The National Institute of Informatics (NII) is an inter-university research institute corporation and a research organization of information and systems. The mission of this unique national academic research institute is to “create future value” in the new academic field of informatics. From the basic methodology of informatics to cutting-edge themes such as artificial intelligence, Big Data, the Internet of Things (IoT), and information security, NII features a wide range of research activities. We push forward with fundamental research valued from the long-term view as well as practical studies aimed at resolving current social problems.

As an inter-university research institute corporation, NII has taken on the task of building and running essential research and education information infrastructures for Japan’s academic community, including the SINET science information network. In addition, NII develops and advances operations that provide academic content and online service platforms. Mutual feedback on the expertise gained through operations as well as from research enables us to carry out projects that relate scientific research to real problems, utilizing state-of-the-art technology. NII uses these activities in its efforts to attract talent and contribute to society at large, while administering vital collaborative ties to private enterprise and various social programs in addition to our connections with foreign academic institutions and research institutions.

The National Institute of Informatics also is committed to providing graduate education that promotes creative, world-class scientific research with the aim of pioneering the development of leading-edge disciplines.
Integrated Research from Basic Methodology to State of the Art

“Informatics” combines not only technologies like computer science and information/communications engineering but also the humanities, social studies, and the life sciences. This new academic domain involves every aspect of culture and economics. NII has established four basic Research Divisions—namely, Principles of Informatics, Information Systems Architecture Science, Digital Content and Media Sciences, and Information and Society—plus 13 Research Centers charged with systematically accomplishing specific tasks. From the basic methodology of informatics to state-of-the-art artificial intelligence, Big Data, the Internet of Things (IoT), and information security, NII advances the integration of research and development. Furthermore, our informatics research is directed toward spurring international study activities and collaboration with industry, government, and academia.

Research Divisions

- **Principles of Informatics**
  - Schönheit and the performance, quality, and functionality of computers and software, and the architecture of information technology
  - Implement practical systems deriving from technical innovations in software and hardware architectures

- **Information Systems Architecture Science**
  - Studies the generation of media and content including sign and patterns
  - Focuses on the processes of storing, retrieving, and organizing content
  - Pursues social media and interaction to underscore people and knowledge

- **Digital Content and Media Sciences**
  - Draws from information/system technologies and the humanistic sciences to make rational decisions using scientifically grounded data in a cyber-physical society that links the sphere of information and actualization.

- **Information and Society**
  - Integrates research from basic methodology to state-of-the-art

Research Centers

- **Research Center for Open Science and Data Platform**
  - Center for Cybersecurity
  - Research and Development
  - Center for Academic Networks
  - Center for Community Knowledge
  - Digital Research Center for Quantum Information Science

Collaboration with Industry, Government, and Academia

- Engaged in pragmatic research and development aimed at resolving social problems, NII promotes collaboration with industrial, governmental, and academic entities to find ways of implementing the fruits of research. Public awareness is crucial in universities, private-sector institutions, and municipalities for the investigation of new possibilities. NII’s efforts include cultivating cooperative environments that foster international collaboration and aggressive exchanges of ideas, as well as supporting cooperative supplementary schools that encourage the collaborative approach by providing information gathered on the frontiers of research.

International Exchange

- Beginning with the dissemination of research results, our global contributions to the study of informatics include the formation of research centers that foster international collaboration and aggressive exchanges of researchers and students. The world’s top researchers gather together for the NII Seminar Meeting, which consists of intense, seminar-style discussions of issues affecting the information field. The conclusion of MOU agreements that NII actively seeks out with foreign universities and research institutions is an integral part of our mission to create the best possible environment for collaborative investigations, study exchange assistance, and internship programs.

Science Information NETwork (SINET)

- **Innovative Connectivity**
  - SINET introduces a state-of-the-art, optical-data network with the latest technology that achieves full-mesh connectivity, thus minimizing transfer delays between the nodes of all areas of Japan.
  - **Ultra High-Speed**
    - With line bandwidths of 100 Gbps for node connections, this ultra-high-speed network is prepared for further development.
  - **Robust and Reliable**
    - Multilayered advanced network architecture has redundancy configured into each layer, introducing mechanisms for avoiding and bypassing obstacles. These linked operations bring about a highly reliable network.
  - **Multifunctional Flexibility**
    - UPKI Digital Certificate Issuance Service
    - Security improvements designed in SINET have spread to universities and research institutions in the fields of e-commerce and digital-signature certification services as well as effective certification of servers to foil phishing attacks.
    - Gakusin Cloud Introduction Support
      - Comprehensive technical support is available to universities and research institutions when they begin SINET cloud services, including shared checklists of items that demand attention, individual consultation, and seminars that promote the best use of clouds.

Security Systems Grounded on Inter-University Collaboration

- NII collaborates with national university corporations to build systems that observe, detect, and analyze cyber attacks waged against SINET. Based on data sharing with related foreign and domestic organizations, NII also provides helpful information to national universities depending on the urgency level and risk of attack. Beyond that, NII trains people in charge of cybersecurity, working to advance their ability to cope with cyber attacks. In this way, we contribute to the construction of systems that enable our national universities to respond promptly to security incidents and accidents.

Academic Content Infrastructure

- The database service allows searches of information contained in academic publications and papers. CINI Articles lets users search scholarly journals and bulletins for information. CINI Books is for searching material held by university libraries throughout Japan and CINI Dissertations allows users to search for doctoral theses held in Master’s or doctoral degrees conferred by domestic universities.

Services to Support Research Infrastructure and Education

As an inter-university research institute, NII coordinates with academic institutions and the research community. For starters, it built and now operates the Science Information NETwork (SINET); the world’s most-advanced, high-speed network linked to domestic and international sites. NII further develops the cloud systems and, in its push for open access to open science, drives the development of academic information infrastructures as well as practical ways to utilize them. NII collaborates with national universities to promote the education of cybersecurity personnel through its unique capacity to detect serious cyber attacks, supply defensive information, and sponsor in-service training. Our aim is to enable national universities to respond quickly to security incidents. In addition, NII strives to contribute to improving the international competitiveness of education research, accelerating studies on leading-edge topics, developing interdisciplinary programs, promoting more-efficient research, and enhancing the functions of universities.

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