Social cyber-physical system (CPS)

Practical R&D and industry-government-academia collaborative activities

The National Institute of Informatics (NII) conducts research in the field of informatics and engages in information infrastructure projects with the aim of furthering practical R&D that will help solve various problems facing society. Collaborations between industry, government, and academia are vital in achieving these goals. In order to further strengthen such collaborations, NII promotes activities that help ensure that we meet the requirements of companies, local authorities, and others.



Action program for industry-government-academia collaboration

Expectations of companies, local authorities, and others.

Advanced technology / seeds of innovation

Decision-making support at research conception stage
To keep abreast of information from influential companies, research institutions, and researchers based on world-leading research and technology trends.

Research launch assessment/preparation
To determine the launching of research within the company, and make preparations for launch when priority is low.

Solution exploration

Outsourcing to promote research
To organize exchange of research personnel to supplement the system of research promotion. To make use of external research capabilities for research skills and know-how that cannot be covered within the company.

Multidisciplinary cooperation
To be involved in multidisciplinary cooperation regarding research challenges faced in the broad and diverse field of informatics.

Skill acquirement / personnel development

Development of research personnel
To develop future research personnel and acquire new research skills.

Development of personnel who contribute to business
To acquire advanced technical skills required for future business, and to develop personnel and skills in areas where they are lacking in terms of business promotion.

NII's industry-government-academia collaborative activities

NII Shonan Meetings
Proposal of seminar theme by corporate organizer

Industry-Government-Academia networking events
Networking/exchange of views based on advanced research themes

Industry-Government-Academia collaboration prep school
Fostering a collaborative mindset through introduction of cutting edge-research

Consulting by researchers
Problem solving through technical guidance and advice

NII open collaborative research
Searching for appropriate partners in academia according to research theme

Comprehensive collaborative research
Continuous cooperation on problems in diverse research fields

Collaborative research (including hosting of researchers)
Problem solving by bringing research resources together

Commissioned research
Providing research findings by commission from corporations and others

TopSE Education Program
Developing top-level IT personnel

Frame of Research Collaboration

NII actively promotes research funded by Grants-in-Aid for Scientic 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.

Taking on varied research challenges, from basic to applied research
Grants-in-Aid for Scientific Research (KAKENHI)

Grants-in-Aid for Scientific Research (KAKENHI) provide funding to support a wide range of academic research based on ideas devised freely by researchers, covering everything from basic to applied research. Staff and researchers actively apply for KAKENHI, and many have been 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.

Grants-in-Aid for Scientific Research (KAKENHI) received in fiscal 2014

	Number	Amount (thousands of yen)
Representative	94	326,604
Co-researcher (Other institution > NII)	43	63,603

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/

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. Research projects last for one year as a rule, but at the same time there is an option to extend some contracts over several years.

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

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.

Cooperative research with private institutions and other external bodies

	Number	Amount (thousands of yen)
FY2012	29	28,699
FY2013	45	50,177
FY2014	49	108,391

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

http://www.nii.ac.jp/research/kenkyou/jyutakukenkyuin/

We take on engineers and researchers currently working for private institutions and other external bodies, providing that they have graduated from university or are deemed to have reached an equivalent academic level. Essential overheads are covered under our research costs 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.

Cooperative researchers

	Number
FY2012	31
FY2013	42
FY2014	46

Paving the way for wide-ranging collaboration with researchers and conducting research aimed at creating value
NII open collaborative research

http://www.nii.ac.jp/research/collaboration/kyoudou#02

We accept proposals for collaborative research, with NII staff acting in a liaison capacity. We accept proposals every year for the following three types of open collaborative research.
- Strategic research proposals based on strategic themes set out by NII
- Proposals for research planning meetings aimed at paving the way for new collaboration or furthering existing research, through meetings at International Seminar House in Karuizawa
- Free proposals in which the applicant is free to set their own research theme

Researchers affiliated with a wide range of domestic institutions are eligible to apply for open collaborative research. That includes the option for staff members and graduate students to become collaborative researchers, as well as staff from private companies, universities and technical colleges (although the applicant may not be a graduate student.)
We are particularly keen on proposals for research planning meetings, so please collaborate with us in taking things to the next level.

Proposals accepted in fiscal 2014

	Number	%
Strategic research proposals	15	55.56%
Proposals for research planning meetings	14	100%
Free proposals	27	69.23%
Total	56	70.00%

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 since FY2004)

(as of March 2015)

Total Number

181	Attribution : Organization Attribution	170
	Attribution : Individual Attribution	11

Application Number

202	Domestic Number	163
	Foreign Number	39

Registration Number

62	Domestic Number	50
	Foreign Number	12

List of Japanese patents owned

(as of March 2015)

Patent	Registration number	Joint Patent
Apparatus, method and program for retrieving and displaying image information	4441685	
Quantum key delivering method and communication apparatus	4231926	
Time-series data analysis device, and time-series data analysis program	4734559	
Information-Sharing System, Information-Sharing Server, Information-Sharing Method, and Information-Sharing Program	4799001	●
Ultrasonic distance measurement system and method	4041899	
Sequential content delivery device, sequential content receiving device, and method therefor	4734563	
Contents presentation apparatus, contents presenting method and contents presentation program	4403276	
Text content presentation apparatus, text content presentation method and text content presentation program	4143628	●
Method and apparatus for evaluating communication traffic that uses fragmentray self-similarity process	4081552	
Imaging device and imaging method using out-of-focus structure	4437228	
Information resource retrieval device, information resource retrieval method and information resource retrieval program	4324650	
Active content distribution system, active content distribution program and active content distribution method	4392503	
Device and method for generating traffic congestion prediction information, and sroute search system	4729411	●
Content selling device and method	4304278	
Document indexing device, document retrieval device, document classifying device, and method and program thereof	4362492	●
Video provision device and method	4359685	
Projection image correction system and correction information generation program	4982844	
Digital content registration distribution apparatus, system and method	4956742	
Communication path apparatus for data driven processor having tree type diversion path and merging path, and packet transfer mode for data driven processor	5115922	●
Airing structure of three dimensional integrated electrical circuit and layout method therefor	5024530	
Quantum Key Distribution Method, Communication System, and Communication Device	4862159	
Time Reference Point Information Transmitting System and Receiver	4621924	
Quantum Repeater	5082039	●
Collection / Delivery Route Selection System	4374457	
Air conditioner for vehicle and its control method	5177667	●

Patent	Registration number	Joint Patent
Route Switching Method,Server Apparatus, Boundary Node Apparatus, Rout Switching System, and Switching Program	5062845	●
Direct path establishing method, server device, sender network node device, direct path establishment network, and program thereof	4999112	●
Path Management Control Method, Path Management Control Program, Path Management Controller and Path Management Control System	4806466	●
Intramemory data structure of finite automaton, memory storing data with the structure, and finite automation executing apparatus using the memory	5063780	●
Emission Allowance Trading System and Emission Allowance Trading Method	5207195	
Method and device for searching ambiguous frequent itemset	5267847	
Device and method for learning data management, and vehicle air-conditioning device and equipment control device	5224280	●
Virtual stereoscopic image display device and method of displaying virtual stereoscopic image	5263960	●
Quantum repeater, and system and method for generating extended entanglement	5296924	●
Distance measuring method, distance measuring receiving station equipment, and position measurement system	5305324	
Quantum computing device and method for Ising model	5354233	
Video display device	5373662	
Method and device for accelerating speed of successfully generating entanglement, and quantum repeater that uses the method and device	5414006	●
Quantum repeater, and system and method for generating extended entanglement	5414007	●
Information processing device, method, program, and recording media	5424306	●
Spoken language estimating device, method, and program	5544575	●
LSI arithmetic device and failure detection method for the same	5582472	
Measurement device, measurement system, and measurement method	5593062	
Information retrieval display device, method, and information retrieval display program	5599068	
Information retrieval display device, method, and information retrieval display program	5608950	
Information search display device, method and information search display program	5608951	
Information providing device, method, and program	5614655	●
Control server, control method, and control program	5682932	●
Doppler radar system, Doppler radar transmission device, and method for optimizing transmission wave	5704695	
Image collation device, image collation method and computer program	5713398	

List of registered trademarks

(as of March 2015)

Trademark mode	Registration number
N I I	4811291
Net Commons	4832775
picture+NET	4934163
NAREGI ※	4952143
トップエスイー	4943324
スマーティブ	4976131
WebELS	4980388
Net Commons	5182361

Trademark mode	Registration number
n c net commons	5152641
Commons Partners	5208443
NeXt Commons	5191260
researchmap	5261160
GRACE+picture	5275386
picture（grace）	5261216
picture(garce/NPO)	5279082
edubase	5296963

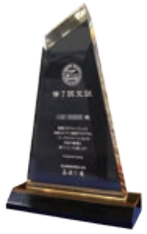
Trademark mode	Registration number
学認/GAKUNIN	5341899
NetCommons Ready	5369242
遷画	5490233
picture（パレット）	5498318
picture（学認/GAKUNIN）	5498319
picture（情報犬）	5538784
情報犬	5538785
picture（サイニィ /CiNii）	5580217

Trademark mode	Registration number
picture(ミカエル)	5600802
meQuanics	5622078
picture(GeoNLP)	5645544
SIGVerse	5649553
PrivacyVisor	5653596

* NAREGI is also a registered trademark in the United Kingdom and Germany (Registration Number: 4952143).

TopSE: Education services for developing top-level IT personnel

The GRACE Center offers the TopSE education program for people in industry in order to develop world-class IT engineers with specialized skills and the foresight to deal with societal changes.
Built on the concept of "intellectual manufacturing education based on science," TopSE is a practical education program that aims to cultivate software engineers with highly advanced development skills. Designed primarily for young corporate engineers and researchers, the program provides hands-on education centered on practical exercises.
To provide and disseminate practical education, the Center (1) conducts hands-on education in software engineering, (2) in a lecture/seminar environment suitable for group exercises, and (3) distributes the lectures.



TopSE Certification

Hands-on software engineering education

Students acquire the ability to apply knowledge obtained via cutting-edge software engineering research to real-world situations. Course teaching materials were developed through a system of collaboration between industry and academia, and cover a wide range of subjects from fundamental theory to cloud technology supporting big data analysis. These materials are presented by engineers working at the forefront of IT and talented researchers.

Cloud server room

Lecture/seminar environment suitable for group exercises

The lecture room is equipped with numerous projectors and a whiteboard wall for group exercises. There are also thin client terminals installed with the software required for the lectures, as well as a server for lecture recording and distribution. Students can watch lecture videos at home and remotely access the same terminal environment as the lecture room.

edubase Space classroom equipped with the latest IT

Distribution of lectures

TopSE lectures and software technology-related seminars are distributed using the devshinchi.jp website. The site synchronizes the lecturer's video and slides, and makes TopSE lectures available for anyone to watch for free.

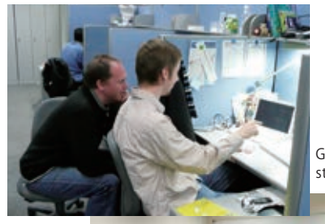
devshinchi.jp website

Graduate Education Activities

http://www.nii.ac.jp/graduate/index_e.html

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

Guidance for new students



Graduate students office

Lecture

Medal ceremony

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 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 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

(as of April 2015)

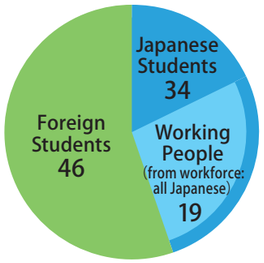
A five-year doctor course program	A three-year doctor course program	Research Student	Total
30 (20)	49 (25)	1 (1)	80 (46)

( ) Foreign students among total

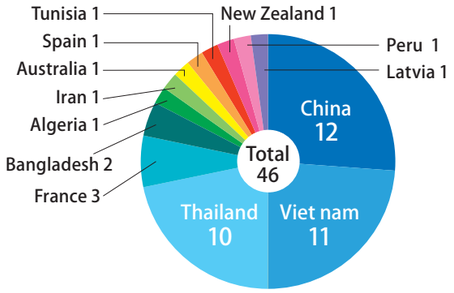
Students Data

(as of April 2015)

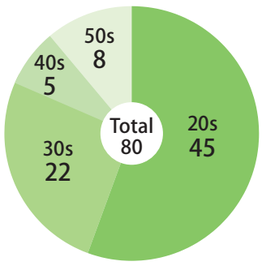
Current Students



Nationalities of Foreign Students



Age distribution



Career options

(past three years)

Year of Graduation	University/Institution	Company	Not yet determined	Total
FY2014	5 (3)	4 (3)	2 (2)	11 (8)
FY2013	7 (5)	0 (0)	2 (2)	9 (7)
FY2012	6 (1)	3 (0)	1 (0)	10 (1)

( ) Foreign students among total

Cooperation with Graduate Schools

NII actively cooperates with the University of Tokyo, Tokyo Institute of Technology, Waseda University, JAIST, Kyusyu Institute of Technoloty, The University of Electro-Communications and Tokyo University of Science. 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	FY2005〜
	Graduate School of Creative Science and Engineering	
	Graduate School of Advanced Science and Engineering	
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	
The University of Electro-Communications	Graduate School of Information Systems	FY2012〜
Tokyo University of Science	Graduate School of Science	FY2015〜

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

(FY2014)

University	
Keio University	Advanced Institute of Industrial Technology
Chiba University	University of Tsukuba
Chuo University	The University of Electro-Communications
The University of Tokyo	Tokyo Institute of Technology
Tokyo University of Science	Japan Advanced Institute of Science and Technology
École Polytechnique	Åbo Akademi University
Clermont-Ferrand Polytechnique	University of São Paulo
Royal Institute of Technology	Stanford University
University of Strathclyde	University of Chinese Academy of Sciences
Télécom ParisTech	Charles University in Prague
University of Bristol	Peking University
Berlin University of Applied Sciences	Free University of Berlin
Hong Kong University of Science and Technology	Massachusetts Institute of Technology
University of Southern California	

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

(FY2014)

Master Course	Ph.D. Course	Total
62	50	112

Contribution to Internationalization of Informatics

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.

Research Exchange with Universities and Institutions

(FY2014)

NII Internship Program	113 students from 20 countries
MOU Grant/ Non-MOU Grant	5 persons to 3 countries 43 persons from 21 countries

Intercommunication of researchers

(as of April 2015)

Program		Number of researchers
Japan Society for the Promotion of Science (JSPS)	Postdoctoral Fellowships for Foreign Researchers	4
	Postdoctoral Fellowships for Foreign Researchers (Short-term;for researchers from Western countries)	2
	Invitation Fellowship Program for Research in Japan	0

International Exchange Agreement

(as of April 1, 2015)

Country		Organization
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
	●	Tongji University
	●	School of Electronics Engineering and Computer Science, Peking University
	●	Hong Kong University of Science and Technology (HKUST)
	●	The School of Electronic, Information and Electrical Engineering, Shanghai Jiao Tong University
	●	University of Science and Technology of China
Taiwan	●	College of Electrical Engineering and Computer Science, National Taiwan University
Kingdom of Thailand	●	Chulalongkorn University
	●	Asian Institute of Technology
	●	Kasetsart University
	●	National Electronics and Computer Technology Center, National Science and Technology Development Agency (NECTEC)
Socialist Republic of VietNam	●	International Research Center MICA, Hanoi University of Technology
	●	Hanoi University of Science and Technology
	●	Vietnam National University of Ho Chi Minh City
	●	Vietnam National University, Ho Chi Minh City, University of Science
	●	Vietnam National University, Hanoi, University of Engineering and Technology
People's Republic of Bangladesh	●	University of Dhaka
Republic of Korea	●	Department of Computer Science and Engineering, Seoul National University
	■	Korea Education & Research Information Service
Republic of Singapore	●	School of Computing, National University of Singapore
Australia	●	The Australia-Japan Research Centre, The Australian National University
	●	National ICT Australia Limited (NICTA)
	●	The Faculty of Engineering, Physical Sciences and Architecture, The University of Queensland
	●	Faculty of Engineering and Information Technologies, The University of Sydney
	●	Smart Transport Research Centre, hosted by the Faculty of Built Environment & Engineering, Queensland University of Technology
United States of America	●	Department of Computer and Information Science, University of Michigan-Dearborn
	●	College of Engineering, Universi t y o f Washington, Seattle
	●	University Information Technology Services, Indiana University
	●	Department of Computer Science, University of Maryland
	●	New Jersey Institute of Technology
	●	International Computer Science Institute
	●	Reischauer Institute of Japanese Studies, Harvard University
	●	University of Southern California
	■	North American Coordinating Committee on Japanese Library Resources
	■	Institute for Scientific Information, Inc.
	■	Association of Research Libraries (ARL)
Canada	●	Faculty of Mathematics, University of Waterloo
	●	University of Alberta
	●	School of Computer Science, McGill University
	●	Simon Fraser University (SFU)
	●	Polytechnique Montreal
Argentina	●	Faculty of Exact and Natural Sciences, University of Buenos Aires
Ireland	●	University of Limerick
French Republic	●	Computer Laboratory Nantes Atlantique, University of Nantes
	●	National Institute for Research in Computer Science and Control(INRIA)
	●	Grenoble Institute of Technology(INPG)
	●	Joseph Fourier University(UJF)
	●	Laboratory of Computer Sciences, Paris6 (LIP6), Pierre and Marie Curie University
	●	National Polytechnic Institute of Toulouse(INPT)
	●	National Center for Scientific Research (CNRS)
	●	Paul Sabatier University(UPS)
	●	Claude Bernard University Lyon 1
	●	The University of Paris Sud
	●	The Electronics and Information Technology Laboratory (LETI)
	●	University of Nice Sophia Antipolis
United Kingdom of Great Britain and Northern Ireland	●	Department of Computer Science, Faculty of Engineering Science, University College London
	●	Faculty of Mathematics and Computing, Open University
	●	University of Bristol
	●	University of Bath
	●	Department of Computing, Imperial College London
	●	The Computing Laboratory, University of Oxford
	●	School of Computer Science & Electronic Engineering, University of Essex
	●	School of Informatics, The University of Edinburgh
	●	Newcastle University
Federal Republic of Germany	●	Faculty of Applied Informatics, University of Augsburg
	●	German Research Center for Artificial Intelligence (DFKI)
	●	Faculty of Applied Science, University of Freiburg
	●	Faculty of Mathematics, Computer Science and Natural Sciences, RWTH Aachen University
	●	German Academic Exchange Service (DAAD)
	●	Saarland University
	●	Faculty of Mathematics, Informatics and Statistics, University of Munchen
	●	Technical University Berlin
	●	Fraunhofer Institute for Open Communication Systems (FOKUS)
	●	Braunschweig University of Technology
	●	The Technische Universitat Munchen (TUM)
	●	Goora-August-Universitat Gottimgen
	■	University Library Center of North Rhine-Westphalia(HBZ)
	■	German National Library of Science and Technology
	■	German National Library of Medicine
Kingdom of the Netherlands	●	Faculty of Civil Engineering and Geosciences, Delft University of Technology
Republic of Austria	●	Vienna University of Technology
Republic of Italy	●	Department of Informatics, Torino University
	●	Electronics, Information and Bioengineering, Politecnico di Milano
Switzerland	●	Institute of Electrical Engineering, Ecole Polytechnique Federale de Lausanne
	●	The Idiap Research Institute (Idiap)
Finland	●	The Aalto University, School of Electrical Engineering
Czech Republic	●	Czech Technical University in Prague
Spain	●	Polytechnic University of Valencia(UPV)
	●	Technical University of Madrid
	●	Polytechnic University of Catalonia(UPC)
Portuguese Republic	●	Institute of Investigation and Development of Computer system,Engineering in Lisbon(INESC-ID)
	●	INESC Technology and Science (INESC TEC)
Arab Republic of Egypt	●	Egypt-Japan University of Science and Technology
Kingdom of Morocco	●	Rabat International University
EU	■	Delivery of Advanced Network Technology to Europe (DANTE)

●For research cooperation : 88
■For development and operational cooperation : 8

NII Shonan Meeting

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

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.
Fifty-seven seminars have been held to date, and August 2014 saw the launch of the NII Shonan School, intended primarily for top-level students and young researchers in the field of informatics.

*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.

Shonan Village Center

NII Shonan School

NII Shonan School participants

■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.

The Recent Topics of the NII Shonan Meetings

1. Knot theory: Algorithms, complexity and computation April 28-May 1, 2014, 20participants
2. Deep Learning: Theory, Algorithms, and Applications May 19-22, 2014, 28 participants
3. Software Contracts for Communication, Monitoring, and Security May 26-30, 2014, 25participants
4. Staging and high-performance computing: theory and practice May 27 – 30, 2014, 21participants
5. Water Disaster Management and Big Data July 7-10, 2014, 20participants
6. NII Shonan School on Coq August 25-29, 2014, 37participants
7. Algorithmic Randomness and Complexity September 8-12, 2014, 24 participants
8. Design Methods for Secure Hardware September 15-19, 2014, 21participants
9. Algorithms for Large Scale Graphs October 14-17, 2014, 18participants
10. Computational Intelligence for Software Engineering October 20-23, 2014, 17participants
11. Science and Practice of Engineering Trustworthy Cyber-Physical Systems (TCPS) October 27-30, 2014, 30participants
12. Towards Explanation Production Combining Natural Language Processing and Logical Reasoning November 27-30, 2014, 19participants
13. Integration of Formal Methods and Testing for Model-Based Systems Engineering December 1-4, 2014, 28participants
14. Big Graph Drawing: Metrics and Methods January 12-15, 2015, 29participants
15. Logical analysis of descriptions and their presentations a computational logic approach January 26-29, 2015, 20participants
16. Systems Resilience ? Bridging the Gap Between Social and Mathematical February 23 – 26, 2015, 24participants
17. Low level code analysis and applications to computer security March 2-5, 2015, 18participants
18. Static analysis meets runtime verification March 16-19, 2015, 26participants
19. Instruction and instructed action: Embodied reciprocity in interaction March 19 – 21, 2015, 18participants
20. The Future of Human-Robot Spoken Dialogue: from Information Services to Virtual Assistants March 26 – 28, 2015, 24participants

■NII Shonan Meeting Memorial Symposium

NII 湘南会議 SHONAN MEETING

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 three 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.

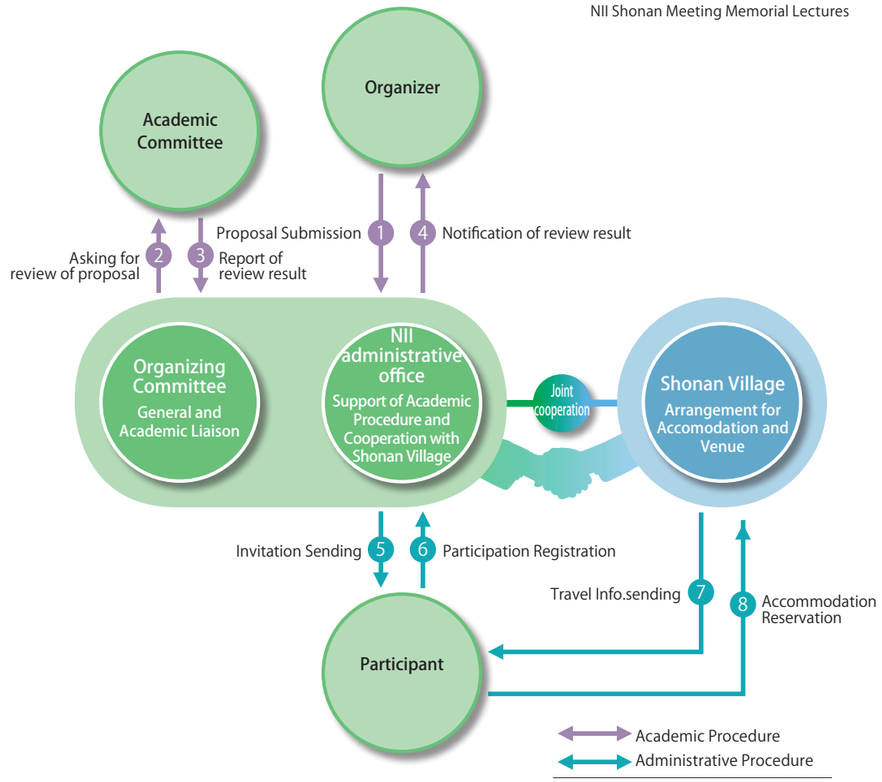
NII Shonan Meeting Memorial Symposium (November 2012)

■NII Shonan Meeting Memorial Lectures

In partnership with Kanagawa Prefecture and the Shonan Village Program Promotion Committee, and with assistance from Village Shonan, Inc., we have organized NII Shonan Meeting Memorial Lectures on four occasions to date, as part of our NII Shonan Meeting outreach activities.
We invite researchers with links to NII Shonan Meetings or NII itself to serve as guest speakers, delivering public lectures on the very latest research in the field of informatics.

NII Shonan Meeting Memorial Lectures

■Scheme



Call for proposals

We welcome your proposal any time through a whole year, although submission is closed on 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

Agreement with German Academic Exchange Service (DAAD)

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

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.

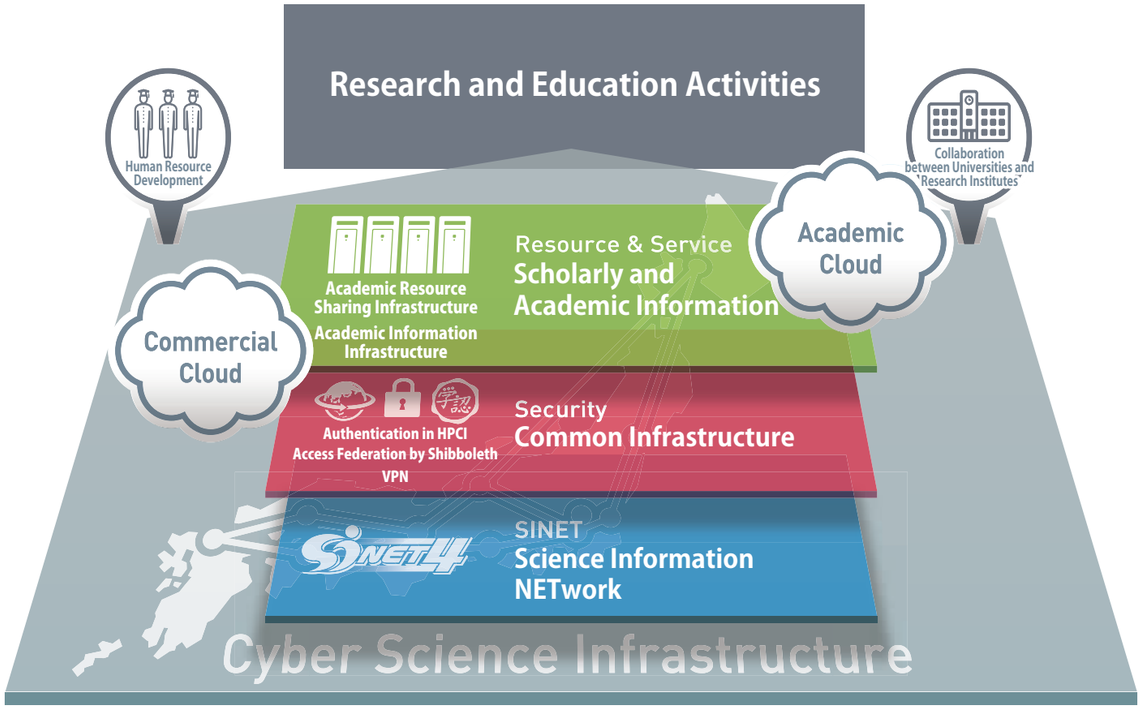
JFLI Establishment Agreement Signing Ceremony

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**



We will work in close collaboration and cooperation with universities and research institutions to facilitate the above, as we join forces with Japan's academic community to effectively implement the framework for advancing CSI construction.

Science Information Network moving into a new stage
From SINET4 to SINET5

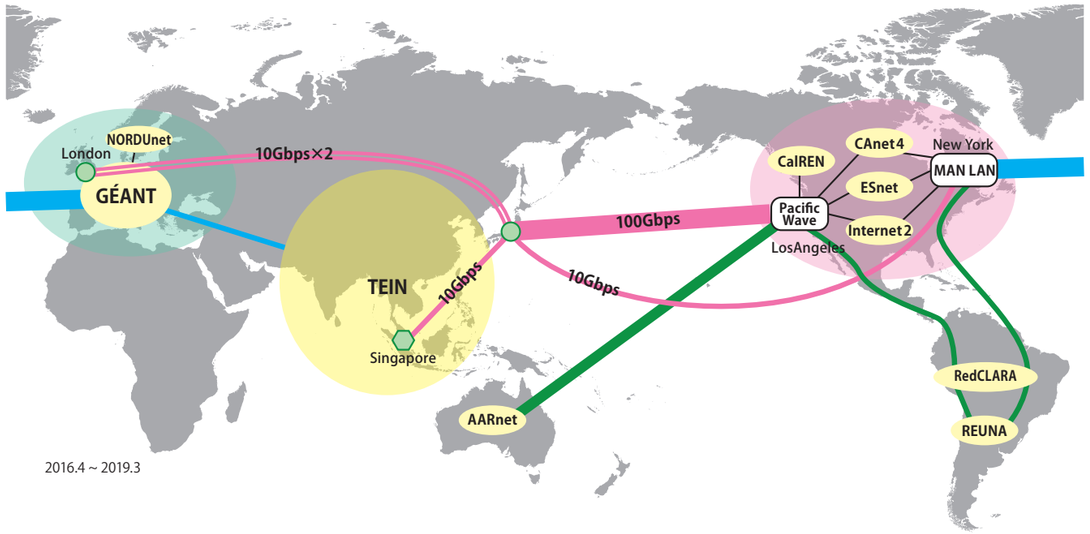
The Science Information Network (SINET) is an information and communication network connecting universities and research institutions throughout Japan via nationwide connection points (nodes). It is designed to promote research and education as well as the circulation of scientific information among universities, research institutions, and similar entities. SINET is also connected to research networks such as Internet2 in the U.S. and GÉANT 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).

Participating SINET Institutions

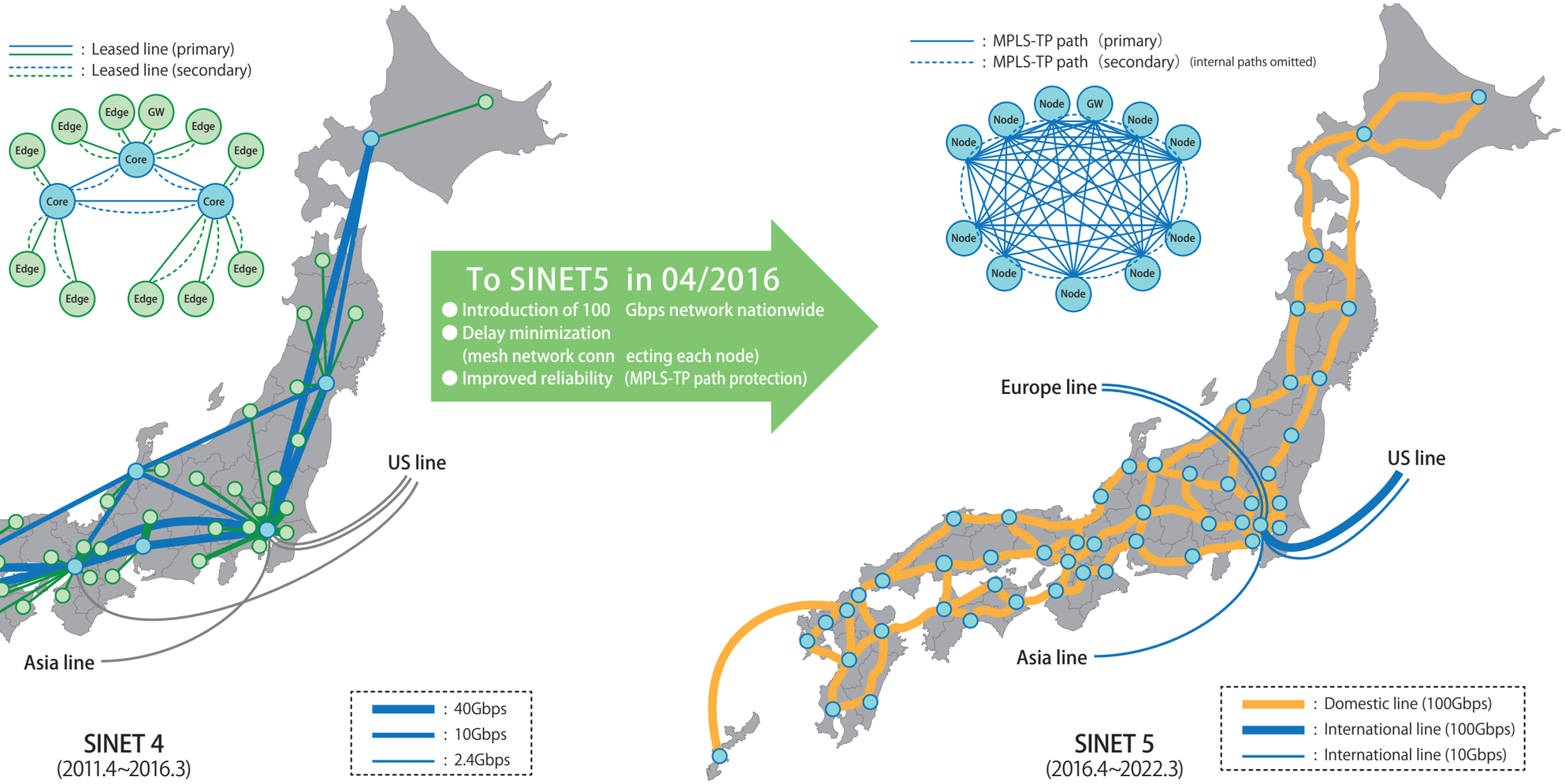
(as of March 31, 2015)

National universities	86
Municipal universities	71
Private universities	348
Junior colleges	62
Technical colleges	55
Inter-University Institutes	16
Others	179
Total	817

International network collaboration



2016.4 ~ 2019.3



SINET 4
(2011.4~2016.3)

To SINET5 in 04/2016

- Introduction of 100 Gbps network nationwide
- Delay minimization (mesh network connecting each node)
- Improved reliability (MPLS-TP path protection)

SINET 5
(2016.4~2022.3)

Science Information NETwork 5 (SINET5)

http：//www.sinet.ad.jp/

■Characteristics of SINET5

❶Maximum communication performance

SINET5 is composed of 100Gbps technology throughout Japan. It is an ultrahigh-speed network capable of supporting Japan's academic pursuits and accommodating the nation's increasingly sophisticated supercomputers and large experimental equipment.

❷Full international connectivity

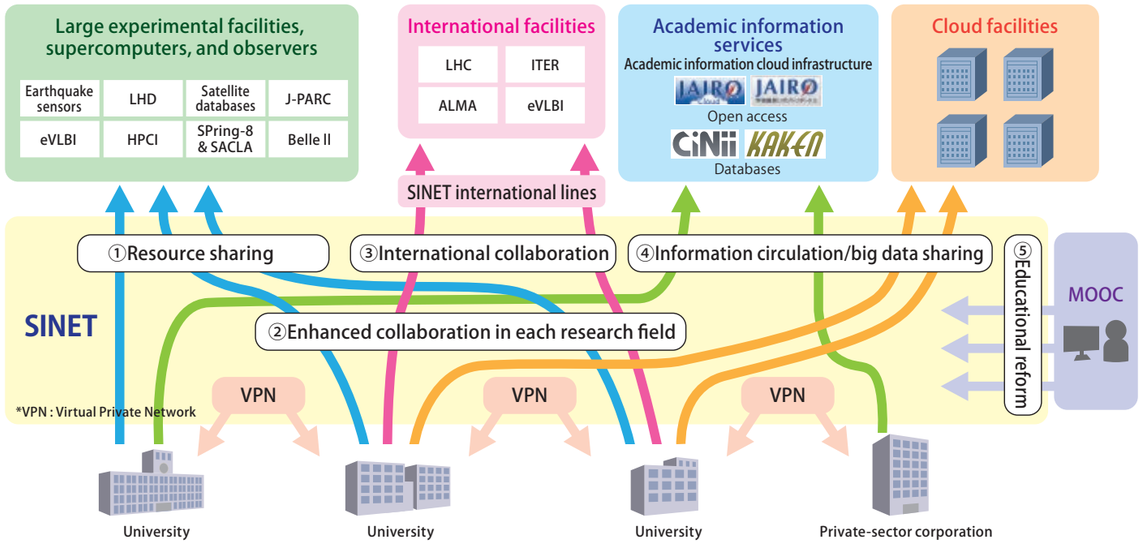
To accommodate Japan's telecommunication needs and to enable the country to maintain and increase its prominence in international joint research projects, SINET5 not only enhances connections with the US and Asia, but newly establishes a high-speed international connection with Europe.

❸Cloud infrastructure provision

With the aim of addressing the urgent issue of offering a cloud usage environment, SINET5 provides and implements the use/application of a cloud infrastructure that takes full advantage of the characteristics of the ultrahigh-speed network.

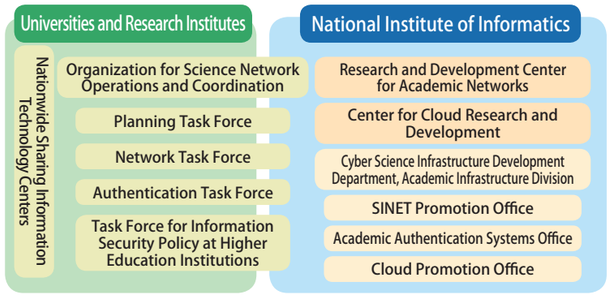
❹Secure, advanced research environment

To coincide with the provision of cloud infrastructure, security and authentication are enhanced for safe and convenient use of the cloud on SINET. SINET5 also establishes, in conjunction with advanced IT R&D, infrastructure for retrieving and utilizing academic information, which has traditionally been provided by universities and other institutions and which will rapidly increase and diversify in the future.



Organization for Science Network Operations and Coordination

The administration of the Science Information Network is done in collaboration and cooperation between nationwide sharing information technology centers 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.



SINET Network Servises

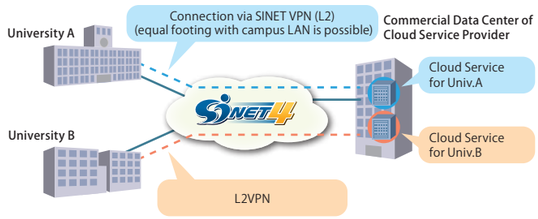
SINET5 provides ultrafast interfaces, such as 100GE and 40GE. Also, in conjunction with expanding network service functions, various new services such as campus VLAN connections between multiple locations and Massively Multi-Connection FTP (MMCFTP) are being considered in order to build secure, advanced research environments in universities and research institutions.

Service menu		SINET4	SINET5	Notes
Provided interface	E/FE/GE (T)	◎	◎	
	GE (LX)	◎	◎	
	10GE (LR)	◎	◎	
	40GE(LR4)	×	◎	
	100GE(LR4)	×	◎	
Layer-3 Service	Internet Access (IPv4 & IPv6)	◎	◎	
	Full Routes	◎	◎	
	IP Multicast (+QoS)	◎	◎	
	Application-based QoS	◎	◎	
	L3VPN (+QoS)	◎	◎	
Layer-2 Service	L2VPN/VPLS (+QoS)	◎	◎	
	L2 On-Demand	trial	Under review	
	NSI	trial	Under review	
Layer-1 Service	L1 On-Demand	◎	×	Due to upgrade to 100 G, integration with L2 on-demand is under review
	Lambda Leased Line	×	◎	Provided at expense of user
Performance Measurement Service	Performance Measurement	◎	◎	
	Traffic Information per User Circuit	◎	◎	
	Network Usage per VPN, etc.	×	◎	
	DDoS Attack Detection	trial	trial	Goals include notification and emergency evacuation
New Services	Campus VLAN Connections between Multiple Locations	×	◎	
	Massively Multi-Connection FTP (MMCFTP)	trial	◎	
	Cloud Collaboration	×	◎	Including Intercloud

Cloud collaboration

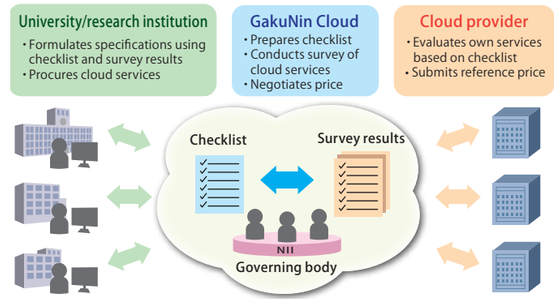
Direct connection with commercial cloud

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. SINET users can build private clouds and use these services.
http://www.sinet.ad.jp/service/other/cloud_services/



GakuNin Cloud

GakuNin Cloud matches the cloud needs of universities and research institutions with cloud providers' new technologies to implement advanced cloud-based research and education infrastructure.
http://cloud.gakunin.jp/

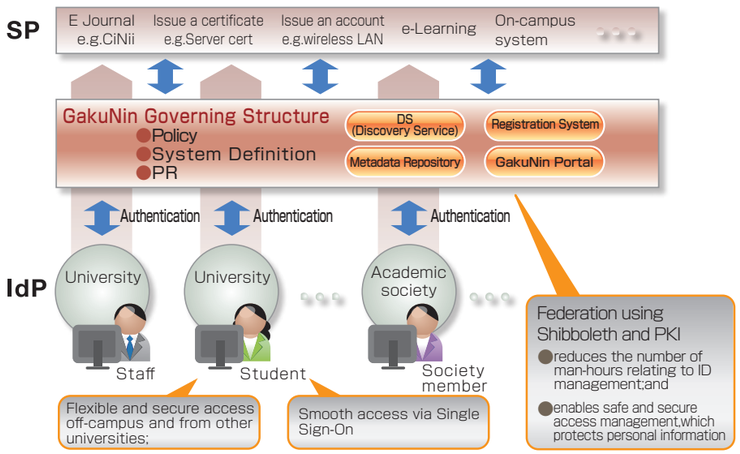


Establishment of Authentication Infrastructure

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



Participants

(as of March 2015)

IdP：Identity Provider	161
SP： Service Provider	131

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.
- Supports client certificate authentication and multi-factor authentication (integrated management of security level)

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 specified in the trust framework of the Federal Identity, Credential, and Access Management 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).

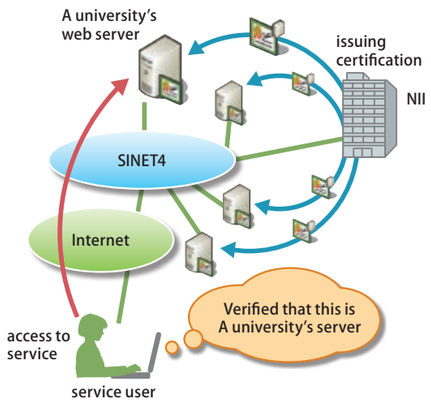
Digital certificates: The UPKI Digital Certificate Issuance Service https://certs.nii.ac.jp/

NII started the UPKI Digital Certificate Issuance Service, an operation issuing digital certificates aimed at universities and research institutions, in January 2015. In addition to earlier server certificates, the service now issues client certificates and code-signing certificates. As before, the server certificates are highly secure and conform to the unified international Web Trust for CA (WTCA) standard. The use of server certificates improves web security by proving that the provider of a web server (domain name and organization name) is legitimate and making them easy to distinguish from phishing websites. The UPKI Digital Certificate Issuance Service also issues client certificates to members of institutions for authentication, signing emails, and other uses. These certificates can be used for multifactor authentication and prevention against identity theft. Additionally, signing software using code-signing certificates confirms the authenticity of the developer and guarantees the integrity of the software, giving users peace of mind when using the software. By providing these certificates at a low price and having them put into use, the UPKI Digital Certificate Issuance Service will improve the security of universities and research institutions across the board.

Institutions using the UPKI Digital Certificate Issuance Service

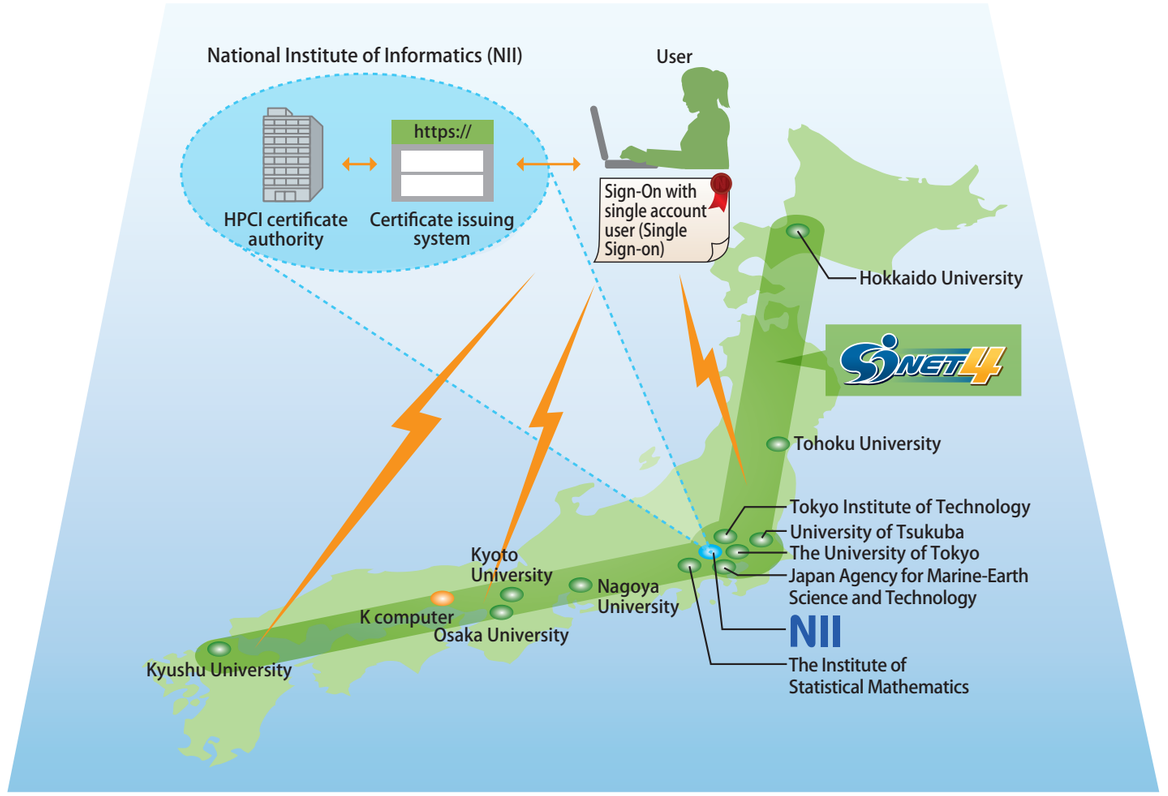
(as of March 31, 2015)

Number of target institutions for issuance	177
Number of target domains	254



Operation of the Authentication Infrastructure and network infrastructure for 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 a 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 sign up 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 the HPCI for using remote supercomputers and sharing large experimental data.



Support for Linkage between Institutional Repositories

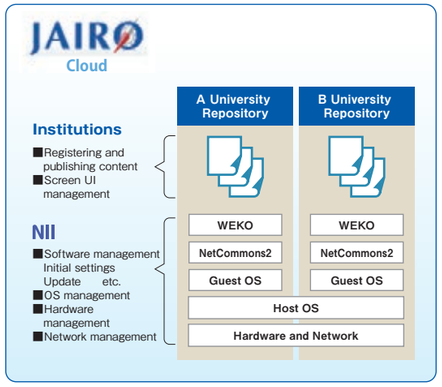
http://www.nii.ac.jp/irp/en/

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 500 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

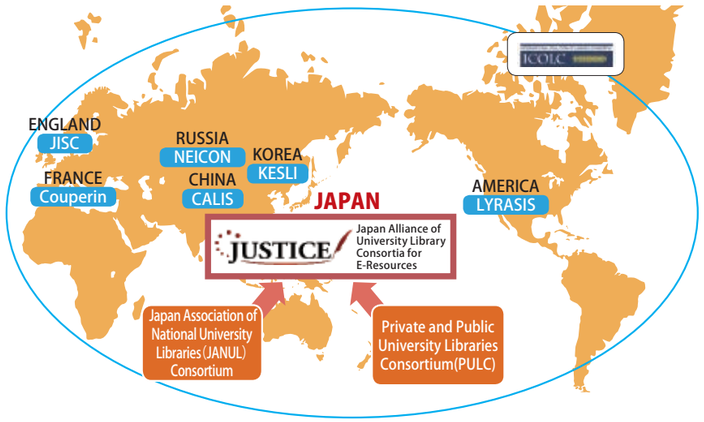
(as of March 2015)

Institutions using the service
263

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 over 500 participating national, public 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.

■NII-REO (NII Electronic Resource Archives) http://reo.nii.ac.jp/index_en.html
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 university libraries.

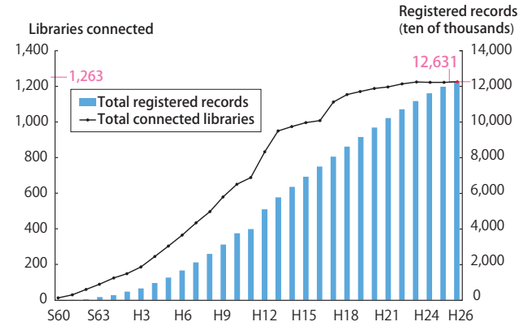
Catalog Information Service

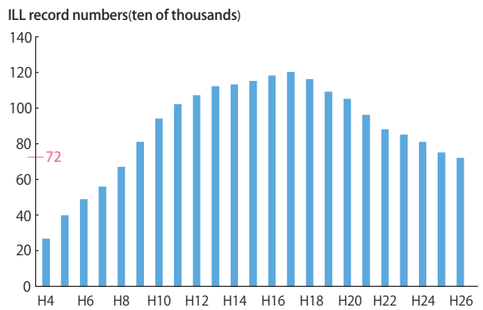
http://www.nii.ac.jp/CAT-ILL/en/

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 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).

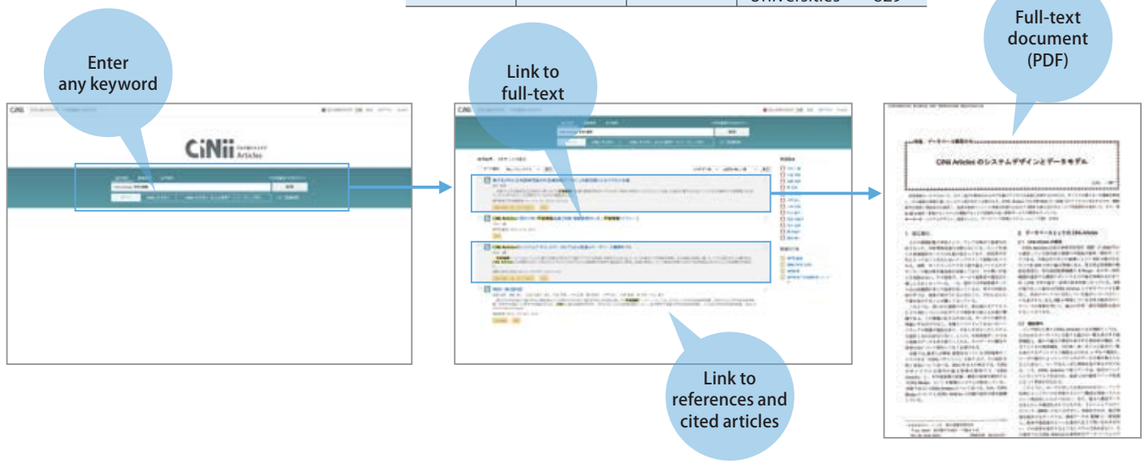
■NII Electronic Library Service (NII-ELS)

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

Collection Status

(as of March 31, 2015)

# of article information	NII-ELS		
	# of full text documents	# of periodicals	# of academic societies and universities
18.73 million	4.16 million	4,933 (full text)	Academic societies 440 Universities 829



CiNii Books －Searching for books in university libraries－

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

CiNii Books is a service that enables searching of information on books and journals that are held in university libraries in Japan.
It is possible to search for about 10 million titles held in 1200 university libraries (totaled over 100 million books), and about 1.5 million authors of these books that has been accumulated through the online cataloging system (NACSIS-CAT) which NII provides. It is available for anyone without registering.

Collection Status

(as of March 31, 2015)

# of book and journal information	# of holding information	# of member libraries
11.04 million	130.98 million	1,263

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, 2015)

Research themes
760,000

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, 2015)

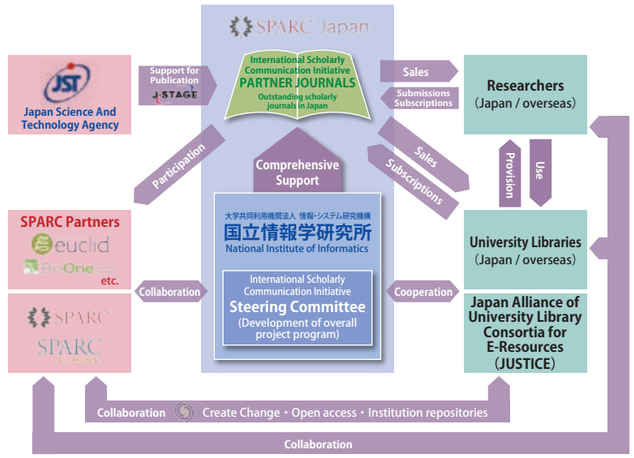
Institutional Repositories	Contents
457	2,000,000

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.

International Scholarly Communication Initiative



>>> 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.

NII Open House (June, 2014)

Exhibitions

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

Library Fair & Forum (November, 2014)

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

NII Series (Maruzen Library)

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 (February, 2015)

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, 2014)

Public information magazine

- NII Today (Japanese/English)
- Catalogue of NII (Japanese/English)
- Outline of NII (Japanese/English)
- Annual Report (Japanese)
- NII SEEDs - A collection of break-through "research seeds" by NII researchers
- Getting to Know NII with Info Dog "Bit-kun"

NII Today (Quarterly)

Getting to Know NII

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
- **Email Newsletter** http://www.nii.ac.jp/mail/

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.

Inventory, Magazine titles

(as of April 2014)

Document type	Books	Bound journals	Journals (in title)
Domestic Documents	14,757	9,497	243
Foreign Documents	13,952	8,217	22
Total	28,709	17,714	265

Major online journals and databases

Service	Publisher
ACM Digital Library	Association for Computing Machinery
APS online	American Physical Society
CUP online	Cambridge University Press
IEL	IEEE, IEE
MathSciNet	American Mathematical Society
OUP online	Oxford University Press
Springer Link	Springer
Science Direct	Elsevier B.V.
Wiley Online Library	John Wiley & Sons.
IEICE	The Institute of Electronics, Information and Communication Engineers
IPSJ Digital Library	Information Processing Society of Japan

Facility, Equipment

	Reading room	Stack room
Area	140㎡	271㎡
Seats	8	3
PC for search	2	—
Other equipment	Automatic Book Circulation Machine	
	Micro reader printer	
	Copier	

Reading Room 1

Reading Room 2

Subscribed journals

Organization / Staff / Budget

Organization Chart

(as of April 2015)

Director General

- Adovisor to the Director General
- Adovisory Board

Research Strategy Office — **Deputy Director General**

- Global Liaison Office
- Pre & Post Research Center Group

Research Division

- Principles of Informatics Research Division
  - Mathematical Informatics: Takuya Akiba, Takeaki Uno, Ken-ichi Kawarabayashi, Ryota Kobayashi, Ken Hayami, Yuichi Yoshida
  - Mathematical Logic: Makoto Kanazawa, Makoto Tatsuta
  - Quantum Information: Shoko Utsunomiya, Kae Nemoto, Keiji Matsumoto
  - Material and Life Informatics: Hiroko Satoh, Asao Fujiyama
  - Intelligent Informatics: Ryutaro Ichise, Tetsunari Inamura, Katsumi Inoue, Nobutaka Ono, Ken Satoh, Hideaki Takeda
- Information Systems Architecture Science Research Division
  - Network Architecture: Shunji Abe, Hiroki Takakura, Kensuke Fukuda
  - Information Network: Shigeo Urushidani, Takashi Kurimoto, Yusheng Ji
  - Computer Architecture: Kento Aida, Michihiro Koibuchi, Masahiro Goshima, Hiromichi Hashizume
  - Software infrastructure: Ichiro Satoh, Kanae Tsushima, Soichiro Hidaka, Zhenjiang Hu
  - Software Engineering: Kazunori Sakamoto, Kenji Tei, Shin Nakajima, Shinichi Honiden, Nobukazu Yoshioka, Tomohiro Yoneda
- Digital Content and Media Sciences Research Division
  - Foundations of Content Management: Fuyuki Ishikawa, Isao Echizen, Norio Katayama, Hiroyuki Kato, Atsuhiro Takasu, Akihiko Takano, Kazutsuna Yamaji
  - Text and Language Media: Akiko Aizawa, Jun Adachi, Keizo Oyama, Yusuke Miyao, Junichi Yamagishi
  - Pattern Media: Asanobu Kitamoto, Kazuya Kodama, Imari Sato, Shin'ichi Satoh, Akihiro Sugimoto, Kenshi Takayama, Gene Cheung, Yinqiang Zheng, Hiroshi Mo, Duy-Dinh Le
  - Human and Knowledge Media: Kenro Aihara, Frederic Andres, Ikki Ohmukai, Helmut Prendinger, Mayumi Bono, Seiji Yamada, Yi Yu
- Information and Society Research Division
  - Information Use: Noriko Arai, Kouichirou Ueki, Noriko Kando, Hironobu Gotoda, Takayuki Mizuno
  - Science Information: Yuan Sun, Masaki Nishizawa, Masako Furukawa
  - Information Public Policy: Hitoshi Okada, Tetsuro Kobayashi, Noboru Sonehara

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 Mathmatics
- Center for Cloud Research and Development
- Center for Detaset Sharing and Collaborative Research

Organization for Management and Outside Collaboration on R&D

- Organization for Value Creation in Informatics
- Organization for Science Network Operations and Coordination
- Organization for Scientific Resources Operations and Coordination

Cyber Science Infrastructure Development Department

- Academic Infrastructure Division
  - Coordination, Infrastructure & Liaison Team
  - SINET Team
- Scholarly and Academic Information Division (NII, Library)
  - SINET Promotion Office
  - Academic Authentication Systems Office
  - Cloud Promotion Office
- Library Liaison Cooperation Office
  - Library Support Team
  - Academic Content Team
  - Research Products Team
- Advanced ICT Center
  - Content system, Development Office
  - Academic Repository Office

General Affairs Department

- Planning Division
  - Planning Team
  - International Affairs and Education Support Team
  - Publicity Team
- Office for Social Collaboration
  - Collaboration Support Team
  - FIRST Support Team
- General Affairs Division
  - General Affairs Team
  - Personnel Affairs Team
- Budget and Accounts Division
  - Finance and Accounting Team
  - Procurement Team

Staff

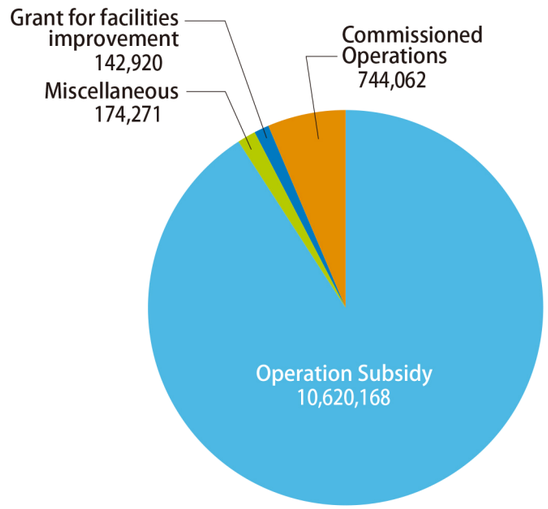
(as of April 2015)

	Director General	Deputy Director General	Professors	Associate Professors	Lectors	Assistant Professors	Subtotal	Other Employees	Total
Full-time Employees	1	2	31	33		12	79	56	135
Specially Appointed Professors			14	8	2	14	38		38
Support Staff									160

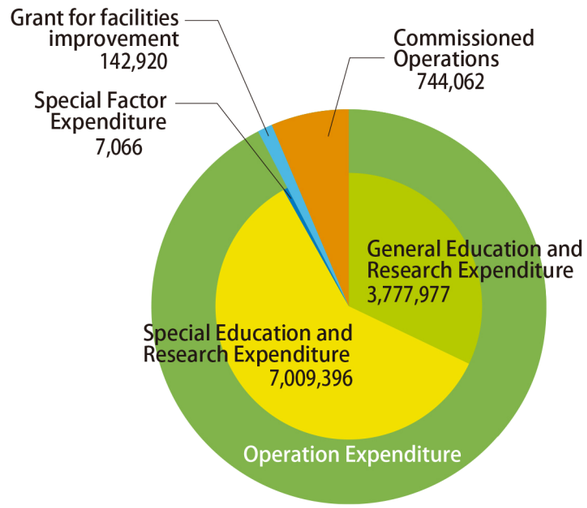
Budget (FY2015)

(unit: thousand yen)

■Income 11,681,421



■Expenditure 11,681,421



(as of July 1, 2015)

Administrative Council

Discusses important matters concerning the management and operations of the NII in response to consultations from the Director General, such as the selection of the NII Director General as well as academic personnel, joint research plans and matters concerning the NII in the mid-term targets and plans of the Research Organization of Information and Systems.

Advisory Board

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

Hugh Durrant-Whyte	Research Mentor,NICTA(National ICT Australia)
Willem Jonker	Professor,Twente University/ CEO of EIT ICT Labs
Anthony Finkelstein	Dean,Faculty of Engineering Sciences, University College London
Hank Levy	Chairman,Computer Science and Engineering, Washington University
Christine Borgman	Presidential Chair,Information Studies, University of California Los Angeles
Dong Thi Bich THUY	Professor,University of Science - Vietnam National University-Ho Chi Minh City
Michel Cosnard	Conseiller du PDG,INRIA(Institut National de Recherche en Informatique et en Automatique)
Calton Pu	Professor and John P. Imlay, Jr. Chair in Software,College of Computing, Georgia Institute of Technology
Tamer Özsu	Associate Dean (Research),David R. Cheriton School of Computer Science, University of Waterloo
Wolfgang Wahlster	CEO & Scientific Director,DFKI(German Research Center for Artificial Intelligence)
Yanghee Choi	Professor,Network Convergence & Security Lab, Seoul National University
Hong MEI	Research Vice President,Shanghai Jiao Tong University

Professors Emeriti

NACSIS: National Center for Science Information Systems

Name	Degree day
Kimio Ohno	1992/6/25
Atsunobu Ichikawa	1992/6/25
Hitoshi Inoue	1999/6/23

NII : National Institute of Informatics

Name	Degree day
Takamitsu Sawa	2002/4/1
Eisuke Naito	2004/7/2
Mitsutoshi Hatori	2004/11/19
Kinji Ono	2004/11/19
Takeo Yamamoto	2005/4/1
Yasuharu Suematsu	2005/4/1
Haruki Ueno	2007/4/1
Katsumi Maruyama	2008/4/1

Name	Degree day
Masamitsu Negishi	2010/4/1
Kenichi Miura	2011/4/1
Masao Sakauchi	2013/4/1
Shoichiro Asano	2013/4/1
Teruo Koyama	2015/4/1
Akira Miyazawa	2015/4/1
Shigeki Yamada	2015/4/1
Yoshihisa Yamamoto	2015/4/1

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.
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 Bibliographic Information, the University of Tokyo.
1987	April	The Science Information Network (SINET) is launched.
	April	The NACSIS-IR information search service is launched.
1994	November	Chiba Annex (Inage-ku, Chiba City) is built.
1997	March	International Seminar House for Advanced Studies, Inose Lodge (Karuizawa, Nagano Prefecture) is established.
	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 Reseach” 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 (Hitotsubashi, 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.
	September	Research Planning and Promotion Strategy Office is founded.
	October	International Course is established within Ph.D. Program in Informatics.
2003	January	Global Liaison Office is formed.
	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	February	Organization for management and Outside Collabration 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 (JAIRO) 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 (JAIRO-Cloud) is launched.

Facilities / Location

National Center of Sciences

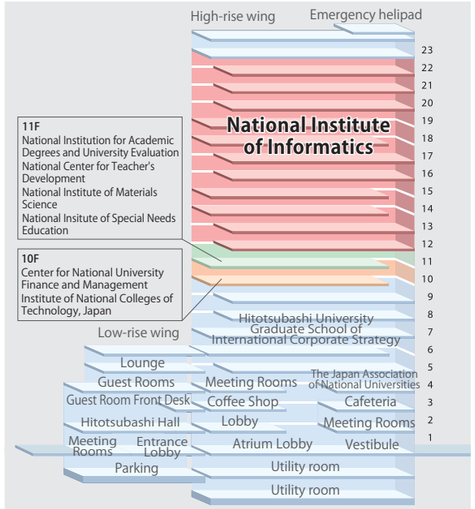
The National Center of Sciences was established as a center for scientific research in informatics, for academic exchanges, for the dissemination of scientific information, and to provide to society as a whole the benefits of an infrastructure of academic research in Japan. Construction was completed 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 Center of Sciences

National Institute of Informatics (NII)

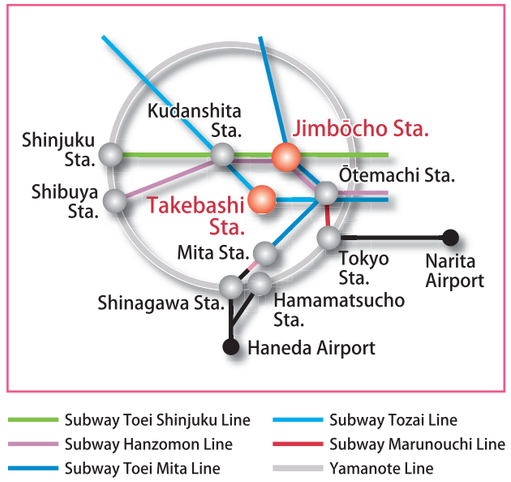
http://www.nii.ac.jp/en/

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

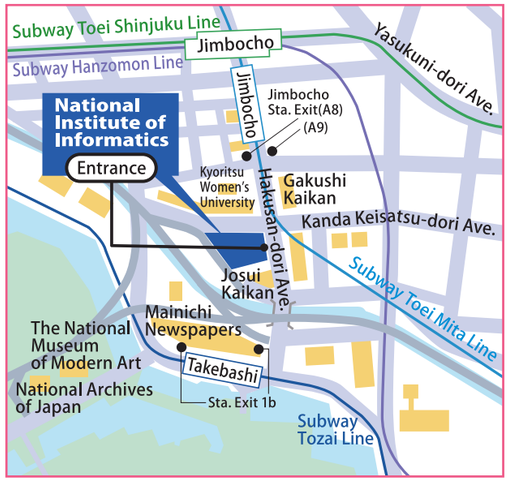


National Institute of Informatics
Site area : 6,842㎡ (Occupied by NII : 3,036㎡)
Floor space : 40,585㎡ (Occupied by NII : 18,145㎡)

Route Map



Guide Map



Chiba Annex (Inage-ku, Chiba City)

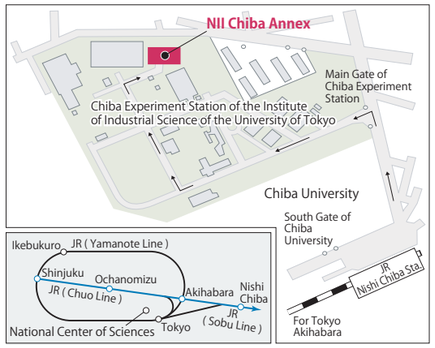
The Chiba Annex is a facility for computer systems and networking equipment used to operate the Science Information System and to provide scientific information services. It was built in November 1994 and is located in the Chiba Experiment Station of the Institute of Industrial Science of the University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

Facade of Chiba Annex

Chiba Annex

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

Guide Map



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

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.

Facade of Seminar House

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 : 3,339㎡
Floor space : 667㎡