Contact Info for Inquiries

<table>
<thead>
<tr>
<th>Contents &amp; Contact</th>
<th>E-mail</th>
<th>TEL</th>
<th>FAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Cooperation (p.14)</td>
<td><a href="mailto:kaken@nii.ac.jp">kaken@nii.ac.jp</a></td>
<td>03-4212-2170</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, Office for Social Collaboration, Collaboration Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual Properties (p.15)</td>
<td><a href="mailto:chizai_web@nii.ac.jp">chizai_web@nii.ac.jp</a></td>
<td>03-4212-2124</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, Office for Social Collaboration, Big Project and Intellectual Property Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top SE : Education Services for IT specialists (p.16)</td>
<td><a href="mailto:secretariat@grace-center.jp">secretariat@grace-center.jp</a></td>
<td>03-4212-2729</td>
<td>03-4212-2697</td>
</tr>
<tr>
<td>Research Center, GRACE Center : Center for Global Research in Advanced Software Science and Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual Properties (p.15)</td>
<td><a href="mailto:international@nii.ac.jp">international@nii.ac.jp</a></td>
<td>03-4212-2165</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, International Affairs and Education Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Education (p.17)</td>
<td><a href="mailto:daigakun@nii.ac.jp">daigakun@nii.ac.jp</a></td>
<td>03-4212-2110</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, International Affairs and Education Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Exchange (MOU) (p.19)</td>
<td><a href="mailto:international@nii.ac.jp">international@nii.ac.jp</a></td>
<td>03-4212-2165</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, International Affairs and Education Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Exchange (Shonan Meeting) (p.20)</td>
<td><a href="mailto:shonan@nii.ac.jp">shonan@nii.ac.jp</a></td>
<td>03-4212-2165</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, International Affairs and Education Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Exchange (DAAD/JFL) (p.22)</td>
<td><a href="mailto:international@nii.ac.jp">international@nii.ac.jp</a></td>
<td>03-4212-2165</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, International Affairs and Education Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Information Network : (p.24)</td>
<td><a href="mailto:support@sinet.ad.jp">support@sinet.ad.jp</a></td>
<td>03-4212-2269</td>
<td>03-4212-2270</td>
</tr>
<tr>
<td>Academic Infrastructure Division, SINET Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentication Infrastructure (p.28)</td>
<td><a href="mailto:gakuninfo@nii.ac.jp">gakuninfo@nii.ac.jp</a></td>
<td>03-4212-2218</td>
<td>03-4212-2230</td>
</tr>
<tr>
<td>Academic Infrastructure Division, Academic Authentication Systems Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Repositories (p.28)</td>
<td><a href="mailto:iiri@nii.ac.jp">iiri@nii.ac.jp</a></td>
<td>03-4212-2350</td>
<td>03-4212-2375</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division, Institutional Repository Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalog Information Service (NACSIS-CAT/ILL) (p.31)</td>
<td><a href="mailto:catadm@nii.ac.jp">catadm@nii.ac.jp</a></td>
<td>03-4212-2310</td>
<td>03-4212-2375</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division, CAT/ILL Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and Training (p.31)</td>
<td><a href="mailto:edu@nii.ac.jp">edu@nii.ac.jp</a></td>
<td>03-4212-2177</td>
<td>03-4212-2375</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNIS (p.32)</td>
<td><a href="mailto:cnisadm@nii.ac.jp">cnisadm@nii.ac.jp</a></td>
<td>03-4212-2300</td>
<td>03-4212-2370</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division, CNIS Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPARC Japan (p.33)</td>
<td><a href="mailto:sparc@nii.ac.jp">sparc@nii.ac.jp</a></td>
<td>03-4212-2351</td>
<td>03-4212-2375</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division, SPARC Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Relations / Media Relations (p.34)</td>
<td><a href="mailto:media@nii.ac.jp">media@nii.ac.jp</a></td>
<td>03-4212-2145</td>
<td>03-4212-2150</td>
</tr>
<tr>
<td>Planning Division, Publicity Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NII Library (p.43)</td>
<td><a href="mailto:library@nii.ac.jp">library@nii.ac.jp</a></td>
<td>03-4212-2142</td>
<td>03-4212-2180</td>
</tr>
<tr>
<td>Scholarly and Academic Information Division, Support Team, Library Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities / Location (p.40)</td>
<td><a href="mailto:soumu@nii.ac.jp">soumu@nii.ac.jp</a></td>
<td>03-4212-2000</td>
<td>03-4212-2120</td>
</tr>
<tr>
<td>General Affairs Division, General Affairs Team</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 (FJPUCU); 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 disorderly. 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 cloud computing in the future. We are starting to think of ‘thinking together, creating together.’

NII is one of very few institutions in the world to simultaneously operate a venture such as SINET and academic data, high-value data, and analytical procedures that individual universities would have difficulty maintaining. As one of the academic data, high-value data, and analytical procedures that individual universities would have difficulty maintaining. As one of the Inter-University Research Institutes, NII can provide academic information infrastructure. Inter-University Research Institutes 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. ISAC was established in 2000 and was incorporated into the Research Organization of Information and Systems, an Inter-University Research Institute Corporation, in 2004.

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

C o n t e n t s
Introduction 2
Mission and Strategies 2
Research 4
Advancing Integrated Research and Education in the Field of Informatics 4
Principles of Informatics Research Division 4
Current Research Topics 4
Information Systems Architecture Science Research Division 5
Current Research Topics 5
Digital Content and Media Sciences Research Division 6
Current Research Topics 6
Science Information Network moving into a new stage From SINET4 to SINET5 24
Science Information Network (SINET) 26
SINET Network Services 27
Establishment of Authentication Infrastructure 28
Operation of the Authentication Infrastructure and Network Infrastructure for the HPCI 29
Academic Information 30
Support for Linkage between Institutional Repositories 30
Japan Alliance of University Library Consortia for E-Resources (JUSTICE) 30
Catalog Information Service 31
Publishing and Communicating Academic Information 32
International Scholarly Communication Initiative (SPARC Japan) 33
Dissemination of Research Results 34
Dissemination of Research Results 34
Networks / Infrastructure 35
History 36
Organization 36
Facilities / Location 40
Contact Info for Inquiries 42
Back Cover

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

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

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.

Research Strategy Office

Society
The People and Administration, Community, Industry, Region, and NPO, etc.

Academic Information

Operations
Construction and Operation of Cyber Science Infrastructure

Science Information Network

Graduate University for Advanced Studies, Graduate University, Research Institute, and Academic Society, etc.

Research and Education

Nine Centers

Principles of Informatics Research Division

Information and Society Architecture Science Research Division

Information Systems Research Division

Digital Content and Media Sciences Research Division

Graduate Education

Organization for Value Informatics

Organization for Science Network Operations and Coordination

Organization for Scientific Resources Operations and Coordination

Organization for Management and Outside Collaboration on R&D

Academic Community
University, Research Institute, and Academic Society, etc.

Informatics research center through interdisciplinary research integration center of 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.

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.

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.

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.

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.
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 functions for increasing the operational efficiency of the Science Information NETwork (SINET), 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/fang=en

Research Center for Community Knowledge
Develop next-generation information and communications technology and information sharing platform system by creating ‘NetCommons’ and ‘ReaDIRearchmap’.

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.

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).
**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**
- **Ken Satoh** Chemoinformatics / Computer chemistry / Molecular modeling / Data chemistry
- **Asao Fujiiyama** Comparative genomics research

**Intelligent Informatics**
- **Kenji Tei** Software architecture / self-adaptive system
- **Shin Nakajima** Dependable Software Engineering / Formal Methods / Model-Checking
- **Shinichi Hidaka** 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

**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 Hidaka** 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 Research 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

- **Atsuhiko Takasu**
  - Text and sensor data mining / Structural 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

- **Akiho Azawa**
  - 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

- **Kazuhiro Kodama**
  - A study on structure of multi-dimensional image information and communication systems of distributed shared image environment with real-time quality control

- **Iman 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

- **Akihito 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

- **Hirosi Morishita**
  - 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-dimensional data

### Human and Knowledge Media

- **Kenno 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 interaction 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 Research Staff of NII

### Information Use

- **Noriko Arai**
  - Designing collaborative learning environments / 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 Mizuo**
  - 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 / 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**

- **Tetsuro Kobayashi**
  - Political communication / Political psychology / Mediated communication

- **Noboru Sonohara**
  - Research on spatiotemporal privacy-protection framework / Human and society data commons
A shortest-path query asks for the distance between two specified points in a given network. Shortest-path queries have wide application, 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.

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.

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, 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.

### Information and Society Research Division

**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?

- **How can we support 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 need in mind.

  - The system estimates the user’s interest from their gaze 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.

- **User does not enter any query (intensive model)**

- **Gaze Learning Access and Search Engine, GLASE**
  - While a user is looking at images on the screen that interest them...
  - The system collects other relevant images for the user.

- **Garkaus/Kando: Interactive search system using eye-gaze interface (Patent pending).**

  - 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 88% 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.

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 a 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.

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

NII’s industry-government-academia collaborative activities

| Advanced technology / seeds of innovation |
| Solution exploration |
| Skill acquirement / personnel development |

NII Shonan Meetings
- Sharing world-leading research information
- Industry-Government-Academia networking events
- Industry-Government-Academia collaboration prep school
- Providing information on advanced findings
- TopSE
- Developing top-level IT personnel

Consulting
- Technical guidance/advice

NII’s industry-government-academia collaborative activities

| Proposal of seminar theme by corporate organizer |
| Networking/Exchange of views based on advanced research themes |
| Forming a collaborative mindset through introduction of cutting-edge research |
| Consulting by researchers |
| Problem solving through technical guidance and advice |
| NII open 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 Scientific Research, joint research with private organizations, and externally funded research. We also accept proposals for and carry out open collaborative research, in an effort to pave the way for new collaborations.

Taking on varied research challenges, from basic to applied research

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

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.

Conducting a range of cooperative research with different companies

Cooperative research with private institutions and other external bodies

We take on researchers and 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 contracts over several years.

① Receiving funding only

We receive funding required for collaborative 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 collaborative research at NII while continuing with their regular job. Essential overheads are covered under our research costs up to a certain point. This can extend to the following fiscal year and beyond if deemed necessary.

③ Taking on researchers and receiving funding

We take on researchers and receive funding to carry out cooperative research.

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

Cooperative research with private institutions and other external bodies and provides graduate level instruction

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.

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

NII open collaborative research

We accept proposals every year for the following three types of open collaborative research.

① Receiving funding only

NII takes on researchers and receives funding 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. This can extend to the following fiscal year and beyond if deemed necessary.

② Taking on researchers

We take on researchers from private institutions and other external bodies, to carry out collaborative research at NII while continuing with their regular job. Essential overheads are covered under our research costs up to a certain point. This can extend to the following fiscal year and beyond if deemed necessary.

③ Taking on researchers and receiving funding

We take on researchers and receive funding to carry out cooperative research.

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)

<table>
<thead>
<tr>
<th>Patent</th>
<th>Total Number</th>
<th>Application Number</th>
<th>Registration Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>170</td>
<td>62</td>
<td>163</td>
<td>39</td>
</tr>
</tbody>
</table>

List of Japanese patents owned

<table>
<thead>
<tr>
<th>Patent</th>
<th>Application Code</th>
<th>Applicant</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus, method and apparatus for displaying information</td>
<td>4441685</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Quantum key distribution method and communication apparatus</td>
<td>4271596</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Time series data analysis device, method and time series analysis program</td>
<td>3754199</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Information Sharing Server, Information Sharing Server, Information Sharing Method and Information Sharing Program</td>
<td>7799981</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Distance measurement system and method</td>
<td>9418999</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Sequential content delivery device, sequential content receiving device, and method thereof</td>
<td>3743663</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Contents presentation apparatus, contents presenting method and contents presentation program</td>
<td>4403726</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Text content presentation apparatus, text content presentation method and text content presentation program</td>
<td>4143628</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Method and apparatus for evaluating communication traffic that uses fragmentary self-similarity process</td>
<td>4081952</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Imaging device and method proposal of display structure</td>
<td>4473228</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Information resource retrieval device, information resource retrieval method and information resource retrieval program</td>
<td>3424650</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Active content distribution apparatus, active content distribution program and active content distribution method</td>
<td>4492053</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Device and method for generating traffic, congestion prediction, information, and simple search system</td>
<td>4729041</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Content selling device and method</td>
<td>3030478</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Document indexing device, document retrieval device, document classifying apparatus, and method and program thereof</td>
<td>3636292</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Video display device and method</td>
<td>4355865</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Practice targeted operation for info-entertainment program</td>
<td>4962644</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Digital content distribution apparatus, apparatus, system and method</td>
<td>4955742</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Assembling of three dimensional integrated electrical circuit and layout method thereof</td>
<td>3202430</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Quantum key Distribution Method, Communication System, and Communication Device</td>
<td>4862159</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Reference: Text Information, Text Information Transmission System and Receiver</td>
<td>4627724</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Collation/Display Route Selection System</td>
<td>4374457</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Air conditioner for vehicle and its control method</td>
<td>3177967</td>
<td>NII</td>
<td>2006</td>
</tr>
</tbody>
</table>

List of registered trademarks

<table>
<thead>
<tr>
<th>Trademark</th>
<th>Application Code</th>
<th>Applicant</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>NII</td>
<td>4811201</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>NII</td>
<td>4371863</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Picture Network</td>
<td>4441685</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Picture Network</td>
<td>4271596</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Picture Network</td>
<td>3754199</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Picture Network</td>
<td>7799981</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Distance Measurement System and Method</td>
<td>9418999</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Sequential Content Delivery Device, Sequential Content Receiving Device and Method</td>
<td>3743663</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Contents Presentation Apparatus, Contents Presenting Method and Contents Presentation Program</td>
<td>4403726</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Text Content Presentation Apparatus, Text Content Presentation Method and Text Content Presentation Program</td>
<td>4143628</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Method and Apparatus for Evaluating Communication Traffic that uses Fragmentary Self-Similarity Process</td>
<td>4081952</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Imaging Device and Method Proposal of Display Structure</td>
<td>4473228</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Active Content Distribution Apparatus, Active Content Distribution Program and Active Content Distribution Method</td>
<td>4492053</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Content Selling Device and Method</td>
<td>3030478</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Video Display Device and Method</td>
<td>4355865</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Practice Targeted Operation for Info-Entertainment Program</td>
<td>4962644</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Digital Content Distribution Apparatus, Apparatus, System and Method</td>
<td>4955742</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Assembling of Three Dimensional Integrated Electrical Circuit and Layout Method Thereof</td>
<td>3202430</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Quantum Key Distribution Method, Communication System, and Communication Device</td>
<td>4862159</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Reference: Text Information, Text Information Transmission System and Receiver</td>
<td>4627724</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Collation/Display Route Selection System</td>
<td>4374457</td>
<td>NII</td>
<td>2006</td>
</tr>
<tr>
<td>Air Conditioner for Vehicle and its Control Method</td>
<td>3177967</td>
<td>NII</td>
<td>2006</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Number</th>
<th>Amount (thousands of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2013</td>
<td>92</td>
</tr>
<tr>
<td>FY2014</td>
<td>46</td>
</tr>
</tbody>
</table>

Proposals accepted in fiscal 2014

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Number</th>
<th>Acceptance Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic research proposals</td>
<td>15</td>
<td>55.56%</td>
</tr>
<tr>
<td>Proposals for research planning meetings</td>
<td>14</td>
<td>100%</td>
</tr>
<tr>
<td>Free proposals</td>
<td>27</td>
<td>89.23%</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>70.00%</td>
</tr>
</tbody>
</table>
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.

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.

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.

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.

Graduate Education Activities

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

NIU 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 NIU’s unique strengths, including comprehensive informatics research systems and a practical environment in which theoretical research and practical development are combined.

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

Department of Informatics, The Graduate University for Advanced Studies (SOKENDAI)

Establishment of the Department

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

Aims and Structure of the Department

The Department’s goal is to foster outstanding young international IT researchers and 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

<table>
<thead>
<tr>
<th>A five-year doctor course program</th>
<th>A three-year doctor course program</th>
<th>Research Student</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 (20)</td>
<td>49 (25)</td>
<td>1 (1)</td>
<td>80 (46)</td>
</tr>
</tbody>
</table>

*1 Foreign students included

Students Data

Current Students

<table>
<thead>
<tr>
<th>Japanese Students</th>
<th>Foreign Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>46</td>
</tr>
</tbody>
</table>

Working People from workforce of Japan: 19

Nationalities of Foreign Students

- China: 12
- New Zealand: 1
- Peru: 1
- Latvia: 1
- Tunisia: 1
- Spain: 1
- Australia: 1
- Iran: 1
- Algeria: 1
- Bangladesh: 2
- France: 3

Total: 46

Age distribution

- 20s: 45
- 30s: 22
- 40s: 8
Cooperation with Graduate Schools

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

Special Collaboration with Research Students

Nil 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 Nil research staff.

Universities of students (FY2014)

<table>
<thead>
<tr>
<th>University</th>
<th>Department/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keio University</td>
<td>Advanced Institute of Industrial Technology</td>
</tr>
<tr>
<td>Chiba University</td>
<td>University of Tsukuba</td>
</tr>
<tr>
<td>Chonbuk University</td>
<td>The University of Electro-Communications</td>
</tr>
<tr>
<td>Tokyo University of Science</td>
<td>Tokyo Institute of Technology</td>
</tr>
<tr>
<td>École Polytechnique</td>
<td>Abo Akademi University</td>
</tr>
<tr>
<td>Royal Institute of Technology</td>
<td>Stanford University</td>
</tr>
<tr>
<td>University of Strathclyde</td>
<td>University of Chinese Academy of Sciences</td>
</tr>
<tr>
<td>Telecom ParisTech</td>
<td>Charles University in Prague</td>
</tr>
<tr>
<td>University of Bristol</td>
<td>Peking University</td>
</tr>
<tr>
<td>University of Applied Sciences</td>
<td>Free University of Berlin</td>
</tr>
<tr>
<td>Hong Kong University of Science and Technology</td>
<td>Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>University of Southern California</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Students from other universities (FY2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Course: 62</td>
</tr>
<tr>
<td>Ph.D. Course: 50</td>
</tr>
<tr>
<td>Total: 112</td>
</tr>
</tbody>
</table>

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

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

The meeting's venue, the Shonan Village Center, provides an environment in which participants can focus on research activities in a setting that provides both spectacular natural beauty and easy access from Narita Airport.

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.

## 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

5. Water Disaster Management and Big Data (July 7-10, 2014, 20 participants)
7. Algorithmic Randomness and Complexity (September 8-12, 2014, 24 participants)
8. Design Methods for Secure Hardware (September 15-19, 2014, 21 participants)
9. Algorithms for Large Scale Graphs (October 14-17, 2014, 18 participants)
13. Integration of Formal Methods and Testing for Model-Based Systems Engineering (December 1-4, 2014, 22 participants)
14. Big Graph Drawing: Metrics and Methods (January 12-15, 2015, 29 participants)
15. Logical analysis of descriptions and their presentations (January 12-15, 2015, 20 participants)
17. Low level code analysis and applications to computer security (March 2-5, 2015, 18 participants)
18. Static analysis meets runtime verification (March 16-19, 2015, 26 participants)
19. Instruction and instruction action: Embedded reciprocity in interaction (March 19-21, 2015, 18 participants)
20. The Future of Human-Robot Spoken Dialogue: from Information Services to Virtual Assistants (March 26-28, 2015, 20 participants)
21. The Future of Human-Robot Spoken Dialogue: from Information Services to Virtual Assistants (March 26-28, 2015, 24 participants)
22. The Future of Human-Robot Spoken Dialogue: from Information Services to Virtual Assistants (March 26-28, 2015, 24 participants)

## 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
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.

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.
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).

<table>
<thead>
<tr>
<th>Participating SINET Institutions</th>
<th>(as of March 31, 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National universities</td>
<td>86</td>
</tr>
<tr>
<td>Municipal universities</td>
<td>71</td>
</tr>
<tr>
<td>Private universities</td>
<td>348</td>
</tr>
<tr>
<td>Junior colleges</td>
<td>62</td>
</tr>
<tr>
<td>Technical colleges</td>
<td>55</td>
</tr>
<tr>
<td>Inter-University Institutes</td>
<td>16</td>
</tr>
<tr>
<td>Others</td>
<td>179</td>
</tr>
<tr>
<td>Total</td>
<td>817</td>
</tr>
</tbody>
</table>

To SINET5 in 04/2016
- Introduction of 100 Gbps network nationwide
- Delay minimization (mesh network connecting each node)
- Improved reliability (MPLS-TP path protection)

International network collaboration

SINET 4 (2011.4~2016.3)
SINET 5 (2016.4~2022.3)
Science Information NETwork 5 (SINET5)  http://www.sinet.ad.jp/

Characteristics of SINET5

1. Maximum 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.

2. Full 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.

3. Cloud 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.

4. Secure, 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.

SINET Network Services

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.

<table>
<thead>
<tr>
<th>Provided interface</th>
<th>SINET4</th>
<th>SINET5</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provided interface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E/FE/GE (T)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>NE/SD</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>10GE(EL)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>40GEL(EL)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>100GEL(EL)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Layer-3 Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet Access (IPv4 &amp; IPv6)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>MPLS</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>L2VPN/VPLS (+QoS)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>L3VPN (+QoS)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Layer-2 Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L2VPN/VPSC (+Qos)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>L2 On-Demand</td>
<td>trial</td>
<td>trial</td>
<td>Under review</td>
</tr>
<tr>
<td>L3 On-Demand</td>
<td>trial</td>
<td>trial</td>
<td>Under review</td>
</tr>
<tr>
<td>Performance Measurement Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Measurement</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Traffic Information per User Circuit</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Network Usage per VPN, etc.</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>DOS Attack Detection</td>
<td>trial</td>
<td>trial</td>
<td>Goals include notification and emergency evacuation</td>
</tr>
<tr>
<td>Network Usage per VPN, etc.</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>IP Multicast (+QoS)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>L3VPN (+QoS)</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Application-based QoS</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>L3 On-Demand</td>
<td>trial</td>
<td>trial</td>
<td>Under review</td>
</tr>
<tr>
<td>L3 On-Demand</td>
<td>trial</td>
<td>trial</td>
<td>Under review</td>
</tr>
<tr>
<td>Cloud collaboration</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Cloud collaboration</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
</tbody>
</table>

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

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.

Digital certificates: The UPKI Digital Certificate Issuance Service

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.

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

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.

- 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


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)**

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 —**

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

**CiNii Electronic Library Service (NII-ELS)**

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

<table>
<thead>
<tr>
<th>Collection Status</th>
<th>(as of March 31, 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of article information</td>
<td>NII-ELS</td>
</tr>
<tr>
<td>18.73 million</td>
<td>4.16 million</td>
</tr>
<tr>
<td># of full text documents</td>
<td># of potentially</td>
</tr>
<tr>
<td>4.933</td>
<td>440</td>
</tr>
<tr>
<td># of academic societies included</td>
<td>Universities</td>
</tr>
<tr>
<td>8.29</td>
<td></td>
</tr>
</tbody>
</table>

**Crossover Searches of Academic Information Accumulated in Institutional Repositories in Japan**

**JAIRO (Institutional Repositories Portal)**

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.

**International Scholarly Communication Initiative (SPARC Japan)**

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.

For Searching Japan’s Latest Research Information

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

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).

<table>
<thead>
<tr>
<th>Stored documents</th>
<th>(as of March 31, 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research themes</td>
<td>760,000</td>
</tr>
</tbody>
</table>

**International Scholarly Communication Initiative**

Collaboration

Researchers Japan / Overseas

University Libraries

Japan Alliance of University Library Consortia for Digital Resources (JUSTICE)

SPARC Partners

SPARC Europe

SPARC Japan

Comprehensive Report

International Committee

Researchers Japan / Overseas

University Libraries

Japan Alliance of University Library Consortia for Digital Resources (JUSTICE)
Dissemination of Research Results

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

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

Open Lectures and Seminars
NII also holds open lectures and seminars.

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

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

Publications
● NII Series (Maruzen Library)
This series of commercial books introduces and describes the details of NII research using familiar examples that are easily understood by the general public. * in Japanese

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

<table>
<thead>
<tr>
<th>Document type</th>
<th>Books</th>
<th>Bound journals</th>
<th>Journal (limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Documents</td>
<td>14,757</td>
<td>9,697</td>
<td>243</td>
</tr>
<tr>
<td>Foreign Documents</td>
<td>13,952</td>
<td>8,217</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>28,709</td>
<td>17,714</td>
<td>265</td>
</tr>
</tbody>
</table>

Major online journals and databases

<table>
<thead>
<tr>
<th>Service</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM Digital Library</td>
<td>Association for Computing Machinery</td>
</tr>
<tr>
<td>APS online</td>
<td>American Physical Society</td>
</tr>
<tr>
<td>CUP online</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>IEEE</td>
<td>IEEE</td>
</tr>
<tr>
<td>MathSciNet</td>
<td>American Mathematical Society</td>
</tr>
<tr>
<td>OUP online</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>Springer Link</td>
<td>Springer</td>
</tr>
<tr>
<td>Science Direct</td>
<td>Elsevier B.V.</td>
</tr>
<tr>
<td>Wiley Online Library</td>
<td>John Wiley &amp; Sons</td>
</tr>
<tr>
<td>IEICE Digital Library</td>
<td>The Institute of Electronics, Information and Communication Engineering</td>
</tr>
</tbody>
</table>

Facility, Equipment

<table>
<thead>
<tr>
<th>Reading room</th>
<th>Stack room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Seats</td>
<td></td>
</tr>
<tr>
<td>PC for search</td>
<td></td>
</tr>
</tbody>
</table>

Other equipment
Automatic Book Circulation Machine
Micro reader printer
Copier
Organization

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.

Professors Emeriti

NACSIS: National Center for Science Information Systems

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimio Ohno</td>
<td>1992/6/25</td>
<td></td>
</tr>
<tr>
<td>Atsunobu Ichikawa</td>
<td>1992/6/25</td>
<td></td>
</tr>
<tr>
<td>Hitoshi Inoue</td>
<td>1999/6/23</td>
<td></td>
</tr>
</tbody>
</table>

NII : National Institute of Informatics

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takamitsu Sawa</td>
<td>2002/4/1</td>
<td></td>
</tr>
<tr>
<td>Etsuko Nato</td>
<td>2004/7/2</td>
<td></td>
</tr>
<tr>
<td>Mitsutoshi Hatari</td>
<td>2004/11/19</td>
<td></td>
</tr>
<tr>
<td>Kenji Oto</td>
<td>2004/11/19</td>
<td></td>
</tr>
<tr>
<td>Takeo Yamamoto</td>
<td>2005/4/1</td>
<td></td>
</tr>
<tr>
<td>Yasuharu Suzuki</td>
<td>2005/4/1</td>
<td></td>
</tr>
<tr>
<td>Hidetoshi Imaizumi</td>
<td>2007/6/</td>
<td></td>
</tr>
<tr>
<td>Katsumi Maruyama</td>
<td>2008/4/1</td>
<td></td>
</tr>
</tbody>
</table>

History


1976 May: Research Center for Library and Information Science (RCLIS) is established at the University of Tokyo.


1983 April: Center for Bibliographic Information is established at the University of Tokyo, with the reorganization of the Research Center for Information and Library Science.

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

1986 April: National Center for Science Information Systems (NACSIS) is established, with the reorganization of the Center for 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, Iwate Lodge (Kurashima, Nagano Prefecture) is established.


1999 March: Coordinating Committee of the Core Institution for Scientific Research in the Information Field issues its report.


2007 April: NII Scholarly and Academic Information Navigator (CiNii) and the KAKEN database of grants-in-aid for scientific research are revamped.

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.

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.

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.

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

International Seminar House for Advanced Studies Inose Lodge

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

Site area : 3,339㎡
Floor space : 667㎡

Facade of Seminar House

Guide Map