JAIST
JAPAN
ADVANCED INSTITUTE OF
SCIENCE AND TECHNOLOGY
1990

Japan Advanced Institute of Science and Technology

2020-2021

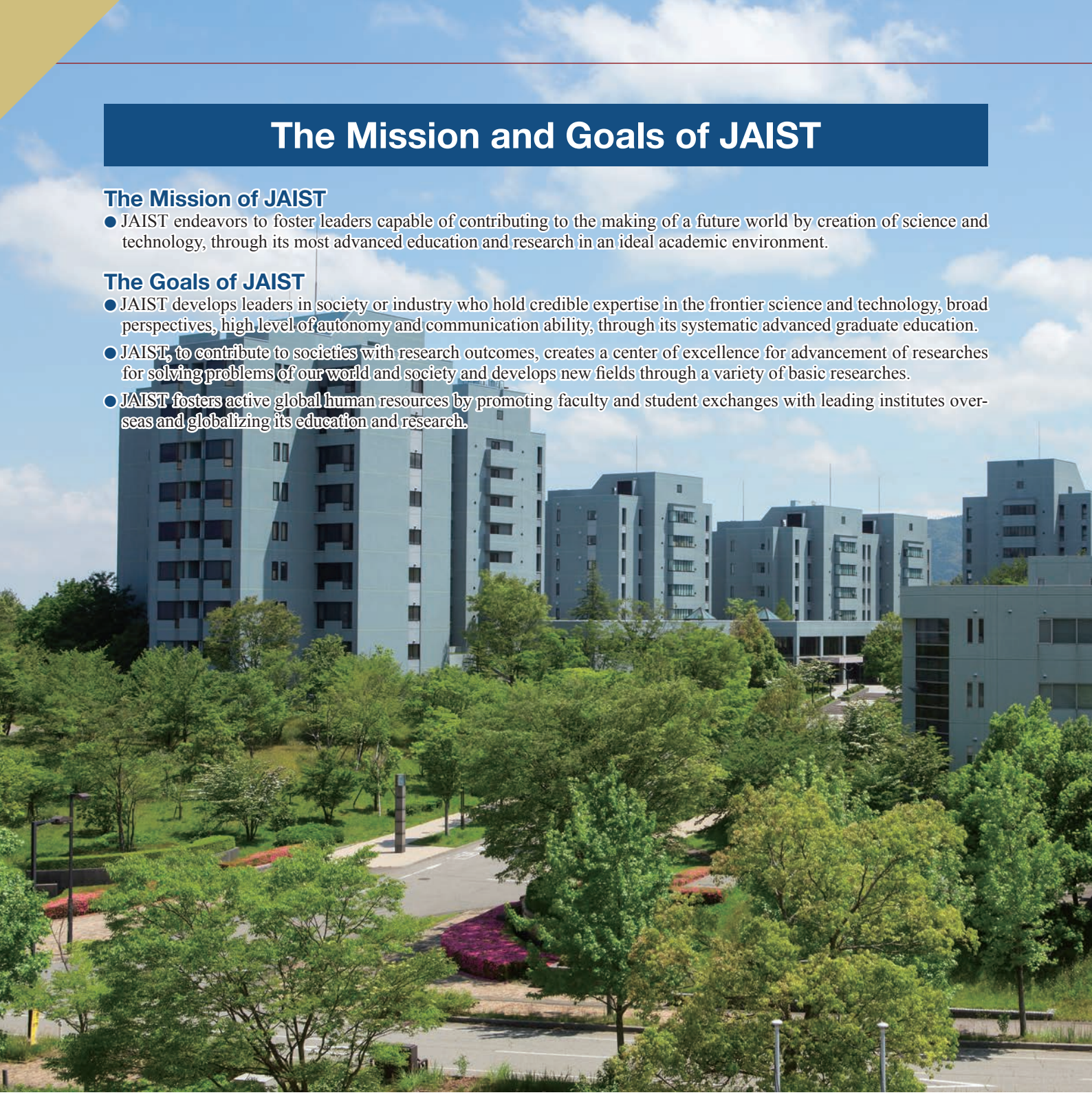
The Mission and Goals of JAIST

The Mission of JAIST

- JAIST endeavors to foster leaders capable of contributing to the making of a future world by creation of science and technology, through its most advanced education and research in an ideal academic environment.

The Goals of JAIST

- JAIST develops leaders in society or industry who hold credible expertise in the frontier science and technology, broad perspectives, high level of autonomy and communication ability, through its systematic advanced graduate education.
- JAIST, to contribute to societies with research outcomes, creates a center of excellence for advancement of researches for solving problems of our world and society and develops new fields through a variety of basic researches.
- JAIST fosters active global human resources by promoting faculty and student exchanges with leading institutes overseas and globalizing its education and research.



About JAIST

First Independent National Graduate University without Undergraduate Division

JAIST was founded in October 1990 as the first independent national graduate school, to carry out graduate education based on research at the highest level in advanced science and technology. JAIST aims at establishing an ideal model of graduate education for Japan. JAIST was incorporated as a National University Corporation in April 2004.

Admission Criteria for People with Diverse Backgrounds

In our admission decisions we place the most significant weight on the motivation of the student as demonstrated in the personal interview. JAIST admits highly motivated students, including advanced undergraduate students (who have completed at least three years of undergraduate study), professionals, and international students, regardless of undergraduate specialization.

Systematic Graduate Education

JAIST educates students through a carefully and systematically designed coursework-oriented curriculum, which gives students a solid foundation for their advanced research. This is different from the traditional Japanese style of graduate education, where students are trained mainly in their narrow research domains.

Development of Human Resources for Society

We train our students in a specialized field combined with interdisciplinary knowledge of related disciplines. Through our educational program students gain thorough understanding of fundamentals, and develop

problem-solving skills.

Outstanding Faculty

Our faculty members are world-class researchers. We recruit professionals with outstanding achievements at the leading edge of science and technology. They come from all over the world, from other universities, and from top industrial research and development institutions.

Collaboration with Society and Industry

JAIST works closely with the regional community, as well as industries worldwide, by promoting collaborative research and accepting commissioned research. We use various modes of cooperation including visiting faculty chairs, endowed chairs, and laboratories operated jointly with other institutions.

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President's Message

President
TERANO Minoru, Ph.D.

Academic Field :
Polymer Chemistry, Polymer Science

Human Resource Development and Social Contribution Based on World Top-level Research

Pioneer the Future and Lead the World with the Cutting-edge Research and the Development of Global Human Resources

Japan Advanced Institute of Science and Technology (JAIST) will celebrate its 30th anniversary in October, 2020. Since its foundation, JAIST has produced world top-level research achievements in a wide range of the fields of advanced science and technology, and has developed excellent human resources.
"The Outline of Concept of Japan Advanced Institute of Science and Technology" issued in September, 1990 and called "The Yellow Book" was considered as a bible for the founding of JAIST. It set the purposes of the founding to "fostering university researchers and developing and reeducating researchers and engineers for industry" as well as "promoting advanced basic research in the fields of advanced science and technology." This spirit has been inherited in the current principle of JAIST established on March 22, 2012: "JAIST fosters leading human resources who can pioneer a new world with their scientific and technological innovation through its world-class education and research in a rich academic environment."
Based on the purposes of the establishment and the current principle, JAIST, the first national graduate institute with its own campus in JAPAN, considers promotion of world top-level research, development of human resources through it, and contribution to society through education and research as the most important missions.

World-class Research

With regard to research, we value the expertise of each faculty member and promote the development of new research fields and research areas through collaborations among JAIST faculty members and collaborations with researchers in Japan and overseas. In particular, Excellent Cores, the centers of excellence representing JAIST, which is highly regarded by the Ministry of Education, Culture, Sports, Science and Technology, will be evolved and developed further as Global Excellent Cores by inviting overseas researchers to develop world top-level research under more advanced international collaborations. JAIST also aims to establish its function as a research hub for advanced science and technology in the world by strengthening broad collaborations with universities, public research institutes, and corporations around the world as well as researchers in Japan and overseas, through its Research Cores and other research centers which are next to Excellent Cores. JAIST will build a network of research collaborations throughout Japan and around the world to initiate the creation of JAIST Science Hub.

State-of-the-art Education System

We believe that students should be involved in "the creation of science and technology" in order to "foster leading human resources who can pioneer a new world through the creation of science and technology", as stated in the principle of JAIST. Therefore, in addition to the research guidance by the faculty, it is necessary to provide a systematic education consisting of the wide range of knowledge to make the guidance more effective and methodology for its practical application. Such education is the foundation for students to take active roles in society after graduation. For students, their real value is evaluated only after they have gone out into society. In order to produce excellent achievements in society, it is important and necessary for students to possess solid basic knowledge and methodology of problem solving. While maintaining the educational characteristics of JAIST that credits required for graduation can be earned from all the fields flexibly, we will continue to reform our curriculum as the integrated graduate school. We believe that the updated and fulfilling curriculum is the cornerstone of university education.

Student Recruitment and Support

With regard to student recruitment, since the number of applicants for the master's program has already reached far more than its quota, we will procced the fulfilling and stable procedure in the future, including international students. For this reason, we will promote the acquisition of students through the cooperation with faculty members of other universities and the conclusion of agreements on admission by recommendation with universities throughout Japan, not to mention the Hokuriku region. To the acquisition of doctoral program students we will dedicate our best efforts because the increase has a direct effect on the improvement of our research capabilities. Some prospective doctoral students seem to hesitate to enter the doctoral program due to financial difficulties or concern about their career paths after graduation. Therefore, we will promote drastic changes in financial support for doctoral students, and strengthen industry-oriented measures such as participation in joint research with companies and financial support for school training from companies on the premise of employment after graduation. In addition, we will strengthen support for students who are academic-oriented and promote their proceeding to the doctoral program.

Campus Environment Rich in Diversity

More than 40% of our students are international students from over 20 countries overseas, and many of our classes are conducted in English. We believe that maintaining such an environment rich in diversity will be effective in fostering human resources who can play an active role on the global stage.

Recurrent Education for Working Professionals

As for the recurrent education for working professionals at our Tokyo Satellite Campus, we have a long history, centering on the program of management of technology (MOT). Currently, in addition to MOT, we are offering programs such as manage-

ment of services (MOS) and IOT innovation, and we accept many working professionals as regular students. From now on, we will work on accepting non-regular students in addition to the regular students through the development of a broader range of programs, such as opening seminars on specific themes, timing, and period. As to the recurrent education for working professionals in the Hokuriku region, although it has been tried out mainly in the context of the industry-academia collaborations so far, from now on, we will start full-scale initiatives, including charging lecture fees and making participants regular students.

Promotion and Utilization of Industry-Academia Collaborations

With regard to industry-academia collaboration, JAIST has promoted it since early years right after its foundation. Industry-academia collaboration, which is represented by joint research with companies, has many research benefits, such as acquiring research funds and implementing research outcomes in society. If students participate in such joint research, they will have an opportunity to capture their research from viewpoints different from those in academia, such as practicality, cost, and the treatment of intellectual property, which become significant educational benefits. It is a matter of course that the participating students can hope for employment by the company. Understanding the educational benefits of the industry-academic collaborations, JAIST has established a system of visiting professors of industry-academia-government collaborations to utilize their knowledge of the industrial world and ask them to be involved in education in the forms of discussions with the executive members of JAIST and direct guidance to students by participating in the interim research presentations. We are planning to ask those visiting professors to teach some introductory courses for working professionals so that we will be able to make it another special feature of JAIST education in the future.

"Matching HUB"

“Matching HUB” is a premier event of JAIST related to industry-academia and regional collaborations leading to the innovation, which has been held continuously every year and expanded throughout Japan. The sixth event held in Kanazawa in November 2019 had more than 1,400 participants, which was an unusually large size for an event hosted by a national university. From the fourth event in 2017, a student idea contest called “Matching HUB Business Idea & Plan Competition” (M-BIP) has been held during the event and we have enjoyed dozens of applications from all over JAPAN. Matching HUB, with support from the Ministry of Education, Culture, Sports, Science and Technology, has been introduced to Kumamoto, Otaru, Sapporo, Tokushima, and other parts of Japan. By networking them, we are contributing to the revitalization of not only the regions where the events are held but also the entire country.
JAIST will develop itself further as a world-leading research university with the mission of “promoting world top-level research, developing human resource development through it, and contributing to society through education and research.”

Advanced Graduate Education and Research

JAIST welcomes talented students and researchers, regardless of their previous academic majors, not only from recent university graduates but also from people with work experience.

Research

Active Faculty

JAIST's faculty members are world-class researchers. They come from all over the world, from other academic institutions, and from leading industrial research and development institutions.
JAIST holds a high rank among national universities in Japan, in terms of the number of grants and amount of funds for joint research projects and commissioned research undertaken and number of published papers per faculty member.

Facilities at the Highest Standard

The laboratories with the world class, state-of-the-art equipment provides the most functional and comfortable research environment.

Internationalized Campus Environment

42% of the students of JAIST are from abroad. Many international researchers visit JAIST for international conferences or stay at JAIST for joint research projects.

Education

Major Research Project and Minor Research Project

Each student takes both a major research project (topic of Master’s Thesis or Research Project/Doctoral Dissertation), and a minor research project. This dual structure provides a broader base of knowledge for profound understanding of the major research project field.

Preparatory Courses for Students with Different Academic Majors

For graduate students with different undergraduate majors from those offered at JAIST, JAIST provides preparatory courses which they can obtain the common foundation required for more advanced levels of study and research in their major at JAIST. The “Preparatory” courses usually cover materials for the undergraduate level in a selected field, allowing each student to progress smoothly along the path toward professional expertise.

Tutorial Hours for Individual Consultation

Most courses at JAIST are scheduled in the mornings, allowing professors to hold "Tutorial Hours" for advising individual students in the afternoon. This "Mentoring" approach is an ideal element in developing ability of students. Afternoon hours are also used for individual study and research, and some language courses (in Japanese and English).

History

1990	October	JAIST was founded. The School of Information Science was created. The Institute Library was established.
1991	April	The School of Materials Science was created. The Center for Information Science was established.
1992	April	The first group of students entered the master's program in the School of Information Science. The Center for New Materials was established.
1993	April	The first group of students entered the master's program in the School of Materials Science. The Center for Research and Investigation of Advanced Science and Technology was established.
1994	April	The first group of students entered the doctoral program in the School of Information Science.
	June	The Health Care Center was established.
1995	April	The first group of students entered the doctoral program in the School of Materials Science.
1996	April	The Institute Library opened.
	May	The School of Knowledge Science was created.
1998	April	The first group of students entered the master's program in the School of Knowledge Science. The Center for Knowledge Science was established.
2000	April	The first group of students entered the doctoral program in the School of Knowledge Science.
2001	November	The Research Center for Distance Learning was established. The Internet Research Center was established.
2002	April	The Center for Nano Materials and Technology was established, as a result of reorganization of the Center for New Materials.
	September	The Venture Business Laboratory was established.
2003	October	The IP (Intellectual Property) Operation Center was established. The Center for Strategic Development of Science and Technology was established. The Tokyo Satellite was established.
2004	April	JAIST was incorporated as a National University Corporation.
	November	The Research Center for Trustworthy e-Society was established.
2007	April	The Research Center for Integrated Science was established.
	September	The Center for Highly Dependable Embedded Systems Technology was established.
2008	April	The Center for Regional Studies and Innovation was established.
2009	April	The Global Communication Center was established. The IP Operation Center was integrated into the Center for Research and Investigation of Advanced Science and Technology. The Education and Research Center for Trustworthy e-Society was established, as a result of the reorganization of the Research Center for Trustworthy e-Society.
2010	April	The Center for Advanced Education for Working Professionals was established. The Center for Graduate Education Initiative was established. The Career Service Center was established. The Research Center for Software Verification was established.
2011	April	The Institute of General Education was established. The Research Center for Advanced Computing Infrastructure (RCACI) was established, as a result of the reorganization of the Center for Information Science. The Research Center for Innovative Lifestyle Design was established, as a result of the reorganization of the Center for Knowledge Science. The Dependable Network Innovation Center was established, as a result of the reorganization of the Internet Research Center. The Green Device Research Center was established. The Center for Intelligent Robotics was established. The Research Center for Bio-Architecture was established. The Research Center for Highly Environmental and Recyclable Polymers was established.
	July	The JAIST Gallery was established.
2012	March	The Research Center for Distance Learning was integrated into the Center for Graduate Education Initiative. The Global Communication Center was integrated into the Institute of General Education.
	April	The Industrial Collaboration Promotion Center was established, as a result of the reorganization of the Center for Research and Investigation of Advanced Science and Technology. The Research Center for Simulation Science was established. The Center for Regional Innovation was established, as a result of the reorganization of the Center for Regional Studies and Innovation. The Research Center for Service Science was established.
2013	April	The JAIST Innovation Plaza was established.
2014	July	The Headquarters for Industrial Collaboration was established.
2015	March	The Center for Graduate Education Initiative was integrated into the Research Center for Advanced Computing Infrastructure.
	April	The Center for Global Educational Collaboration was established.
	October	The Center for Single Nanoscale Innovative Devices was established. The Center for High-performance Nature-derived Materials was established.
2016	March	The Research Center for Integrated Science was discontinued. The Institute of General Education was discontinued. The Center for Advanced Education for Working Professionals was discontinued. The Research Center for Innovative Lifestyle Design was discontinued. The Green Device Research Center was discontinued. The Research Center for Software Verification was discontinued. The Research Center for Simulation Science was discontinued. The Education and Research Center for Trustworthy e-Society was discontinued. The Center for Regional Innovation was discontinued. The Center for Intelligent Robotics was discontinued. The Research Center for Bio-Architecture was discontinued. The Research Center for Highly Environmental and Recyclable Polymers was discontinued.
	April	The Graduate School of Advanced Science and Technology was created, as a result of a reorganization of the School of Knowledge Science, Information Science and Materials Science. The Headquarters for International Collaboration was established. The Global Communication Center was established. The International Research Center for Innovation Design was established. The Research Center for Theoretical Computer Science was established. The Research Center for Entertainment Science was established.
	August	The Center for Highly Dependable Embedded System Technology was discontinued. The Dependable Network Innovation Center was discontinued.
	September	Center for Trustworthy IoT Infrastructure was established.
2017	April	Headquarters for Industrial Collaboration was reorganized. Industrial Collaboration Promotion Center was reorganized. Regional Collaboration Promotion Center was established. Headquarters for Excellent Core Promotion was established.
2018	March	The Career Service Center was discontinued.
	April	Division of Transdisciplinary Sciences was established. Headquarters for the Promotion of Comprehensive Safety Management of Chemical Substances was established.
2019	March	The Research Center for Service Science was discontinued.
2020	March	Center for Single Nanoscale Innovative Devices was discountinued. Center for High-performance Nature-derived Materials was discountinued.
	April	International Excellent Core for Silent Voice Sensing was established. International Excellent Core for Sustainable Materials was established. International Excellent Core for Materials Informatics was established. Research Center for Interpretable AI was established.

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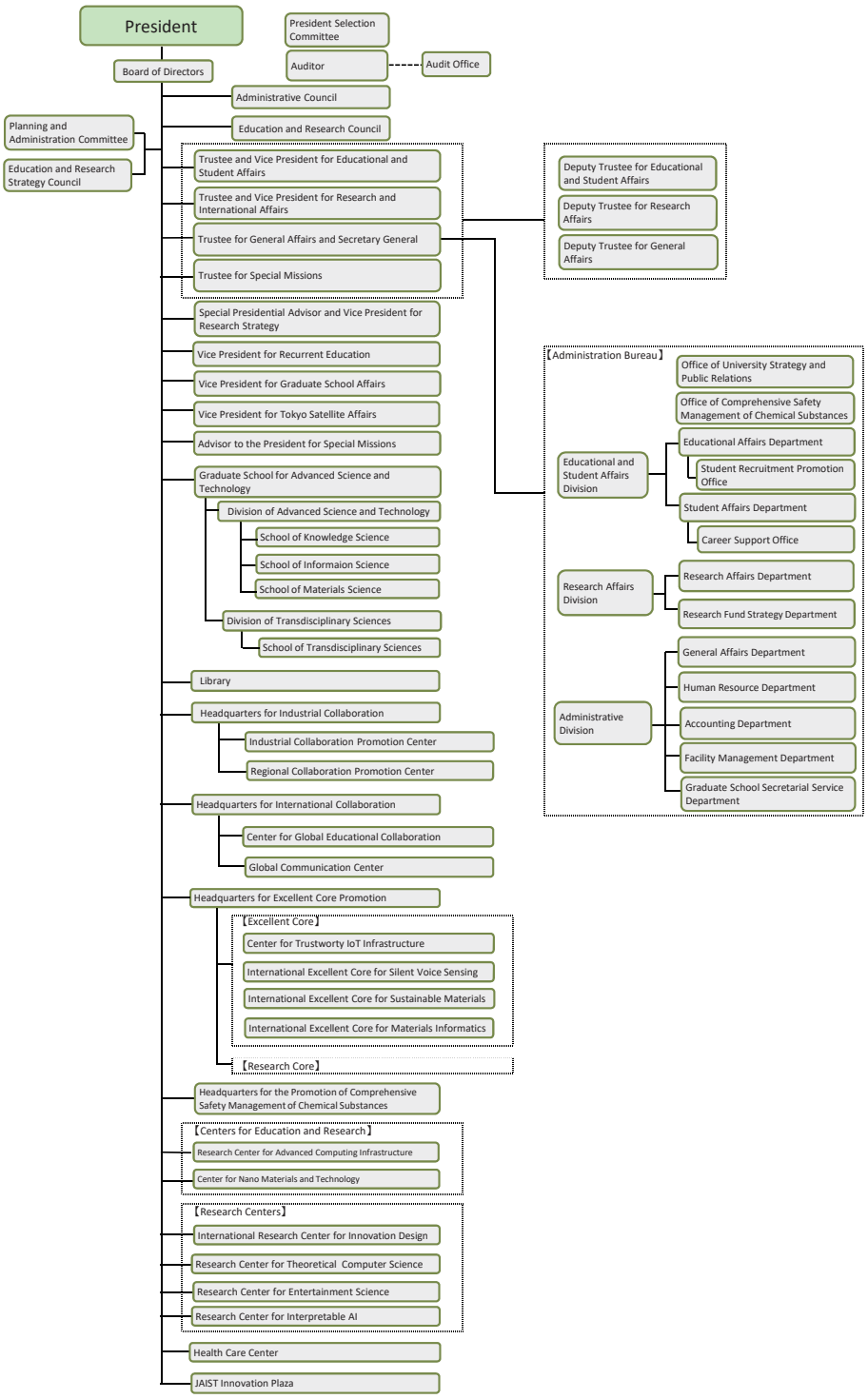
Organization



JAIST's Global Reach

Higher educational institutes today have to find a creative and practical way to contribute a globalized society. JAIST has been continuously promoting international exchanges and collaborations in the fields of advanced science and technology, and contributing to the society by educating students with the highest level of faculty and facilities to make them leading scientists or engineers indispensable for the future society.

Academic Collaborations

JAIST has concluded academic exchange agreements with 139 institutions in 29 foreign countries and 1 region (as of April 1, 2020) aiming at actively promoting exchanges of researchers and research collaborations worldwide.

Collaborative Education Programs

JAIST has promoted education programs in collaboration with renowned foreign academic institutes. Taking advantage of educational opportunities both at JAIST and the partner institutes helps students to obtain an international perspective and develop skills and abilities necessary to take active roles in the global society.
To seek for an ideal education system in the global era, JAIST has been operating several "Collaborative Education Programs" with the leading institutes in Europe and Asia.

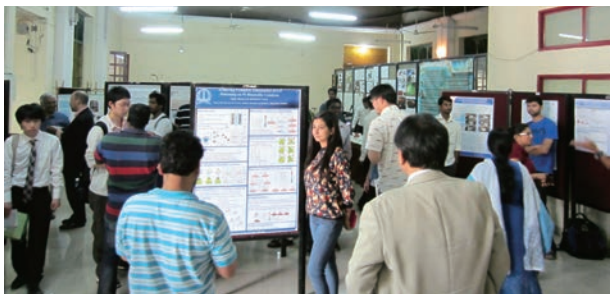
Bilingual Environment

JAIST offers a fundamentally bilingual environment. 42% of the students and 20% of the faculty members are from abroad. English is the instruction language of all the doctoral courses and most of the master's courses so that students can obtain their degree without a command of Japanese language. All the important e-mail communication on campus is also available in English. The Global Communication Center at JAIST secures the bilingual environment with solid English and Japanese language education programs.

International Symposium

JAIST holds international symposiums to share our great achievements with the world. Through the symposiums, JAIST aims at promoting discussion on the research and encouraging students to learn more about global sense.

Period	Symposium/Seminar /Workshop	Venue
Mar. 8, 2019	JAIST World Conference 2019 "Social Inclusion with Autonomy"	Nomi
Mar. 7, 2019	JAIST Japan-India Symposium on Advanced Science 2019	JAIST
Mar. 6, 8, 2019	JAIST World Conference 2019 "Advanced Design Creativity"	Kanazawa and JAIST
Feb. 28-Mar. 1, 2019	JAIST World Conference 2019 "Universal Design of Materials"	JAIST
Feb. 26. 2019	JAIST-IISc Seminar 2019	Bengaluru, India
Jan. 22-24, 2019	Smart Information / Smart Knowledge / Smart Material Workshop 2019	Pathum Thani and Bangkok, Thailand
Dec. 12-23, 2018	IITGN-JAIST Seminar	Gandhinagar, India
Mar. 7, 2018	JAIST-IISc Seminar 2018	Bengaluru, India
Mar. 5-6, 2018	JAIST Japan-India Symposium on Materials Science 2018	JAIST
Feb. 27-28, 2018	JAIST World Conference 2018 "Design for All Aspects of Advanced Science and Technology"	JAIST
Dec. 6-19, 2017	IITGN-JAIST Seminar	Gandhinagar, India
Sep. 26-28, 2017	Smart Information / Smart Knowledge / Smart Material Workshop 2017	Pathum Thani and Bangkok, Thailand
Mar. 6-7, 2017	JAIST Japan-India Symposium on Materials Science 2017	JAIST
Mar. 1, 2017	JAIST-IISc Seminar 2017	Bengaluru, India
Jan. 8-16, 2017	"Materials Science and High Performance Computing" Workshop	JAIST
Dec. 12-17, 2016	JAIST-India Workshop 2016 on Quantum Monte Carlo Electronic Structure Calculation Simulation	Chennai, India
Dec. 5-19, 2016	IITGN-JAIST Seminar	Gandhinagar, India
Mar. 7, 2016	IISc-JAIST Joint Workshop on Functional Inorganic and Organic Materials	JAIST
Feb. 29, 2016	JAIST-IISc Seminar 2016	Bengaluru, India
Feb. 26-27, 2016	DU-JAIST Indo-Japan Symposium on Chemistry of Functional Molecules/Materials	Delhi, India

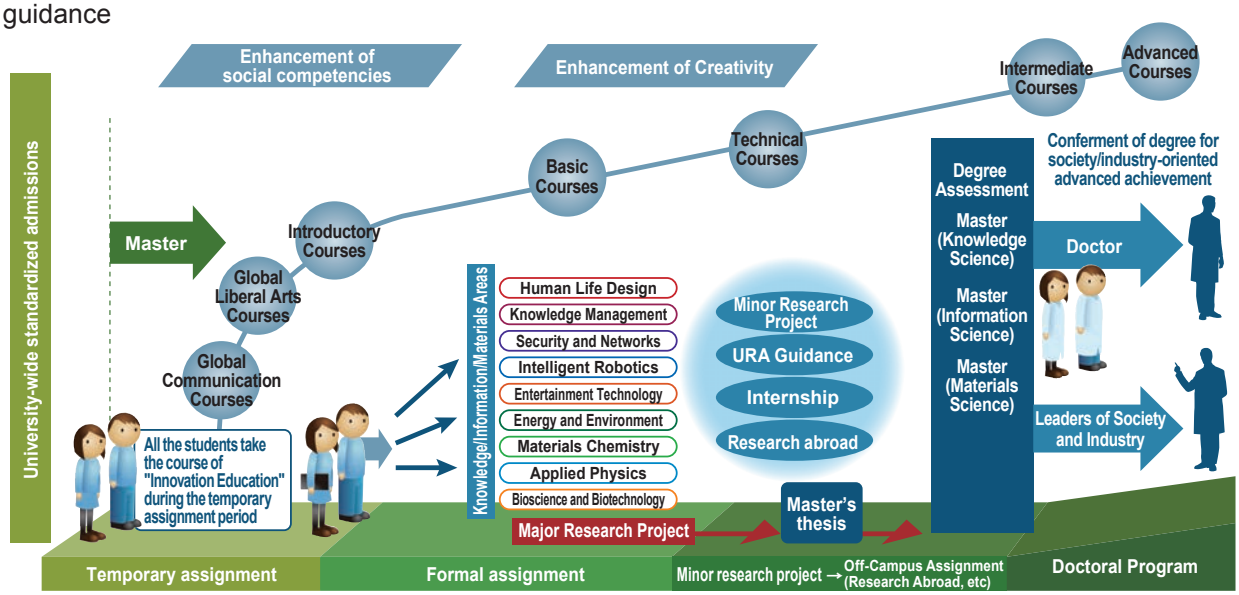


JAIST is committed to educating and training world-class "intellectually tough" scientists and engineers by accepting a wide range of enthusiastic international and adult students regardless of their undergraduate major.

Features of JAIST's Education System

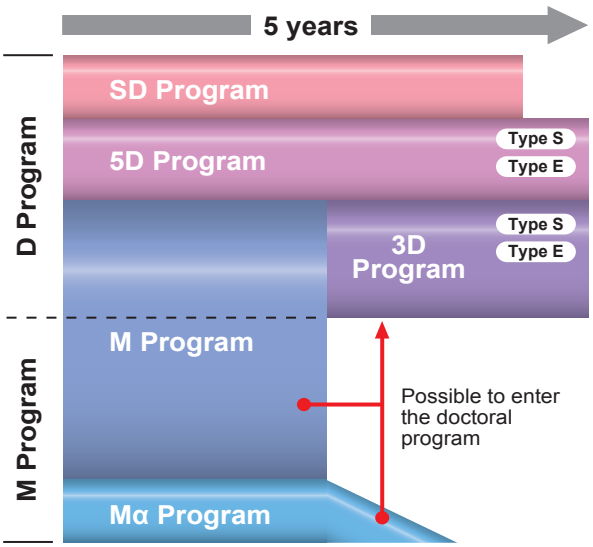
JAIST's education system develops creative future leaders who can open new frontiers in science and technology

Development of intellectually tough human resources through systematic course offerings and research guidance



Educational Programs to Satisfy a Variety of Study Purposes

JAIST provides various educational programs intended to help students achieve their personal, academic and professional goals. JAIST also provides support working professionals.



Career type (5D and 3D Program)

- ◆ Type S (Scientist) : Students who plan to be a researcher in advanced science and technology
- ◆ Type E (Engineer): Students who plan to be an engineer in a business enterprise

SD Program	This program is designed to identify students with top-level abilities at an early stage and to train scientists who can tackle new research challenges and open up new fields from a global perspective through a consistent doctoral education.
5 D Program	This program provides a five-year doctoral education through the master's program and the doctoral program.
3 D Program	This program provides a three-year doctoral education in the doctoral program.
M Program	This educational program is designed to provide a master's level education for 2 years in the master's program to train practical specialist engineers who can play a leading role in companies or other areas based on specialist knowledge and technology.
M α Program	This educational program is designed to provide a master's level education in the same way as the M program for between 2 and 3 years, aimed at those students who wish to learn properly from the basics or who have changed their major since obtaining their bachelor 's degree.

Advanced Curriculum

JAIST's curriculum, which is based on the university's mission statement, is designed to help students systematically progress from the basics of knowledge science to its cutting-edge frontiers while acquiring fundamental academic skills that will enable them to make significant contributions to the development of state-of-the-art technologies and the resolution of current and future problems facing society.

Multifaceted Research Activities through Minor and Major Research Projects

In addition to a major research project (for Master's Thesis or Research Project/Doctoral Dissertation), students must conduct a minor research project to acquire knowledge in relevant fields. These multifaceted research activities enable students to conduct research with a broader viewpoint and develop adaptive and applied skills to prepare for various challenges. Students may also select internship program as an alternative plan for minor research project.

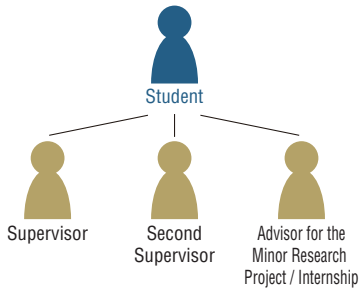
Supervisory and Effective Learning System

Taking Courses Offered in English

It is possible to fulfill degree requirements for both the master's and doctoral program by taking courses in English.

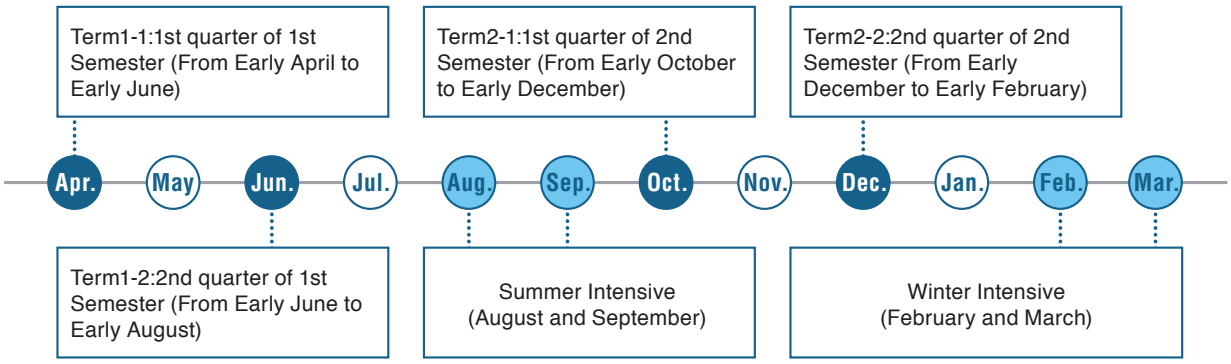
Multiple advisor system

Three advisors of (a supervisor, a second supervisor, and an advisor for the minor research project or internship) are assigned to each student and provide guidance and advice on student's study and research and on general academic activities.



Effective Learning

Since 1990 JAIST has adopted a quarter system which enables students to complete courses effectively in a short period of time. Lectures are offered mainly in the mornings, with tutorial hours, faculty tutorials and liberal arts classes offered in the afternoons. **JAIST sets the time of enrollment twice a year in April and October. The class curriculum is also adapted to the students enrolled in October as in April.**



Systems for the Quality Assurance in Education

- The Study Plan/Record between students and the supervisors helps review student's academic work.
- Preparation of a detailed research plan leads to successful program completion.
- Clarifying course goals, viewpoints of evaluation, evaluation methods and evaluation criteria for all courses is to secure the objectivity and rigidity of the grade assessment.

9 Areas

Graduate School of Advanced Science and Technology has 9 areas and does activities beyond the confines of academic discipline.

Human Life Design

Designing a high Quality of Life (QoL) with harmonious collaboration between human and machine by fusing human information processing and knowledge science

Human Life Design Area aims to create a gentle, attractive and harmonious "way of life" and "society". Toward this goal, we

(1) Acquire the fundamental knowledge about the biological characteristics such as mental, cognitive and physical of human on the basis of the study such as psychology, physiology, brain science, cognitive science, and so on.

(2) Research and develop elemental and applied technologies to support and extend the various activities of individuals and groups, based on the knowledge about the biological characteristics of human, and also considering sociality of a human being.

(3) Design a new ways of life and scene of social system (human life) under the complex relationships and interactions between human-human or human-object, by fusing those findings and technologies.

Through these three research activities, we realize an innovation for QoL improvement, and pursue materialization of a rich and fulfilling human society and knowledge creation.

Knowledge Management

Interdisciplinary educational and research area for innovation design based on Knowledge Science

Human knowledge, distinct from money, lands, or natural resources, is the most precious managerial resource in the global society, where people and machines are connected rapidly and seamlessly by the IoT (Internet of Things). JAIST initiated the establishment of the field of "Knowledge Science" in the world, preceding the coming of a "knowledge society". We are studying knowledge creation in the extent of individuals, organizations, and societies, by combining humanities and sciences. Our fundamental questions are "What is knowledge?", "How is knowledge created?", and "How should knowledge be utilized?" We are fostering young students and working professionals who will be able to contribute to social development by solving social problems through technological/regional innovations.

Security and Networks

The basic technology education and research of ICT systems that support the development of advanced information society and science and technology

Computer systems and networks have become increasingly important to our modern life. These information and communications technologies, or ICT, are the foundation that enables apps on our smartphones, that provide information security, that allow our mobile devices to connect wirelessly to the cloud. In the future, this trend is clearly increasing as "smart technologies" combine to form the Internet of Things. In addition, ICT investment has a close relationship to corporate performance, and has become a key driver of national growth strategy. The Security and Networks Research Area at JAIST performs research and graduate education on the fundamentals of ICT systems, to make wide-ranging contributions to industry, standardization activities and governmental policy making.

Intelligent Robotics

The interdisciplinary study of perception-action robot and logically intelligent agent

The humanoid robot is one of the ultimate goals of computer science. The robots are expected to support our daily lives, including disaster relief and care for aged people, where they are supposed to behave with enough intelligence as well as mechanically smooth body movement. This area covers these two aspects of intelligence and robotics, that is, we aim at building an autonomous cognitive agent with independent knowledge and inference mechanism based on advanced software engineering, as well as on mechanical/control engineering. The area includes the study of robot as a unit of perception/action cycle, mathematical logic as a foundation of inference, distributive/parallel system, software verification, and techniques for agent communication. Thus, we contribute through our interdisciplinary efforts to the further development of our society.

Entertainment Technology

Establishment of well-developed society where people can enjoy delightful learning and living by applying a wide variety of information technology/AI technology

Information technology is essential for convenient and trustworthy society. To further develop the society for people to enjoy delightful learning and living, this area aims at establishing a better relationship between people and computer by making the most use of a wide variety of technology of artificial intelligence and human information processing. Its research interests include game AI for entertainment, system or game AI that can support human's learning, standard criterion to measure pleasure or difficulty of a game or puzzle, sophisticated natural language processing and image processing for interaction with human. Thus, we contribute our interdisciplinary efforts to the development of a delightful society.

Energy and Environment

Learning and putting state-of-the-art sciences/technologies into practice to contribute to solving energy and environmental issues and realizing sustainable future societies

We tackle global energy and environmental issues and contribute to realizing sustainable and symbiotic societies in the future by using four primary areas of our scientific/technological expertise integrated with state-of-the-art technology in knowledge sciences: 1) Creation of new materials for renewable energy to be used in innovative methods such as a liquid process and researches of renewable energy material-device technologies applied for solar cells and thermoelectric conversion devices, 2) Elemental chemistry- & biofunction-based technology for the establishment of sustainable society focusing on development of high thermomechanical performance plastics, 3) Advanced environmental sensors based on nano-electro-mechanical (NEM) devices and zero-power & functional system integration technology, and 4) Materials-Informatics based on Data Mining and Quantum Simulations.

Materials Chemistry

Contributing to the creation of novel functional materials based on designing the basic structure from the perspective of chemistry

This area focuses on the design of novel functional and high-performance materials through basic and applied chemistry with the aid of advanced characterization facilities. We contribute to society by proposing innovative chemical products and fabrication processes to industries, necessary for the enriched sustainable society. Moreover, we aim to foster future researchers and technical experts who have the ability to develop new materials on the basis of design at the atomic and molecular levels with advanced knowledge of chemistry.

Applied Physics

Opening up the future of materials science by approaches of applied physics and engineering by exploring and making full use of nanoscience and nanotechnology

Our mission is to develop nanotechnology based on the science of atoms and molecules by seeking and acquiring the wisdom and skill in applied physics. We explore unprecedented technologies towards realization of ubiquitous devices, quantum devices, micro- and nano-machines, atom and molecule manipulators, and so on, which will provide rapid progress in building infrastructures for the future society. We contribute to solving the environmental and energy issues and supporting the safe, reliable and sustainable human society, by using the innovative technologies. Offering rich experience in cutting-edge nanoscience and nanotechnology, we educate our students to become challenging materials scientists capable of figuring out the essential cores of various issues through their ability to think from the perspective of physics.

Bioscience and Biotechnology

Exploration and application of biological functions through analysis, engineering, and organization of biomolecules

Living organisms exhibit a variety of biological functions derived from various biomolecules such as proteins, nucleic acids, lipid membranes, and sugar chains. In this area, we investigate biological functions of these biomolecules in molecular and cellular levels and design and synthesis of novel artificial biomolecules and biomolecular systems through utilization of unique biotechnologies that have been developed in JAIST. We also contribute to society with collaboration with industry in medical and environmental fields by applying our innovative biotechnologies including biodevice and biosensing technologies.

Research Center for Advanced Computing Infrastructure (RCACI)

The RCACI supports our world-class education and research environment by providing advanced information environment. Based on the FRONTIER Project, a high-speed and high-availability network provides the foundation for the high performance file servers, massively parallel computers, and various servers that have enabled JAIST since its foundation to continuously provide users a convenient information environment in the form of FRONTNET.

RCACI develops innovative information technologies to support information society and provides a large-scale experimental field to prove the new technologies.

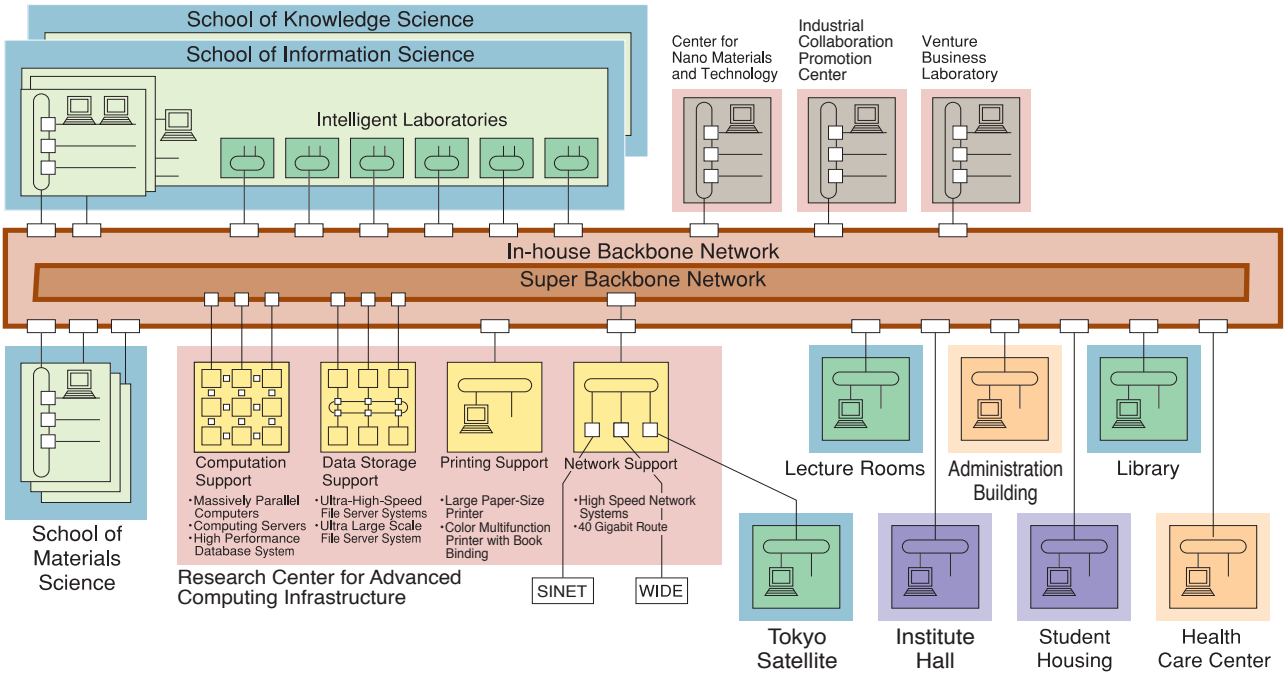
Computing Infrastructure Service Division

Providing the advanced information environments and their continuous improvement as a base of education and research at schools of knowledge science, information science and materials science, and computerization at library and administrative division.
Construction and management of the information environment to serve as a model for information centers in Japan.
Remarkable contribution to construction of worldwide scale network.

Information Environment Research and Development Division

Research on construction and management method for next generation large scale complex information system.
Research and development of next generation network technology to realize significant innovation of the Internet.
Development of massively parallel system to support education and research of advanced science and technology, and advancement of efficiency of use.
Research and development of security technology to realize safe and dependable information society.

FRONTNET



Advanced Laboratory Facilities

Information Systems

Campus Network

The campus network at JAIST is built with high-speed layer-3 core switches, etc. located at the Research Center for Advanced Computing Infrastructure.
In addition to the backbone switches, the floor switches also run at 10Gbps (wire speed), which enables very comfortable network access to any servers, anywhere in JAIST. The same information environment is also provided on JAIST Tokyo Satellite. Our campus network system provides 80 Gbps access to SINET5, which is the 100 Gbps full-mesh network connecting many universities, research institutes and clouds.

Network Operation Center

Massively Parallel Processing Systems

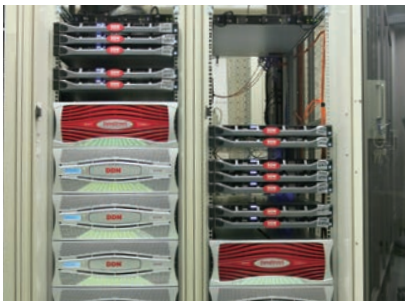
Massively parallel processing (MPP) is a term used in computer architecture to refer to a computer system with many independent arithmetic units (or entire micro-processors) that run in parallel. MPP systems are designed for large scale scientific computing. The picture at left shows the Cray XC40 system at JAIST, built with 548 computing-node, total 19,728 cpu-core, interconnected with Dragonfly technology and 70TB total memory.

Cray XC40

HPE Superdome

High-Speed, Large-Volume Storage Systems

To provide a reliable file storage environment, we are running high-speed, large-capacity file server systems in parallel. Through the high-speed campus network, researchers and students can utilize the information system from any computer at JAIST without changing their individual computer environment. Data backup is provided automatically by the systems, so each user can maintain their focus on research or study. Depending on the needs of users, they can select among a variety of file servers.



DataDirect Networks GRID Scaler file server system

Distance Learning System

The distance learning system enables us to do lecture and conference with researchers and students at remote locations. It is a relatively small unit which includes a camera and microphones that record own side video, video/audio outputs from another side, and a codec that performs analog/digital signal conversion and transmission. Through an MCU (Multipoint Control Unit), it is possible to realize a multi-point video conference with a Full-HD video and PC screen images. We can freely use the system installed in the lecture rooms and collaboration rooms on our campus.

Equipment

Campus Network	Juniper Networks: MX204, Cisco Systems: ASR1002 Cisco Systems: Nexus 7710, Juniper Networks: QFX10002 Palo Alto Networks: PA-5220
High-Speed, Large-Volume Storage Systems	EMC Isilon Storage System DataDirect Networks GRIDScaler Storage System NetApp FAS/SolidFire Storage System
Massively Parallel Processing Systems	Cray: XC40 (19,728 cpu-core) HPE: Superdome 144CPUcore/12TB memory x1, 72CPUcore/6TB memory x1, 64CPUcore/512GB memory x30 PC Cluster System (CPU Node 1,536 cpu-core/3.0TB Memory, GPU Node 16 GPU (NVIDIA Tesla P100))
Distance Learning System	Lecture archive system: Moodle Video conference system: Polycom RealPresence PC video conference system: Cisco Webex Meetings
Printing Support System	RISO, Japan: ORPHIS GD9630 (High Speed Printer with Book Binding) Canon, Japan: Image PROGRAF TX-3000, Ricoh Japan Pro L4160 (Large Format Printer) Fujitsu, Japan: Scan Snap FI-SV600 (Color Image Scanner) GBC: SureBind2000 (Portable Book Binding)

*These are just some of the main pieces of equipment -there are many more.

Center for Nano Materials and Technology

The Center for Nano Materials and Technology (CNMT) started in 2002 as a renewal of the former Center for New Materials, and is devoted to advanced research and education on nanotechnology. The Center promotes the Nanotechnology Education Program. It also supports joint projects in basic research and development of nanotechnology. Those projects are driven by domestic as well as foreign research groups at the highest level, for which the Center provides its state-of-the-art facilities.

Research Facilities and Instruments

The Center has special facilities and a variety of state-of-the-art instruments dedicated to basic research and development of nanomaterials. The special facilities include clean rooms and a helium gas liquefaction system. Research instruments include an 800 MHz NMR, mass spectrometers, SQUIDs, STMs, TEMs, SEMs, an RBS system and MBE systems.

Nano Material Technology Program

Since 2002, the Center has been promoting a systematic education program, the Nano Material Technology Program, to provide students and company engineers with a wide variety of knowledge and techniques regarding current advanced nanoscience and nanotechnology. This program includes lectures and training programs on nano-device fabrication, nano-biotechnology and nano-molecular analysis.

Clean room

Nuclear magnetic resonance spectrometer (NMR 800MHz)

Outside view

Research and Education

Quantum Device Materials Division	Studies on solid-state physics as well as novel ultra-high speed and spintronics devices, micro-nano machines based on compound semiconductors. Studies on thermoelectric materials and devices.
Nano Bio Device Materials Division	Studies on biodevices and nano technologies for analyzing bio molecules and science-related problems. Studies on mass analysis.

Advanced Laboratory Facilities

Material Analysis Systems

Molecular mass spectrometer (FT-ICR-MS)

This device is a mass spectrometer that uses ion cyclotron resonance (ICR). In measurement, ionized samples are subjected to cyclotron motion in a high magnetic field, and confined within an ICR cell. Then, the resonance signal obtained by exposing them to a radio-wave pulse is Fourier transformed. This device produces a resolution from one to several hundred thousands, and its high sensitivity gives it the capacity to measure even pmol-fmol order samples.

Electron probe micro-analyzer (EPMA)

The EPMA is a scanning electron microscope with the added function of spectroscopic analysis of characteristic X-rays. Since the characteristic X-rays emitted from samples are specific to elements, qualitative/quantitative analysis of the elements in the sample is possible. It is also possible to measure the element distribution on the sample surface.

Transmission electron microscope (TEM)

The TEM is an apparatus used to observe and analyze microstructures of materials. This apparatus, Hitachi HF-2000, also can be used for Energy Dispersive X-ray Spectroscopy (EDXS) and Electron Energy Loss Spectroscopy (EELS) of materials in the nanometer scale.

Focused ion beam system (FIB)

Less than a few micron 3D micro-fabrications (thinning, etching, milling etc.) were done by focusing ion-beam on the surfaces of metal, insulator, semiconductor etc. As an ion source, Ga ion-beam is used under a few tens keV acceleration.

Equipment

・Molecular mass spectrometer (FT-ICR-MS)	Bruker, Germany: SolariX
・Magnetic sector-type / time-of-flight mass spectrometer	VG Analytical, Fisons Instruments, UK
・Rutherford backscattering analysis, high-energy ion implantation system	NHV Corporation: NT-1700H
・Four-circle x-ray crystal analyzer	Rigaku Corporation: RASA-7A
・Gene/protein structure analysis system	Applied Biosystems, USA: 373A DNA Sequencer (complete set)
・Scanning electron microscope (SEM)	Hitachi: S-4100, S-5200
・Transmission electron microscope (TEM)	Hitachi: H-7650 JEOL: JEM-ARM200F
・Nuclear magnetic resonance spectrometer (NMR800MHz)	Bruker, Germany: AVANCE Ⅲ 800
・Nuclear magnetic resonance spectrometer for solutions (NMR500MHz)	Bruker, Germany: AVANCE Ⅲ 500
・Solid-state nuclear magnetic resonance spectrometer (NMR400MHz)	Varian, USA: UNITYINOVA400WB
・Paramagnetic resonance spectrometer (ESR)	JEOL: JES-RE3X
・X-ray photoelectron spectroscopy system (ESCA)	Fisons Instruments, USA: S-ProbeTM2803
・Focused ion beam system (FIB)	SII: SMI3050
・Electron probe micro-analyzer (EPMA)	JEOL: JXA-8900
・Cluster formation reaction analysis system	Sumitomo Heavy Industries: SCI-400, SCR-500 JEOL: JSTM-4500VT

*These are just some of the main pieces of equipment -there are many more.

Center for Trustworthy IoT Infrastructure

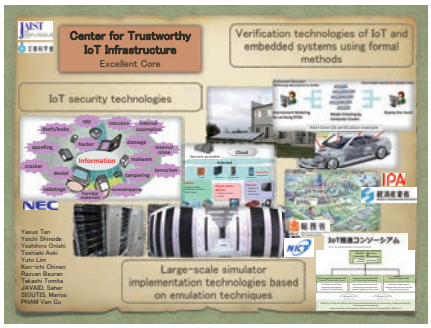
Realize the foundation of IoT society

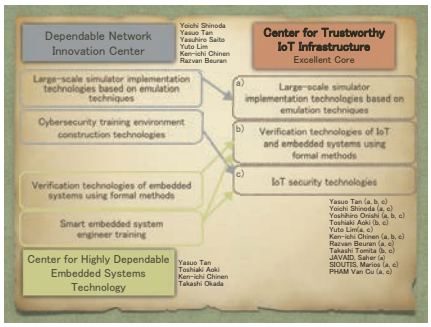
We conduct research on the IT infrastructure that will support the future IoT (Internet of Things) society.
More specifically, we focus on expanding the research and development in the following three directions:

a) Large-scale simulator implementation technologies based on emulation techniques
We carry out adaptation and incremental development of simulator implementation technologies previously developed through joint research with companies in connection with the rapidly expanding fields of various kinds of IoT systems. In particular, we aim to implement capabilities for the simulation of social systems, including human behavior, and to develop a simulator enabling us to conduct such virtual society experiments.

b) Verification technologies of IoT and embedded systems using formal methods
We conduct research and development on the use of formal methods as a technique to ensure the safety, reliability, and availability of the IoT and embedded systems that are already present in the society, such as vehicles, consumer electronics, electric power equipment, etc.

c) IoT security technologies
We develop cybersecurity technologies based on traditional IT security techniques, as well as conduct the concept systematization and related R&D work needed to address the new problems that have emerged in connection with IoT security.

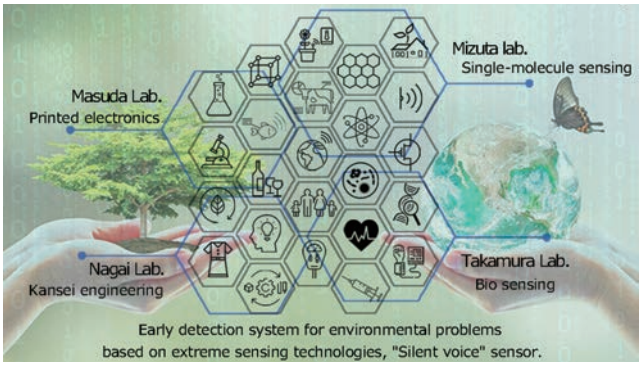




International Excellent Core for Silent Voice Sensing

Dreaming world led by ultra-fine processing and devices

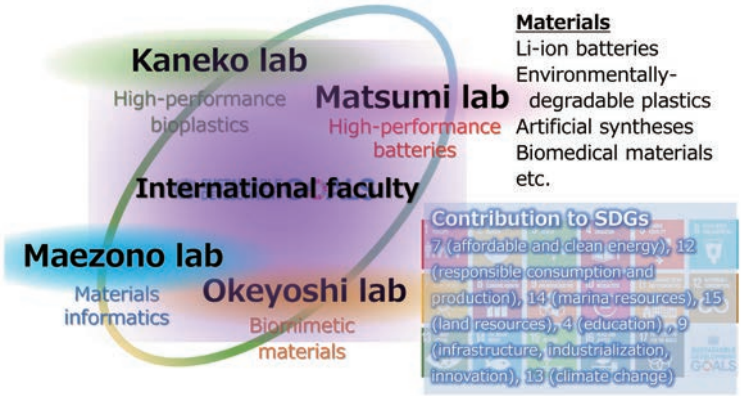
The International Excellent Core for Silent Voice Sensing aims to integrate cutting-edge ultra-sensitive sensors and Kansei engineering based interface/spatial design, and to implement sensor systems in society to realize a physically, mentally, and socially healthy living environment. In addition, the center promotes research and education program for students in cooperation with our industry-academic-government network with an international research institutions and many companies.
Our indoor environment, social infrastructure, nature, and humans emit many faint signals (gas, vibration, sound, light, chemicals and bio-substances). The detection of the faint signals (described as "silent voice" here) enables prevention/early detection of disease, prediction of material degradation/change, and mental stress monitoring. In addition, the design of sensor systems with interfaces that are in harmony with people and the environment allows us to intuitively recognize changes in the environment. It affects human behavior in a natural way, updating each person's lifestyle to a more diverse and healthier form.
Extreme sensing technologies for detection of the silent voices are developed along with IoT and AI technology for big data processing. We also develop the interfaces/products/systems that are in harmony with the cutting-edge technologies and human. It should be the foundation of the social system that is truly required in the future society.
Our center is organized by combining four laboratories active in sensing-related research works. Research on high-performance gas sensors and atmospheric electric-field sensors based on nanoscale graphene (Mizuta Lab.), biosensors capable of analyzing tissues and cells at the molecular level (Takamura Lab.), synthesis of liquid Si materials for sensor fabrication by printing (Masuda Lab.), and design of systems that harmonize with people and living environment (Nagai Lab.) are working together in this center.



International Excellent Core for Sustainable Materials

Nature-derived materials create future society of human beings.

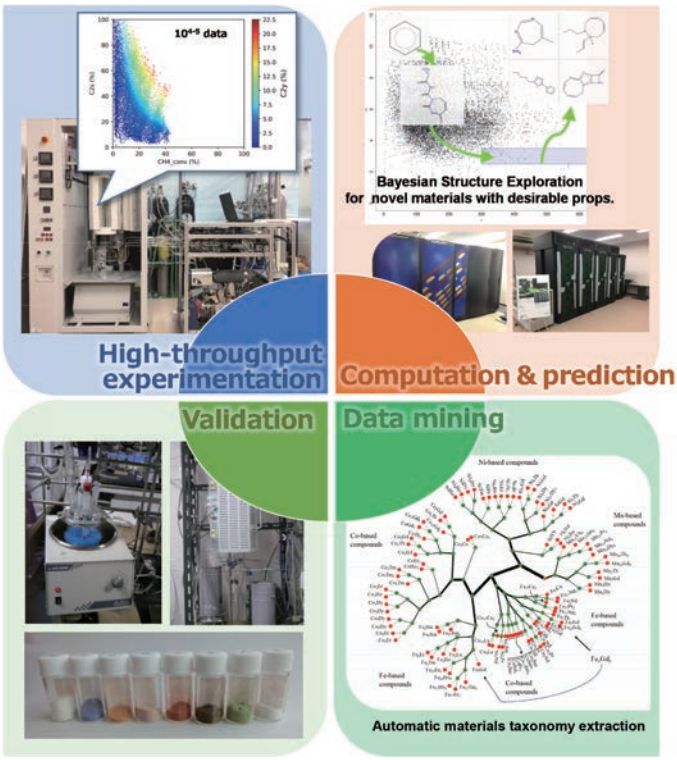
As can be seen from the background of the proposed sustainable development goals (SDGs) in the "2030 Agenda for Sustainable Development" adopted at the UN Summit in September 2015, the sustainability of humankind is recognized as the most important issue. The aim of this center is to promote materials science that contributes to the construction of a sustainable society under this background. In particular, aiming at materials development to directly contribute to 7 (affordable and clean energy), 12 (responsible consumption and production), 14 (marina resources) and 15 (land resources) of SDGs, and as a result, 4 (education) , 9 (infrastructure, industrialization, innovation), 13 (climate change) will be contributed at an international level. Based on the knowledge of the most advanced science on molecular structure possessed by the members and the experience of teaching a number of international students, an international collaborative research is conducted to make them aware of the issues related to sustainability unique to their respective countries of origin and to develop materials to solve them. In order to promote research, we will actively accept international students in doctoral course and build a research promotion and guidance system within an international framework. There is a solid system based on our original researches such as high-performance bioplastic (Prof. T.Kaneko), high-performance battery (Prof. N.Matsumi), material design by material informatics (Prof. R.Maezono), and biomimetic materials (Assoc. Prof. K.Okeyoshi). In order to contribute to the construction of a sustainable society, we will build a research center for interdisciplinary researches of related organizations and companies, focusing on practical researches on fusion of the different fields.



International Excellent Core for Materials Informatics

Towards data-driven materials science of a new age

Materials informatics (MI) corresponds to attempts of applying approaches of data science to materials science, with an expectation that MI irreversibly changes the way of research and development in materials science. The concept of MI is already well-established, while its success in creating innovative materials and knowledge largely relies on the most intimate as well as the most interdisciplinary collaboration among researchers of relevant fields. Our research center embodies such collaboration among five research groups of JAIST through implementation of MI for practical materials development and towards materials science of new age. In doing so, we pursue research items such as 1) high-throughput experimentation for materials big data, 2) data-driven materials extrapolation, 3) explainable and interpretable AI for extracting knowledge from materials data, and 4) experimental validation of proposed materials and descriptors, along with active international collaboration with various partners. The center also cultivates young researchers who can embody MI by their own.



International Research Center for Innovation Design

To challenge global issues through design knowledge

International Research Center for Innovation Design was established in April 2016, with an aim to lead international research collaboration and to form a foundation of design knowledge in order to drive innovation at the global level. The center will promote the creation of new science and develop future research to challenge social issues of the world from the perspective of design creativity. In addition, the center will practice innovative activities with advanced design knowledge based on creative thinking through an interdisciplinary approach. Our mission is to contribute to the improvement of the quality of life of the society on an international scale. Therefore, we will conduct research for the development of new technologies to create partnerships between businesses and universities by "design thinking" and valuable new services and products. Research collaboration among universities of Japan, China, France and Italy is being conducted with different enterprises. We emphasize enhancing the value of design in Japan from a global perspective. For example, an interdisciplinary project team formed by researchers from the fields of knowledge science, information science, and materials science will explore the process of creation of new value for traditional crafts, which is still the linchpin of the region's industry from a multidisciplinary approach, such as the development of next-generation designs like that of Kutani ware,which are innovative artifacts.

JAIST Fab.

Research Center for Theoretical Computer Science

Study of fundamental mathematics and logic in computer science

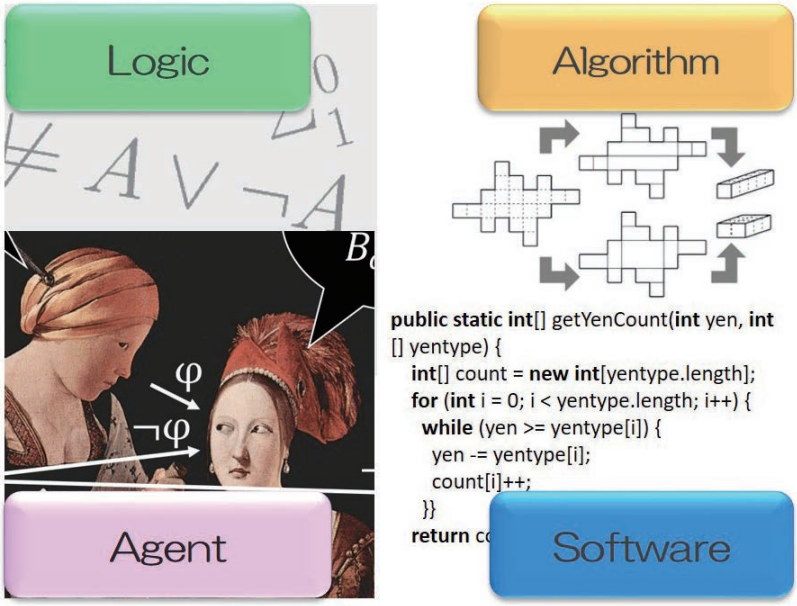
Our center aims at studying fundamental mathematics and logic in information science, and contirbute to propose a new paradigm of future computer. Our center tackles the folloiwng four issues:

(1) We construct a mode of natural language understanding, and knowledge representation of rational agents. We consider belief revision of agents through communicaton, and we develop our efforts to such practical problmes as legal reasoning.

(2) We tackle the issues of mathematical logic both from proof theory and from model theory. Also, we consider the computability. We apply these basic ideas to the reconstruction of fundamental theory and to program extraction.

(3) We study the formal language of computer, including specification language and programming language, and consider to apply them to real systems. As for fundamental theory, we study term-rewritng and type theory. As for application, we study distributed system and software security.

(4) We study discrete mathematics. Especially, graph theory and computational geometry are the two main targets. In these studies, we tackle efficient algorithms as well as the estimation and the proof of computational complexity.

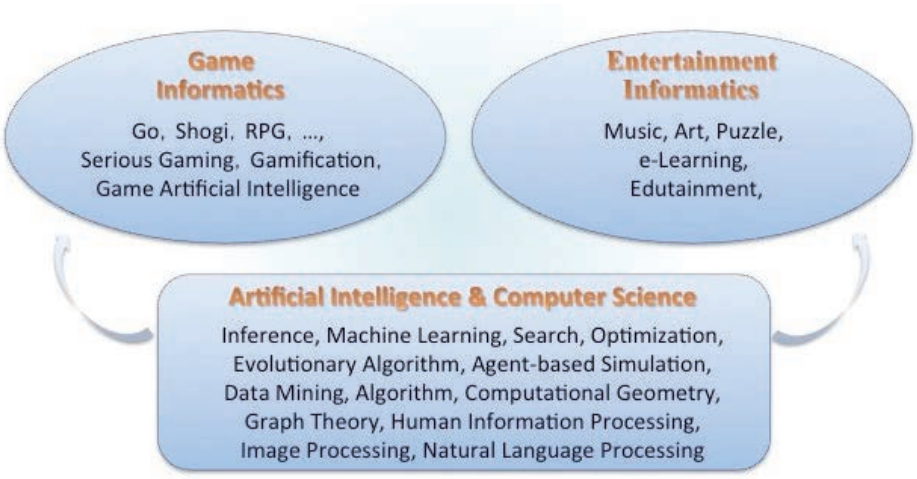


Research Center for Entertainment Science

Toward society where people can enjoy delightful learning and living

Information technology is essential for convenient and trustworthy society. To further develop the society for people to enjoy delightful learning and living, this research center aims at establishing a better relationship between people and computer by making the most use of a wide variety of technology of artificial intelligence and human information processing. Its research interests include game AI for entertainment, system or game AI that can support human's learning, standard criterion to measure pleasure or difficulty of a game or puzzle, sophisticated natural language processing and image processing for interaction with human. Thus, we contribute our interdisciplinary efforts to the development of a delightful society.

This research center explores entertainment for a happy life by integrating fundamental techniques such as game, machine learning, learning support, natural language processing, artificial intelligence and computer vision, as well as by combining deep analysis and modeling of human's perception, recognition, thought and sentiment. To achieve it, students learn fundamental techniques and theories of information science as well as advanced knowledge of subfields. They also cultivate abilities necessary to become advanced scientists or engineers, such as problem finding, modeling, substantiation, implementation, evaluation, presentation skill, communication skill and scheduling.



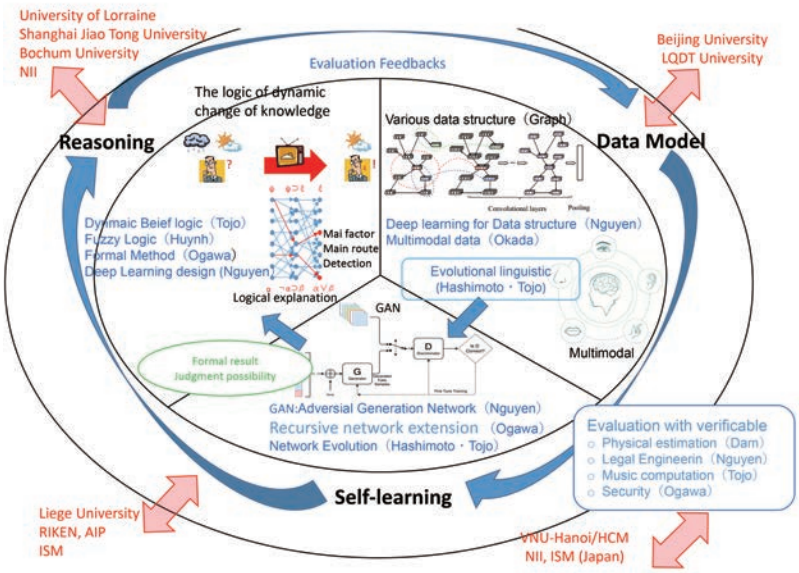
Research Center for Interpretable AI

Interpretable and explainable judgment by Artificial Intelligence

Artificial intelligence is now widely used, including in industry, from logical exploration in the 1990s to deep learning in the 2000s, supported by advances in hardware, and research has shown significant progress. The application has been widely advanced in a wide range of fields, including pattern recognition (voice and image), game entertainment, natural language processing, and data analysis.

Even at our university, there is a strong relationship with the intelligent robotics field, human life design field, and game entertainment field. At present, the research on artificial intelligence expands the impact of the increasing use of applications on society, and ensuring the reliability of artificial intelligence technology has become an important issue.

The aim of this center is to return to the basics of machine learning technology such as deep learning, and aim to secure empirical reliability as well as critical application of interpretable and explainable judgment by artificial intelligence. The center also aims to be an interface for joint research with overseas.



Center for Global Educational Collaboration

Center for Global Educational Collaboration was established in April, 2015 to support academic exchanges with overseas institutions and promote international interactions strategically.

It is important to develop human resources who possess academic expertise and broad knowledge to find worldwide issues and resolve them in the global society. By promoting academic exchanges and supporting career development comprehensively, we aim at developing "intellectually tough students" who will play active parts in the world with international communication skills, self-assertion, and understandings of different cultures.

Services

The Center provides the following services in cooperation with related departments of academic exchange programs.

- Comprehensive support to study abroad for research purposes in both short-term and long-term as follows: Orientation and guidance before/after studying abroad; Risk management; etc.
- Support for accepting students from overseas institutions
- Support for career development of the students in the exchange programs in cooperation with industry
- Follow-up of alumni
- Holding international seminars/workshops and promoting exchanges of both faculties and students

<Center for Global Educational Collaboration website>
URL: https://www.jaist.ac.jp/cgec/english/

Global Communication Center

The Global Leader. Your Future Identity.

JAIST offers one of the most internationalized campus environmenes in the world, as almost 50% of its students and about 20% of its faculty members on the main campus come from overseas. JAIST essentially aims at educating and training scientists, engineers, technology specialists who will play active roles on the global stage as "intellectually tough" leaders with superb knowledge and skills in not only specialized fields but also global knowledge and communication.

The Global Communication Center (GCC) located in the headquarters of International Collaboration Division at JAIST was established to provide an education that reflects a true global vision by offering English and Japanese language program to efficiently and effectively respond to the students' needs and diverse levels of language ability from the beginner to the advanced. In addition, to prepare students for their future role as global leaders, the GCC has developed a variety of courses to empower their communication ability and enhance their understanding of the globalizing world. The courses include Language Expression Technique, Diversity Studies, Japan Studies, Global Communication for Collaboration Building, Global Leadership Training Seminar, Practical English Intensive Seminar and Practical Japanese Intensive Seminar.

Moreover, in order to promote daily global communication on campus and to improve the scores of standardized language tests, the GCC offers TOEIC Workshop, JLPT Workshop, GCC Seminar Series. There is English Writing Lab to offer one-to-one assistance to students preparing to publish their research results.

Every student takes the TOEIC test at least twice while at JAIST, a first time when entering the school and the other time 18 months later. The objective data of the score improvement are used to further improve the GCC programs. In addition to their education and research in their major field, all the students are highly encouraged to take advantage of what the GCC offers them to be prepared for their future global activities.

Education for Working Professionals –Tokyo Satellite–

JAIST has a satellite facility in metropolitan Tokyo. It is located in the Shinagawa Intercity Building-A, which is a 3-minute walk from the JR Shinagawa Station's Konan Exit, and is on the 19th floor of the characteristic oval-shaped building.

The start of the JAIST Tokyo Satellite was in October 2003, when its Management of Technology (MOT) Course for master's degree within the School of Knowledge Science was inaugurated at its first location in Yaesu Campus just next to JR Tokyo Station. Afterwards the School of Information Science started Embedded Systems Course, Advanced Information Technologies Course for master's and doctoral degrees and, in collaboration with the National Institute of Informatics, Advanced Software Engineering Course for doctoral degree, in October 2005, April 2007 and April 2009 respectively in the Tamachi Campus. During this period, MOT Course was moved to Tamachi in October 2006, taking the opportunity of redevelopment project of Tokyo station Yaesu area. In October 2009, Management of Service (MOS) Course was launched by collaborative efforts of School of Knowledge Science and School of Information Science based on the successful experiences of MOT Course operation.

In April 2010, Advanced Knowledge Science Course for doctoral degree was added, and it was decided to move the facility to Shinagawa to establish the firm base for the courses, all of which are dedicated to working professionals. The relocation to Shinagawa was completed in October 2010. Then in October 2011, MOT and MOS courses were merged to be called iMOST (Innovation Management of Service and Technology) course, showing the important future direction of the innovation for industries to be competitive.

As of April 2019, total of 5 programs are offered to working professionals, which are MOT (Management of Technology) program, MOS (Management of Service) program and IOT (Internet of Things Innovation) program for master's students, Advanced Knowledge Science program and Advanced Information Technologies program for doctoral students. In recent years, Internet of Things (IoT) and Artificial Intelligence (AI) are sources of competitiveness in many industries. JAIST has started a new program IoT Innovation Program from April 2019, which is designed to foster IoT and AI innovation professionals based on information science and knowledge science. The actual number of students is around 200.

The Tokyo Satellite offers advanced technological and managerial education to students of working professionals who are unable to attend classes at the JAIST campus in Hokuriku. It also allows workshops and seminars to be held in Tokyo, enabling JAIST to maintain close contact and increase collaboration with industry, government and academic institutions throughout Japan. JAIST is planning to offer opportunities for its students to broaden their views about management associated with technologies, services and global business skills. The satellite facility is located in Shinagawa, the nearest business center to the Haneda International Airport, which is now directly connected to major international airports in Europe, the USA and Asia. Taking this advantage together with JAIST's globalized educational system, Tokyo satellite facility will allow JAIST to fulfill its role as a leader in Japan's technological development in industry to be globalized.

Library

The library at JAIST is administered based on the three principles of "Electronic library", "Open 24 hours a day" and "Research library". We are confident that the quality of our library is appropriate for a graduate school in terms of accessibility and the contents of its collection.

The Main Features of the JAIST Library

■Electronic library

We are promoting a digital system of academic materials. Users can use the online public access catalog, electronic journals and various databases of academic information through JAIST's well-developed information network.

■Open 24 hours a day

Since research is being carried out throughout the day, the library is open 24 hours a day, seven days a week, and books and other materials can be viewed freely whenever it is necessary. Books can be checked out anytime by using an automatic lending machine.

■Research library

The library's collection is focused on academic materials that are highly professional and advanced in order to support research in state-of-the-art science and technology.

Building/Premises	Three stories; reinforced concrete; 3,076㎡
Seats	158 (including 36 carrels)
Facilities	Library information system Entry / exit management system Automatic checkout system
Number of Books	154,360 (Japanese: 81,090 / Foreign: 73,270)
Electronic Journals	6,609 titles

JAIST Repository

JAIST Repository is a digital collection for providing access to JAIST's research materials through the Internet.

J-BEANS

The Learning Commons called "J-BEANS (Space for Brainstorming, crEAtion, and iNnovation)" is a place where students, faculty and staff can study together and exchange academic ideas. The room could be used for a group learning or for a presentation, etc.

Rare Books Collection

The Rare Books Room houses an exhibit of some of the classics in the fields of natural science and philosophy. "Kaitai Shinsho" is on permanent exhibit in this room.

Kaitai Shinsho, Sugita Genpaku (1774)

Health Care Center

The Health Care Center located on campus provides general health care services, including health examinations, first aid, health consultations and counseling, so that students and staff members can stay healthy in mind and body. Regular check ups are provided for all students in April every year. Also people who work with X-ray can be specially examined, if necessary. The Health Care Center is furnished with beds, massage chair, sphygmomanometer, scales etc. for use. Students can use the room for self enjoyment. All these services are free!

Gymnasium

JAIST gymnasium was established in December 2018 for the facility of sport and recreation. It is used as a place of refreshment and health promotion for students, faculty and staff members.
Built largely of timbers, the gymnasium provides us warm and comfortable atmosphere.
It has a function of a designated evacuation place as well as a place of exchange with the locals.
The gymnasium is large enough to hold 2 volleyball coats and has separate locker rooms with shower for each gender.

JAIST Gallery

JAIST Gallery opened on September 29, 2012 to exhibit our research outcomes and show the world-class puzzle collection, the "NOB Collection".

The gallery exhibits our faculty's research results and the world-class puzzle collection called the "NOB Collection". The "NOB Collection" was collected by the late Mr. Nobuyuki Yoshigahara, who is known around the world as a puzzle designer and collector. The collection was donated to our university by his family. An exhibit room of the gallery itself is designed featuring an assembly puzzle, and there are rare and valuable puzzles in each display of the cube. A variety of puzzles are exhibited, ranging from simple ones for kids to difficult ones for adults. Not only displaying the puzzles, we also have a room where kids can play with puzzles. These puzzles bring you new idea to solve your problems.
Both kids and adults can enjoy the gallery.

JAIST Shuttle

The JAIST Shuttle Bus runs between JAIST and the closest stations for free of charge and eligible for everyone on-campus and outside the campus. “Komatsu Line” runs between JR Komatsu Station and JAIST and requires a reservation in advance. “Tsurugi Line” runs between Tsurugi station of Hokuriku Railroad and JAIST.
JAIST Shuttle buses are painted with characters that are “JAI-LEON (JAIST's mascot)”, “nomimaru-kun (Nomi city)”, “Hiponon & Yuzumin (Nomi city)”, “KABUKKI (Komatsu city)” and “Yuki Mama and Shizuku-chan (Hakusan Tedorigawa Geopark Mascots)” to contribute to local PR. These characters are all image characters of local communities that JAIST has signed collaboration agreement with.

Industrial Collaboration Promotion Center

Industrial Collaboration Promotion Center manages intellectual properties of JAIST and helps to utilize them for the purpose of obtaining external research funds or returning the research achievements to the society, and thus assists smooth collaboration with industries.

Industrial Collaboration

The Center systematically strives to enhance industrial collaboration with assistance given by JAIST's graduate schools and other centers. In cooperation with JAIST Foundation, the Center also provides up-to-date information about advanced science and technology to engineers in the business community.

Management of Intellectual Properties

In an effort to return JAIST's research achievements to the society, the Center provides a variety of services in relation to the management of intellectual properties.

Career Support through Industrial Collaboration

Through global industrial collaboration, the Center supports practical career building for doctoral course students who wish to work for industrial fields.

Community Collaboration Promotion Center

We (CCPC; Community Collaboration Promotion Center) try to facilitate collaboration with community, local governments and NPOs to contribute to local community through our research and educational activities.

- Enhancement of community collaboration in the Hokuriku area
  We eagerly promote community collaboration and plan and manage Industry-Academia-Government-Finance partnership in the Hokuriku area.

- Community development through continuous education
  We try to educate highly educated community human resources for Society 5.0 contributing local innovation and community development.

Kanazawa Ekimae Office

For the Industrial Collaboration, JAIST has established an office in front of Kanazawa Station, Porte Kanazawa 9th floor. JAIST will actively utilize the office as an operating base for industrial collaboration and regional cooperation by holding meetings for collaborative research, events and seminar for companies, and also for project on seeking new students.

JAIST Innovation Plaza

— An Innovative Hub for Industry-academic-government Collaboration and Social Contribution —

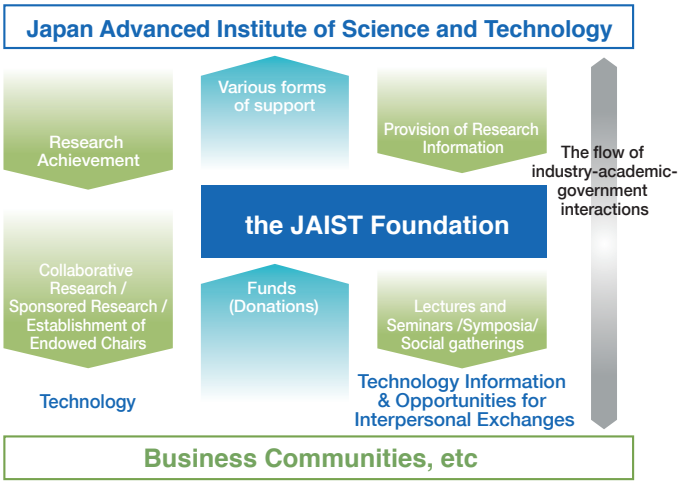
With the aim of giving the fruits of the institute's various research efforts back to the society of the Hokuriku region, JAIST has assumed the activities of the JST (Japan Science and Technology Agency) Innovation Plaza, Ishikawa. JAIST Innovation Plaza will work, in cooperation with public research institutes in Hokuriku, to provide a liaison for industry-academic-government cooperation, and will contribute to innovation in regional society and enterprises.

The JAIST Foundation

The JAIST Foundation was established in August, 1990 (has been a public interest incorporated foundation since April, 2011) mainly by the business communities of Ishikawa Prefecture and Hokuriku area, with purposes of making grants to JAIST for education and research as well as of promoting industry-academic-government interactions. The foundation expands its activities by its endowment's investment income. Its amount has reached about 3.3 billion yen (as of March, 2020), and has become one of the largest foundations of its kind in Japan.

The Foundation arranges and sponsors the following activities:

1. Education and Research
2. Collaborative Research
3. Technical Guidance and Consultation
4. Scholarship Programs
5. Industry-Academic-Government Interactions



Ishikawa Science Park

Ishikawa Science Park (ISP) was built in 1990 in the hilly area of Tatsunokuchi (Asahidai, Nomi City), the town filled with lush greenery, with the aims of facilitating industry-academic-government interactions in the field of advanced science and technology, and creating the base of global research development. Setting JAIST as the core institution, which was founded as Japan's first institute specializing in advanced graduate education and research, ISP promotes agglomerations of research and development institutions and industry support institutions. ISP exists today that requires responses to rapidly changing environment, such as globalization of society, complication of industrial structures, and rapidly progressing technological innovation, and plays a role in research development relating to sophisticated science and technology.

Students

Admissions

	Type of Examination
Master's Program	Regular Examination
	Examination for Admission on Recommendation for Overseas Residents (*)
Doctoral Program	Regular Examination
	Examination for Admission on Recommendation for Overseas Residents (*)

(*) This examination is conducted by either personal interview or through web communication tools, and screening of the application documents. Applicants do not need to travel to Japan to take the oral examination.

For more details on admissions, please visit the following website.

https://www.jaist.ac.jp/english/admissions/

Entrance Fee/Tuition Fee

	Screening Fee	Entrance Fee	Tuition Fee
Master's Program	¥30,000	¥282,000	¥267,900 (semester) ¥535,800 (year)
Doctoral Program			

Entrance Fee Reduction

Those who find it difficult to pay the entrance fee because of their financial situation, and are approved as high-achieving students, may be granted a reduction in entrance fees. There is also an entrance fee deferment system.

Tuition Fee Reduction

Those who find it difficult to pay the tuition fee because of their financial situation, and are approved as high-achieving students, may be granted a reduction in tuition fees.

Exemption or Reduction System in Case of Disasters

Students who find it difficult to pay fees due to emergencies or disasters which occur after their application and/or entrance to JAIST, especially emergencies involving their parents, may also be granted an exemption or reduction in entrance fees or tuition fees.

Please refer to the following website. **https://www.jaist.ac.jp/english/studentlife/support/fee.html**

Scholarships for International Students

In order to support international students, JAIST has a variety of financial support systems, consisting of scholarships and on-campus employment. Shown below is a list of JAIST's financial support systems. For details and scholarship application procedures, contact the Student Affairs Department.

Scholarships that students can apply for BEFORE arriving in Japan

(1) Japanese Government (Monbukagakusho: MEXT) Scholarship

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) offers scholarships to international students who wish to study at Japanese universities either as a non-degree seeking student or a regular student.

Monthly allowance:
143,000 yen for research students (non-degree seeking students)
144,000 yen for master's program students
145,000 yen for doctoral program students

There are two types of selection processes for this scholarship.

Embassy Recommendation
MEXT asks each Japanese embassies or consulates in countries that have diplomatic relation with Japan to recommend candidates for MEXT scholarship.
Please contact them directly for the detailed schedule for application as it differs according to the embassy/consulate.

University Recommendation
JAIST recommends candidates to MEXT after selection. Applicants are preferably students or graduates of universities or research institutions with which JAIST has academic exchange agreements.
Please contact a prospective supervisor and obtain his/her informal consent of acceptance before application.

(2) Government Scholarship of Student's Own Country

Many countries are sending students to study abroad on government scholarships.
Contact the relevant authorities of your own country for the detailed information.

(3) Scholarships from Local Governments or Private Foundations

Students can apply for some of these scholarships before arriving in Japan. For more information, visit the website of the Japan Student Services Organization (JASSO).
https://www.jasso.go.jp/en/study_j/scholarships/index.html

(4) JAIST Original Support System

In order to provide financially secure graduate school life, JAIST has original support systems.

1. JAIST Scholarships (Benefit type: No repayment required)

Type of Scholarship	Number of Recipients	Benefit
Master's Program Scholarship	Top 10% of all second year students in the master's program	-Tuition
	Top 25% of all second year students in the master's program	-Half of tuition

2. Doctoral Research Fellow (DRF) for Doctoral program students (Benefit type: No repayment required)

Name	Intended Recipients		Benefit*
Doctoral Research Fellow (DRF)	Special Type	Few successful applicants	-Tuition
			-70,000 yen/month for three years
	Normal Type	Approx. 20% of all successful applicants for the doctoral program	-Tuition
			-30,000 yen/month for three years

* In addition to the above, an equivalent amount of entrance fee is paid to newly-enrolled student.

Scholarships that students can apply for AFTER entering JAIST

Most scholarships from local governments or private foundations require students to obtain recommendation from JAIST and submit an application via JAIST. For more detailed information, visit the JAIST web page.

Student Housing

Eight five-story Student Housing are located on campus.
International students receive priority to live in Student Housing.

■Common Facilities

Common room, meeting room, Japanese-style room, and student housing parking.

Student Housing

Single Room
An E-mail address is provided for each student, and PC can be connected to the campus LAN.

	Single room unit	Double room unit	Family room unit	Single room unit (JAIST HOUSE)
Number of Units	533	33	33	30
Floor Space	12.5m² (One room)	41.4m² & 46.9m² (1 bedroom, living/dining room and kitchen)	59.8m² (2 bedrooms, living/dining room and kitchen)	17.6m² (One room)
Housing Rent	¥12,540 (per month)	¥14,920 (per month)	¥17,220 (per month)	¥16,350 (per month)
Facilities	desk, chair, shoe rack, loft bed, bookshelf, closet, air-conditioner, kitchenette, lavatory, refrigerator	desk, chair, shoe rack, table, chairs for dining room, closet, gas range, washing and drying machine, air-conditioner, kitchen, lavatory, bathroom, refrigerator	desk, chair, shoe rack, table, chairs for dining room, closet, gas range, washing and drying machine, air-conditioner, kitchen, lavatory, bathroom, refrigerator	desk, chair, shoe rack, bed, bookshelf, closet, refrigerator, gas range, microwave, washing machine, air-conditioner, curtain, kitchenette, bathroom,etc.
Shared Facilities	bathroom, laundry space	—	—	—

Guesthouse

As JAIST expands its international exchanges and research collaborations, the Guest-house serves as accommodations for visitors and as a facility for international exchange events. A maximum period of stay is one year.

Facilities for Campus Life

Cafeteria

Convenience Store

Training Room

Tennis Courts

Data : Outline of JAIST

Number of Board Members

(As of May 1, 2020)

President	Trustee	Auditor
1	5	2

Number of Faculty and Office Staff

(As of May 1, 2020)

Professor / Research Professor	Associate Professor / Research Associate Professor	Senior Lecturer / Research Senior Lecturer	Assistant Professor / Research Assistant Professor	Subtotal	Office Staff	Total
66	43	10	42	169	150	319
8	2	0	6			

Number of International Faculty

(As of May 1, 2020)

Country Region	Professor, Research Professor	Associate Professor, Research Associate Professor	Senior Lecturer, Research Senior Lecturer	Assistant Professor, Research Assistant Professor	Total
Vietnam	2	2		2	6
Korea	1	4			5
India			1	4	5
Thailand			1	3	4
China				3	3
USA	2				2
Pakistan				2	2
Israel		1			1
Romania		1			1
France			1		1
Taiwan				1	1
Turkey				1	1
Malaysia				1	1
Italy				1	1
Nicaragua				1	1
Total	5	8	3	19	35

Number of Students

(As of May 1, 2020)

	Master's Program				Doctoral Program					Total
	Capacity of Admission	1st year	2nd year	Total	Capacity of Admission	1st year	2nd year	3rd year	Total	
Graduate School of Advanced Science and Technology (Division of Advanced Science and Technology)	282	317 (72) [126]	482 (93) [175]	799 (165) [301]	90	125 (38) [75]	95 (30) [58]	148 (39) [72]	368 (107) [205]	1167 (272) [506]
Graduate School of Advanced Science and Technology (Division of Transdisciplinary Sciences)	10	9 (2) [2]	10 (1) [3]	19 (3) [5]	5	4 (0) [2]			4 (0) [2]	23 (3) [7]
School of Knowledge Science								11 (0) [2]	11 (0) [2]	11 (0) [2]
School of Information Science								16 (1) [1]	16 (1) [1]	16 (1) [1]
School of Materials Science								1 (0) [0]	1 (0) [0]	1 (0) [0]
Total	292	326 (74) [128]	492 (94) [178]	818 (168) [306]	95	129 (38) [77]	95 (30) [58]	176 (40) [75]	400 (108) [210]	1218 (276) [516]

※ ( ) Number of female students within the total. [ ]Number of international students within the total.
※ The numbers in each year include those enrolled in October. The numbers in the Doctoral Programs include those enrolled in July.

Number of International Students (Including research students)

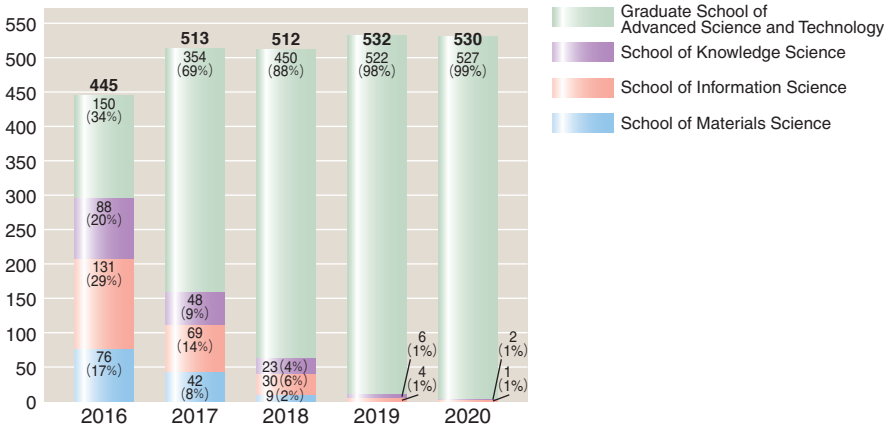
(As of May 1, 2020)

Country Region	Graduate School of Advanced Science and Technology			School of Knowledge Science			School of Information Science			School of Materials Science			Total				
	Master's Program	Doctoral Program	Research Students	Master's Program	Doctoral Program	Research Students	Master's Program	Doctoral Program	Research Students	Master's Program	Doctoral Program	Research Students	Master's Program	Doctoral Program	Research Students	Total	Rate %
China	255	84	9										255	84	9	348	65.7
Vietnam	15	41	2										15	41	2	58	10.9
Thailand		26						1					0	27	0	27	5.1
India	9	9											9	9	0	18	3.4
Bangladesh	3	12			2								3	14	0	17	3.2
Myanmar	8	7											8	7	0	15	2.8
Indonesia	3	10											3	10	0	13	2.5
Taiwan	5	4	3										5	4	3	12	2.3
Korea	4	2											4	2	0	6	1.1
Malaysia	2	3											2	3	0	5	0.9
Egypt		1											0	1	0	1	0.2
Netherlands		1											0	1	0	1	0.2
Canada	1												1	0	0	1	0.2
Cambodia		1											0	1	0	1	0.2
Kenya		1											0	1	0	1	0.2
Saudi Arabia		1											0	1	0	1	0.2
Jamaica		1											0	1	0	1	0.2
Nigeria		1											0	1	0	1	0.2
Nicaragua		1											0	1	0	1	0.2
Mongolia	1												1	0	0	1	0.2
Laos		1											0	1	0	1	0.2
Total	306	207	14	0	2	0	0	1	0	0	0	0	306	210	14	530	100

Change in International Students by schools, 2016-2020

(Including research students)

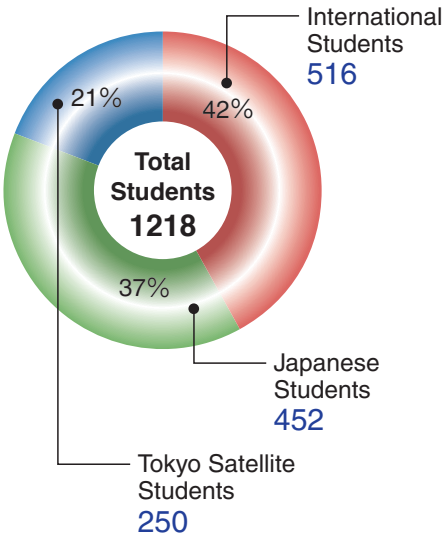
(As of May 1, 2020)



Percentage of Students

(Excluding research student)

(As of May 1, 2020)

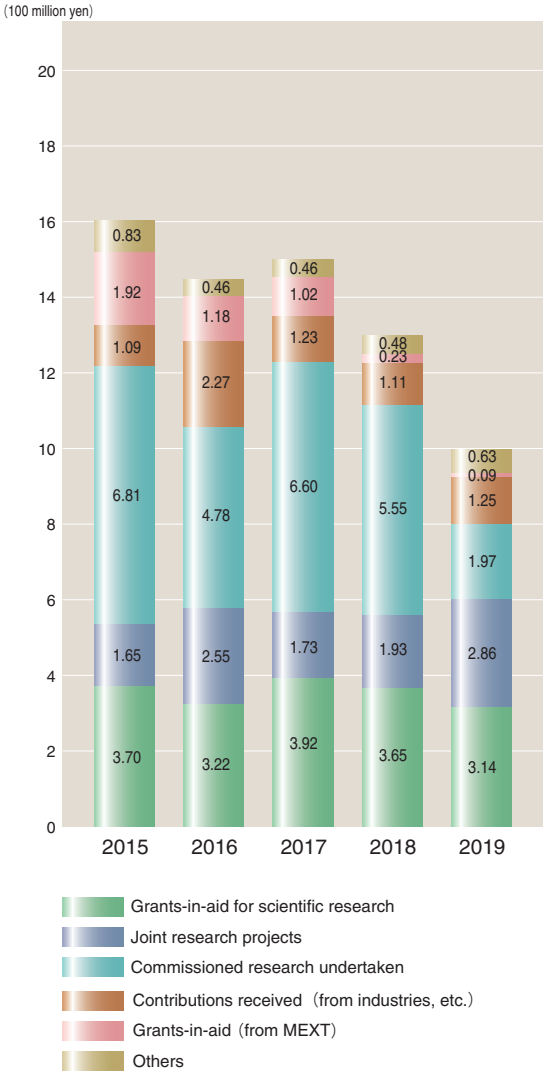


Degrees Awarded

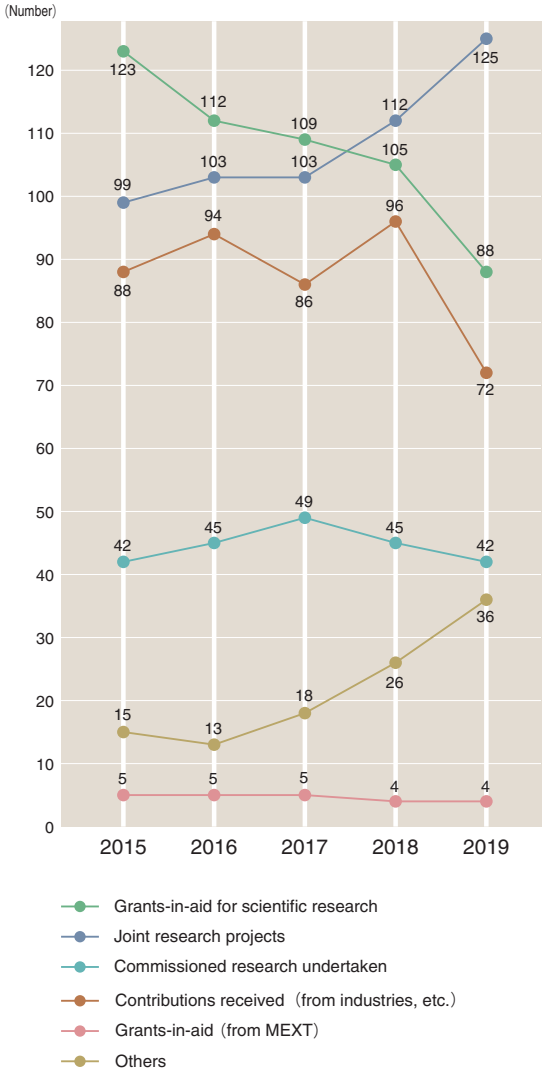
(As of Mar 31, 2020)

	Master's Program		Doctoral Program	
	2019	Cumulative Total	2019	Cumulative Total
Knowledge Science	97	1612	21	271
Information Science	138	2587	17	431
Materials Science	85	2545	24	492
Transdisciplinary Science	8	8	–	–
Total	328	6752	62	1194

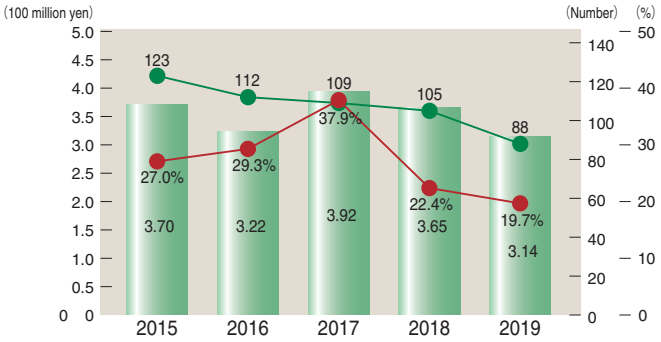
External Funds (amount)



External Funds (number)



Grants-in-Aid for Scientific Research



(The number of acceptances for new projects divided by the number of applications for new projects)

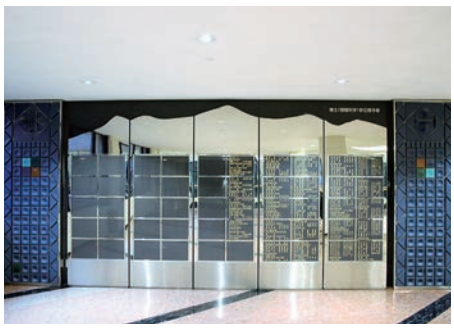
Campus Map

HP "Campus Map"

1 School of Knowledge Science, Building I
2 School of Knowledge Science, Building II
3 School of Knowledge Science, Building III
4 School of Knowledge Science Lecture Hall
5 School of Information Science, Building I
6 School of Information Science, Building II
7 School of Information Science, Building III
8 School of Information Science Lecture Hall
9 School of Materials Science, Building I
10 School of Materials Science, Building II
11 School of Materials Science, Building III
12 School of Materials Science, Building IV
13 School of Materials Science Lecture Hall
14 Center for Nano Materials and Technology
15 Technical Annex Center
16 Nano Analysis Building
17 Multidisciplinary Research Center
18 Entry Hall
19 Headquarter Building for Industrial Collaboration
20 Venture Business Laboratory
21 JAIST Innovation Plaza
22 Institute Hall (Cafeteria, ATM)
23 Library
24 Convenience Store, Training Room
25 Gymnasium
26 Guesthouse
27 Student Housing
28 JAIST HOUSE
29 Apartment Houses for JAIST staff
30 Administration Building
Bus Stop (JAIST Shuttle Komatsu Line)
31 Bus Stop (JAIST Shuttle Tsurugi Line)
32 Parking

JAIST Shuttle


Entrance


Hakusan Relief

Land/Building

(As of April 1, 2020)

Land	: Area	113,063m²
Building	: Area	29,464m²
	Total floor area	100,044m²

Student Housing

Cafeteria

Convenience Store

Access

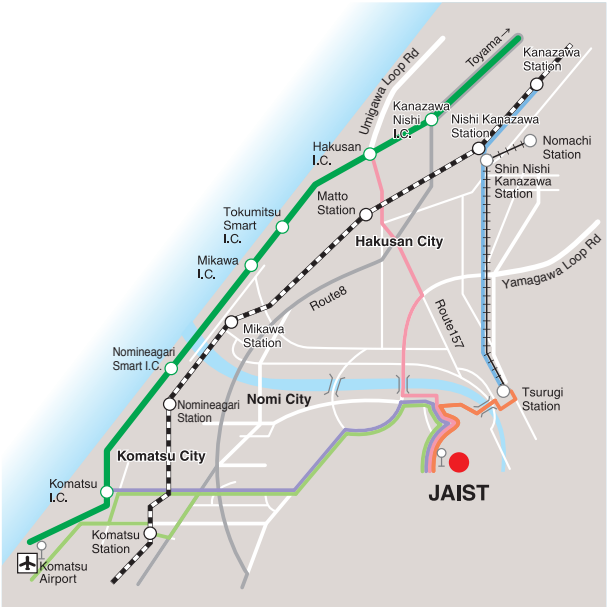
HP "Access"

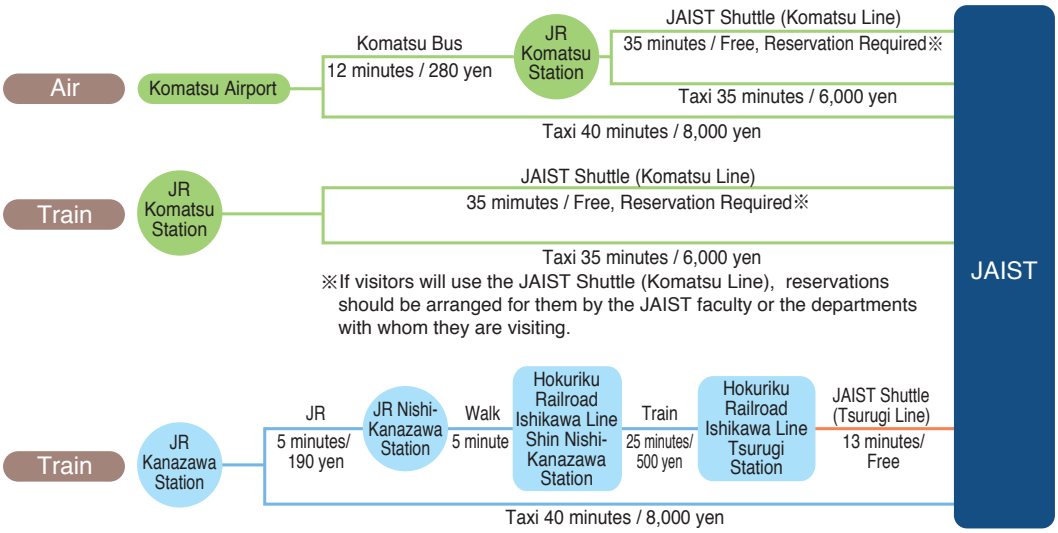
JAIST is in the center of the Ishikawa Science Park located on a hill in the city of Nomi in Ishikawa Prefecture. The campus site enjoys scenic beauty, overlooking nearby counties and the city of Kanazawa to the north, the Sea of Japan to the west, forests and pastures to the south, and the spectacular Mt. Hakusan to the east.

The area povides us with a variety of recreational facilities for every season, including several nearby ski resorts, beaches and seaside parks, golf courses, hot springs and athletic and recreational parks. With a population density far below that of the Pacific side of the island of Honshu, the area affords easy access to wilderness and outdoor recreation.

Within 20km of JAIST is the historic city of Kanazawa, often referred to as the hidden gem of Japan, which hosts numerous cultural events all year round.

Komatsu Airport offers regular international flights to and from **Shanghai**, **Seoul**, **Taipei** and **Hongkong**.





National University Corporation

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JAIST Search