SOKENDAI

The Graduate University for Advanced Studies, SOKENDAI
School of Multidisciplinary Sciences

Department of Informatics

5-year Ph.D. course / 3-year Ph.D. course

2021–2022

ACHIEVING
EXCELLENCE
IN INFORMATICS

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

INTRODUCTION

Earn a Ph.D. at the National Institute of Informatics

The National Institute of Informatics (NII) offers 3-year and 5-year PhD within The Graduate University for Advanced Studies, SOKENDAI, in which it constitutes the Department of Informatics. The Department of Informatics provides a unique educational and research system where the National Institute of Informatics allows students access to advanced IT facilities and leading researchers in an international atmosphere.

Director General, National Institute of Informatics

KITSUREGAWA, Masaru

Informatics Changing the World.

Toward realizing "super smart society (Society 5.0)" where information technology is expected to help the creation of new value and services, the field of informatics is becoming more and more important. The Coronavirus disease pandemic has forced an acceleration in digital transformation and revealed the importance of information technology. Rising from the traditional foundations of information science and engineering, informatics represents a comprehensive, interdisciplinary research field that examines information-related issues, including issues in the data, the humanities, and the social sciences.

The Department of informatics established at the National Institute of Informatics (NII), which is the only comprehensive academic informatics institute in Japan, offers a Ph.D. program in informatics to educate and cultivate researchers in order to develop a solid grounding in advanced informatics and expertise across a broad range of disciplines, as well as flexibility in perspective and sophisticated technical knowledge. Candidates for the Ph.D. program are also expected enter the ranks of international and interdisciplinary professionals well-versed in informatics.

NII has a clear vision of the students we hope to cultivate: researchers with a keen interest in informatics – an interdisciplinary field encompassing the natural sciences, humanities, and social sciences – dedicated to realizing an advanced information-based society, and capable of serving as leaders in the field of informatics. We seek students with the aptitude to become sophisticated professionals devoted to the development of information technologies that will contribute to societal progress, as well as members of society with a strong interest in acquiring broader perspectives and deeper technical knowledge as they serve in the workforce.

In the Department of Informatics, we expect our future students to meet the challenges of the 21st century. We are confident that the progress and advancement of these students in informatics will change the world.

Chair, Department of Informatics

SUGIMOTO, Akihiro

Pushing Informatics ahead.

The department of Informatics consists of six multi-disciplinary research fields: Foundations of Informatics, Information Infrastructure Science, Software Science, Multimedia Information Science, Intelligent Systems Science, and Information Environment Science. These fields cover not only the traditional domains of computer science and information engineering, but also the domains in data science such as artificial intelligence or mathematical modeling, and even issues in the humanities and the social sciences. Our department is aiming at resolving problems in these domains from basic, applied, and practical points of view, and, at the same time, at educating and fostering not only researchers but also highly-skilled professionals, who will be eligible for next leaders in the field of informatics.

Our department has the five-year Ph.D. course and the three-year Ph.D. course: the former is for students having a bachelor degree where students can take plenty of time to develop their research subjects, while the latter is for students who earned a master degree where students can concentrate on research themes through enriching their research experiences. Our dual-degree program provides students with opportunities to go abroad to be supervised on their Ph.D. research topics at our partner universities/institutions. Moreover, as members of the National Institute of Informatics (NII), students can study in an internationally collaborative environment on a daily basis, participate in various research projects at NII, and are trained to become international researchers. The fact that we have a high percentage of foreign students is also an important feature of our department. Many of lectures are available in English, seminars at quite a few laboratories are held in English, and cross-cultural communication is frequently exchanged.

By offering an enriched cross-cultural environment, we aim at having our students trained with global perspectives and visions in building their extensive knowledge and high expertise in the field of informatics.

Department outline

What is SOKENDAI?

The Graduate University for Advanced Studies, SOKENDAI is a graduate university with no undergraduate programs that consists of departments housed in affiliated Inter-University Research Institutes and the School of Advanced Sciences attached directly to SOKENDAI. The Inter-University Research Institutes are research centers for joint use by universities throughout Japan in their various research fields. As such, these institutes serve as centers of advanced research in their respective research fields and as nodes of scholarly communication that support international joint research.

SOKENDAI was founded in October 1988 on the internationally unprecedented idea of educating graduate students at outstanding centers of research to cultivate future generations of scholars.

What is the National Institute of Informatics?

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

As an inter-university research institute corporation, NII has taken on the task of building and running essential research and education information infrastructures for Japan's academic community

▼ Relation between the Dept. on Informatics and the National Institute of Informatics

OIS: Research Organization of Information and Systems

NII [Faculty: 33 Profs, 26 Assoc. Profs, 16 Asst. Profs]

- Principles of Informatics Research Division
- Information Systems Architecture Research Division
- Digital Content and Media Sciences Research Division
- Information and Society Research Division

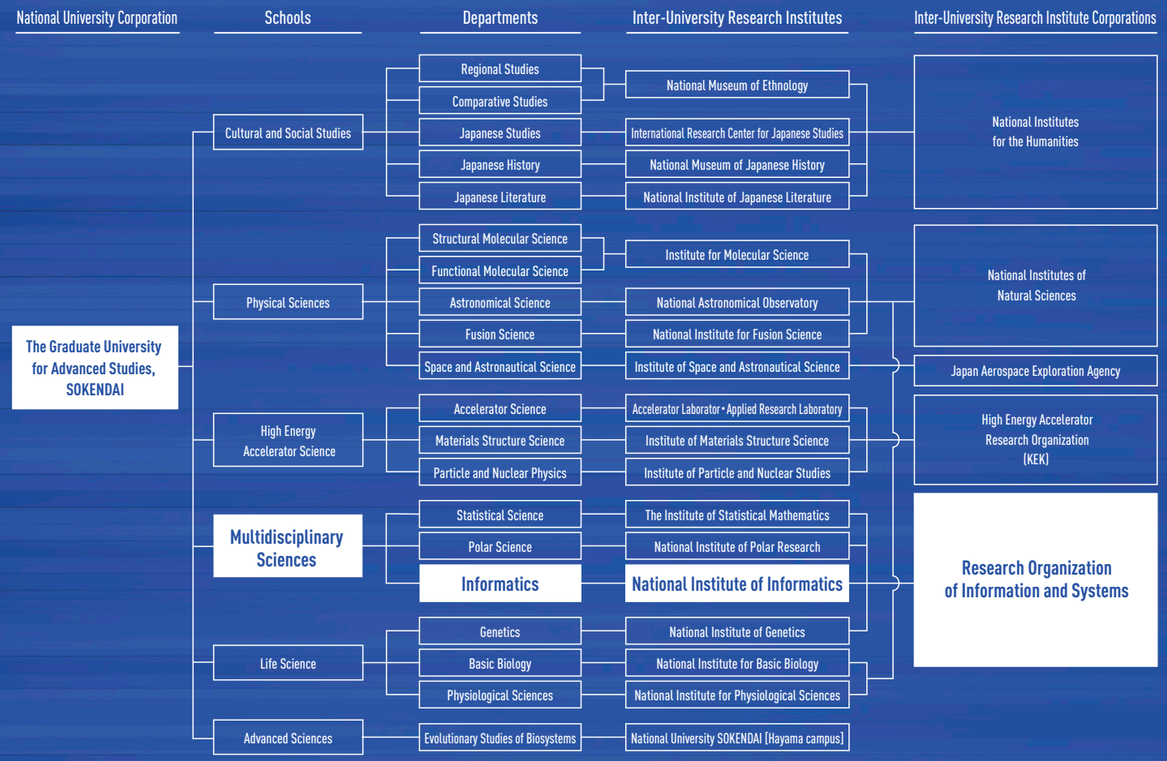
Founding Institution

The Graduate University for Advanced Studies, SOKENDAI

Department of Informatics
[Faculty: 30 Profs, 22 Assoc. Profs, 14 Asst. Profs]

- Foundations of Informatics
- Information Infrastructure Science
- Software Science
- Multimedia Information Science
- Intelligent Systems Science
- Information Environment Science

▼ Relation Between Each Dept. at SOKENDAI and Each Inter-University Research Institute



Features of the Dept.

1 Top-Level Research Environment

Students of the Department of Informatics are taught and guided by top-level, world class researchers of the National Institute of Informatics. They also have the opportunity to use advanced research facilities not found at any other university. The high ratio of professors to students means close personal attention. A full-scale, thorough guidance system is in place: for their research, students are assigned one advisor, and two sub-advisors, meaning they can receive guidance and instruction from three professors.

2 Every student can work as a Research Assistant

Accepted students can apply to work as a Research Assistant (RA) at the National Institute of Informatics, and are eligible to receive financial assistance (except for working students, government scholarship recipients and SOKENDAI Special Researcher). Additional hourly wages are paid to students who show outstanding research abilities. The Graduate University for Advanced Studies, SOKENDAI also has a system for course-fee waiver applications.

3 Many graduates find work as researchers both in Japan and abroad

Many degree recipients of the Department of Informatics are engaged in research, both in Japan and abroad. Not only does NII feature cutting-edge research facilities for students but, with a large contingent of foreign students, it also has an international atmosphere. Many students attend the numerous lectures and seminars given in English. For students looking to become researchers on the international stage, there is no better atmosphere to prepare them for this than the atmosphere provided at NII.




Vice Chair MESSAGE

Getting a Ph.D. at NII

Vice chair, Department of Informatics
(In charge of Research and Education)
YAMADA, Seiji

The department of Informatics has been installed in the National Institute of Informatics (NII). Each student belongs to the laboratory of a supervisor, and engages in research activities as a researcher of NII. For this purpose, NII actively employs student as a research assistant (except students with full-time jobs and government-sponsored foreign students). Students study ever-progressing theories and technologies of informatics, while they receive research advice from their supervisors and advisors, then make presentations at top-level international conferences and write papers for international journals, and finally should complete excellent and original PhD work at NII. It is the mission of the department of Informatics that the researchers of NII educate and foster world's top-level researchers at NII.

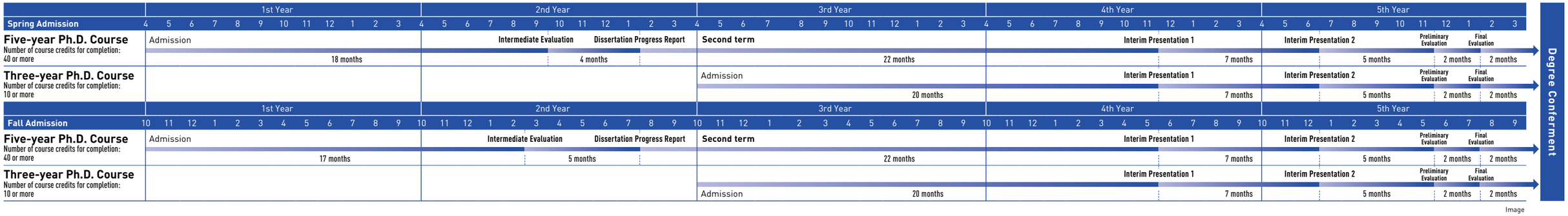
Enriched global research environment in NII

Vice chair, Department of Informatics
(In charge of International Affairs)
AIZAWA, Akiko

The Department of Informatics is based on the National Institute of Informatics, which has international exchange programs with about 100 universities and institutions in the world. Visited by many students and researchers from foreign countries every year, NII conducts collaborative researches in a full spectrum of informatics. In our department, more than half of the students are from foreign countries, and a large part of the curriculums and research supervisions are provided in English. We also have various kinds of scholarship programs, as well as support for internships abroad. Students are encouraged to present their research results in high-level international conferences. By offering an enriched cross-cultural environment, we aim to have our students trained with global perspectives and visions in building their extensive knowledge and high expertise in the field of informatics.

Requirements for Ph.D.Degree

The following schedule for the five-year and three-year Ph.D. course have been set by the Department.



Image

Curriculum

The Department of Informatics provides a unique educational and research system where the National Institute of Informatics allows students access to advanced IT facilities and leading researchers in an international atmosphere.
In order to pass the Ph.D. program in the Department of Informatics, students are expected to complete a number of credits from taught courses, to receive the necessary level of research guidance, and to pass a thesis examination.

The number of course credits
40 for **the five-year course**
10 for **the three-year course**

Special Subjects of the Department

Foundations of Informatics	Algorithm	UNO, Takeaki
	Algorithmic Market Design	YOKOI, Yu
	Combinatorial Optimization for Machine Learning	FUJII, Kaito
	Computational Complexity Theory	HIRAHARA, Shuichi
	Computational Game Theory	IGARASHI, Ayumi
	Computational Neuroscience	(TBD)
	Control Theory and Optimization	KISHIDA, Masako
	Discrete Mathematics	KAWARABAYASHI, Ken'ichi
	Graph Algorithms	IWATA, Yoichi
	Logic in Computer Science	TATSUTA, Makoto
	Mathematical Logic	TATSUTA, Makoto
	Numerical Analysis	(TBD)
	Quantum Information Systems	NEMOTO, Kae
	Quantum Computation	MATSUMOTO, Keiji
	Sublinear Algorithms	YOSHIDA, Yuichi
	Theory of Numerical Methods	(TBD)
Information Infrastructure Science	Computer System Design	YONEDA, Tomohiro
		GOSHIMA, Masahiro
		ISHIKAWA, Yutaka
	Information and Communication Systems	JI, Yusheng
		ABE, Shunji
		FUKUDA, Kensuke
		KANEKO, Megumi
Software Science	Data Engineering	TAKASU, Atsuhiro
	Distributed Systems	SATOH, Ichiro
	Embedded Real-Time Systems	AOKI, Shunsuke

Software Science	Formal Methods for Cyber-Physical Systems	HASUO, Ichiro
	Mathematical Structures in Formal Methods	HASUO, Ichiro
	Mathematical Structures in Programming	(TBD)
	Probabilistic Models in Informatics	KITAMOTO, Asanobu
	Programming Languages and Theory	TSUSHIMA, Kanae
	Signal Processors	HASHIZUME, Hiromichi
	Software Engineering	ISHIKAWA, Fuyuki
	Software Verification	SEKIYAMA, Taro
	Database Theory	KATO, Hiroyuki
Multimedia Information Science	Applications of Multimedia Processing	YAMAGISHI, Jun'ichi
		SUGIMOTO, Akihiro
		SATO, Imari
		AIZAWA, Akiko
		ANDO, Ryoichi
		ZHENG, Yinqiang(Univ. of Tokyo)
	Digital Media Infrastructure	ECHIZEN, Isao
		SUGIMOTO, Akihiro
		KATAYAMA, Norio
		TAKAYAMA, Kenshi
		ZHENG, Yinqiang(Univ. of Tokyo)
	Fundamentals of Media Processing	YAMAGISHI, Jun'ichi
		SATOH, Shin'ichi
		KODAMA, Kazuya
		IKEHATA, Satoshi
		MO, Hiroshi

Multimedia Information Science	Interactive Media	ARAI, Noriko
		AIHARA, Kenro
		GOTODA, Hironobu
		YU, Yi
Intelligent Systems Science	Cluster Analysis	HOULE, Michael E
	Cognitive Robotics	(TBD)
	Communication Environments	BONO, Mayumi
	Computational Social Science	MIZUNO, Takayuki
	Data Mining	SUGIYAMA, Mahito
	Deep Learning	PRENDINGER, Helmut
	Human-Agent Interaction	YAMADA, Seiji
	Knowledge Sharing System	TAKEDA, Hideaki
	Logical Foundations for Artificial Intelligence	INOUE, Katsumi
	Machine Learning	ICHISE, Ryutaro
	Natural Language Processing	AIZAWA, Akiko
		SUGAWARA, Saku
	Reasoning Science	SATOH, Ken
	Robot Informatcis	INAMURA, Tetsunari
Information Environment Science	Digital Publications	OYAMA, Keizo
	Information Retrieval	KANDO, Noriko
	ICT-enabled Business	OKADA, Hitoshi
	Introduction to Statistical Methods in Bibliometrics	SUN, Yuan
	Methodology of Scientmetrics	NISHIZAWA, Masaki

Common Specialized Subjects of the School of Multidisciplinary Sciences

Applied Linear Algebra	HAYAMI, Ken	SATOH, Shin'ichi
	GOTODA, Hironobu	KISHIDA, Masako
High-Performance Computing	AIDA, Kento	KOIBUCHI, Michihiro
	TAKEFUSA, Atsuko	ISHIKAWA, Yutaka
Information Sharing System Architecture	URUSHIDANI, Shigeo	TAKAKURA, Hiroki
	KURIMOTO, Takashi	
Introduction to Algorithms	UNO Takeaki	
Introduction to Big Data Science	Professors related to Big Data	
Introduction to Information Environment Science	All professors in Information Environment Science	
Introduction to Information Security Infrastructure	ECHIZEN, Isao	OKADA, Hitoshi
	TAKAKURA, Hiroki	
Introduction to Intelligent Systems Science I	INOUE, Katsumi	YAMADA, Seiji
	AIZAWA, Akiko	INAMURA, Tetsunari
	ICHISE, Ryutaro	HOULE, Michael E.
Introduction to Intelligent Systems Science II	SATOH, Ken	TAKEDA, Hideaki
	PRENDINGER, Helmut	MIZUNO, Takayuki
	BONO, Mayumi	SUGIYAMA, Mahito
	SUGAWARA, Saku	
Introduction to Mathematical Logic	TATSUTA, Makoto	
Introduction to Multimedia Information Science	All professors in Multimedia Information Science	
Introduction to Software Science I	All professors in Software Science	
Introduction to Software Science II	All professors in Software Science	
Quantum information and Computing	NEMOTO, Kae	
	MATSUMOTO, Keiji	
Practical Data Science	YAMAJI, Kazutsuna	
Scientific Presentation / Scientific Writing	HOULE, Michael E.	
	KANEKO, Megumi	
	IGARASHI, Ayumi	
	WU Stephen (Department of Statistical Science)	
	FIGUEIRA LOURENÇO BRUNO (Department of Statistical Science)	
	JONES, Caryn (ThinkSCIENCE, Inc.)	

Department's Common Subjects

Research in Informatics for PhD thesis IA,IB - VA,VB	All professors
Seminar on Basic Knowledge in Informatics IA,IB - IIA,II B	All professors
Research in Informatics for Master Thesis IA,IB - IIA,IIB	All professors

*Scheduled subjects. In some cases there may be changes.

Timetable of the lectures and syllabus information is available at following website

Website of the Dept.
https://www.nii.ac.jp/graduate/en/curriculum/timetable/

SOKENDAI website (curriculum)
https://www.soken.ac.jp/en/education/curriculum/

Research Field and Advisors at the Dept.

Research Keywords and Major Research Papers Titles

Foundations of Informatics

Developing Mathematical Theories Underpinning All of Informatics

Foundations of Informatics concerns theoretical underpinnings of informatics. In addition to their intrinsic importance, basic theories in informatics serve as foundations for all application areas, including networks, software, artificial intelligence, and information extraction. Special emphasis is placed on mathematical theories about computer programs, data structures and algorithms, numerical computation, natural language, quantum computation and communication, and biological data processing.

KAWARABAYASHI, Kenichi
Professor

[Keywords]
Discrete Math, Graph Theory, Algorithm, Heoretical Computer Science
[Papers]
- Maximizing Time-Decaying Influence in Social Networks
- Coloring 3-Colorable Graphs with Less than n^{1/5} Colors

NEMOTO, Kae
Professor

[Keywords]
Quantum Information and Computation, Quantum Optics, Theoretical Physics
[Papers]
- Fault-Tolerant High Level Quantum Circuits: Form, Compilation and Description
- High-fidelity spin measurement on the nitrogen-vacancy center

TATSUTA, Makoto
Professor

[Keywords]
Programming Logic, Lambda Calculus, Type Theory, Constructive Logic, Software Verification
[Papers]
- Equivalence of Inductive Definitions and Cyclic Proofs under Arithmetic
- Decision Procedure for Entailment of Symbolic Heaps with Arrays

UNO, Takeaki
Professor

[Keywords]
Algorithms, Computation, Optimization, Data Mining, Data Engineering
[Papers]
- Micro-Clustering by Data Polishing
- Listing Maximal Independent Sets with Minimal Space and Bounded Delay

KISHIDA, Masako
Associate Professor

[Keywords]
Control Theory, Optimization, Uncertain Systems, Networked Systems
[Papers]
- Event-triggered control for discrete-time nonlinear systems using state-dependent Riccati equation
- On problems involving eigenvalues for uncertain matrices by structured singular values

MATSUMOTO, Keiji
Associate Professor

[Keywords]
Quantum Information, Quantum Computation, Statistics, Information Theory, Entanglement
[Papers]
- Entanglement and Quantum Information Processing
- Hypothesis testing for an entangled state produced by spontaneous parametric down conversion

YOSHIDA, Yuichi
Associate Professor

[Keywords]
Algorithms, Theoretical Computer Science, (Combinatorial) Optimizations
[Papers]
- A Characterization of Locally Testable Affine-Invariant Properties via Decomposition Theorems
- Testing Assignments to Constraint Satisfaction Problems

FUJII, Kaito
Assistant Professor

[Keywords]
Combinatorial Optimization Algorithms Machine Learning
[Papers]
- Beyond adaptive submodularity: Approximation guarantees of greedy policy with adaptive submodularity ratio
- Fast greedy algorithms for dictionary selection with generalized sparsity constraints

HIRAHARA, Shuichi
Assistant Professor

[Keywords]
Computational Complexity Theory, P versus NP Problem, Minimum Circuit Size Problem, Kolmogorov Complexity, Pseudorandomness
[Papers]
- Non-Black-Box Worst-Case to Average-Case Reductions within NP
- NP-hardness of Minimum Circuit Size Problem for OR-AND-MOD Circuits

IGARASHI, Ayumi
Assistant Professor

[Keywords]
Algorithmic game theory, Fair division, Multi-Agent System
[Papers]
- Almost Envy-free Allocations with Connected Bundles
- Fair Allocation of Indivisible Goods and Chores

YOKOI, Yu
Assistant Professor

[Keywords]
Algorithms, Mechanism Design, Combinatorial Optimization
[Papers]
- Envy-free Matchings with Lower Quotas
- Finding a Stable Allocation in Polymatroid Intersection

Information Infrastructure Science

The Construction and Enhancement of Information Infrastructure

Computer systems and information-communication networks form the foundation of information systems. In Information Infrastructure Science field, lectures and research instructions are provided to address the theoretical and practical issues in the topics of computer architecture, parallel and distributed processing, high-performance and dependable computing, network architecture, protocol, security, resource management, and performance evaluation methodology.

AIDA, Kento
Professor

[Keywords]
Parallel and Distributed Computing, Grid Computing, Cloud Computing
[Papers]
- A Portable Load Balancer for Kubernetes Cluster
- Virtual Cloud Service System for Building Effective Inter-Cloud Applications

GOSHIMA, Masahiro
Professor

[Keywords]
Computer Architecture, Microarchitecture, Digital Circuit
[Papers]
- Skewed Multistaged Multibanked Register File for Area and Energy Efficiency
- Application of Clocking Scheme That Enables Dynamic Time Borrowing

ISHIKAWA, Yutaka
Professor

[Keywords]
System Software, Operating System, Communication and File IO middleware, Parallel and Distributed Processing
[Papers]
- Performance and Scalability of Lightweight Multi-Kernel based Operating Systems
- Casper: An Asynchronous Progress Model for MPI RMA on Many-Core Architectures

JI, Yusheng
Professor

[Keywords]
Network Resource Management, Mobile Computing
[Papers]
- AVE: Autonomous vehicular edge computing framework with ACO-based scheduling
- Accurate location tracking from CSI-based passive device-free probabilistic fingerprinting

TAKAKURA, Hiroki
Professor

[Keywords]
Cyber Security, High Performance Network, Secure Networking, Data Mining
[Papers]
- SPINZ: A Speculating Incident Zone System for Incident Handling
- Construction of Secure Internal Networks with Communication Classifying System

TAKEFUSA, Atsuko
Professor

[Keywords]
Parallel and Distributed Computing, Resource Management Technologies, Cloud Computing, Inter-Cloud, Edge Computing, IoT
[Papers]
- Action Recognition using Pose Data in a Distributed Environment over the Edge and Cloud
- Virtual Cloud Service System for Building Effective Inter-Cloud Applications

URUSHIDANI, Shigeo
Professor

[Keywords]
Network Architecture, Network Service Systems
[Papers]
- Optimization model for designing multiple virtualized campus area networks coordinating with a wide area network
- Robust optimization model for backup resource allocation in cloud provider

YONEDA, Tomohiro
Professor

[Keywords]
Asynchronous Systems, Dependable Systems, Cad Tool Development, Formal Verification, Real-Time System
[Papers]
- Coarse Grained versus Fine Grained Architectures for Asynchronous Reconfigurable Devices
- MTJ-Based Asynchronous Circuits for Re-initialization Free Computing against Power Failure

ABE, Shunji
Associate Professor

[Keywords]
Information Networks, Network Performance Analysis, QoS Control
[Papers]
- Estimating Available Bandwidth in Mobile Networks by Correlation Coefficient
- New Directions for a Japanese Academic Backbone Network

FUKUDA, Kensuke
Associate Professor

[Keywords]
Internet Protocol, Traffic Measurement, Analysis and Modeling, Scale-Free Network, Small-World Network
[Papers]
- Mining causality of network events in log data
- An Evaluation of Darknet Traffic Taxonomy

KANEKO, Megumi
Associate Professor

[Keywords]
Wireless Communications, Radio Resource Optimization, Interference Management, Cellular Systems, Communication Protocol Design, Wireless Signal Processing
[Papers]
- Distributed Resource Allocation with Local CSI Overhearing and Scheduling Prediction for OFDMA Heterogeneous Networks
- Throughput Analysis of CSMA With Imperfect Collision Detection in Full Duplex-Enabled WLAN

KOIBUCHI, Michihiro
Associate Professor

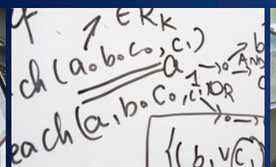
[Keywords]
Parallel Computers, Interconnection Networks, Network-on-Chip, System Area Networks, High Performance Computing
[Papers]
- A Case for Random Shortcut Topologies for HPC Interconnects
- High-Bandwidth Low-Latency Approximate Interconnection Networks

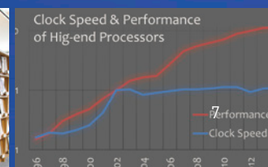
KURIMOTO, Takashi
Associate Professor

[Keywords]
Network Protocol, Network Node Architecture
[Papers]
- SINET5: A Low-Latency and High-Bandwidth Backbone Network for SDN / NFV Era
- Multi-campus ICT equipment virtualization architecture for cloud and NFV integrated service







Research Field and Advisors at the Dept.

Research Keywords and Major Research Papers Titles

Software Science

Software: Enabling Technologies for IT

Software technology is the foundation of all industries and daily activities, whose key factor is achieving high quality and providing highly functional and reliable software systems. This field addresses the important academic issues of software science, which is indispensable for developing next generation information systems in the era of AI, from basic research to application research and from fundamental software technologies such as programming languages, software engineering, and distributed systems to advanced software technologies such as data engineering (especially data mining) and signal processing.

HASHIZUME, Hiromichi
Professor

[Keywords]
Human Interface, Man-Machine Interface, Digital Signal Processing
[Papers]
- GPS Signal Generation Platform for Seamless Localization
- Time-of-arrival-based Smartphone Localization Using Visible Light Communication

KITAMOTO, Asanobu
Professor

[Keywords]
Data-driven Science, Digital Humanities, Earth Environmental Informatics, Image Processing, Digital Archives, Open Science
[Papers]
- Differential Reading by Image-based Change Detection and Prospect for Human-Machine Collaboration for Differential Transcription
- Situational Awareness from Social Media Photographs Using Automated Image Captioning

SATOH, Ichiro
Professor

[Keywords]
Cloud Computing, Ubiquitous Computing, Middleware, OS, Distributed Computing
[Papers]
- A Component Framework for Adapting to Elastic Resources in Clouds
- Context-Aware Access Control Model for Services Provided from Cloud Computing

TAKASU, Atsuhiro
Professor

[Keywords]
Data Engineering, Sensor Data Analysis, Text Mining
[Papers]
- NPE: Neural Personalized Embedding for Collaborative Filtering
- Deep Multiview Learning from sequentially Unaligned Data

HASUO, Ichiro
Associate Professor

[Keywords]
Logic, Automaton, Category Theory, Formal Methods, Cyber-Physical System, Optimization, Machine Learning
[Papers]
- Two-Layered Falsification of Hybrid Systems Guided by Monte Carlo Tree Search
- Lattice-theoretic progress measures and coalgebraic model checking

AOKI, Shunsuke
Assistant Professor

[Keywords]
Autonomous Driving, Cyber-Physical Systems, Real-Time Systems, Embedded Systems, Mobile Robots, Internet of Things
[Papers]
- Dynamic intersections and self-driving vehicles
- Cooperative perception with deep reinforcement learning for connected vehicles

KATO, Hiroyuki
Assistant Professor

[Keywords]
XML, Databases, Functional Programming, Xquery
[Papers]
- DDO-Free XQuery
- Cell-based Provenance for Scientific Data

SEKIYAMA, Taro
Assistant Professor

[Keywords]
Programming Languages, Type Systems, Formal Methods
[Papers]
- On polymorphic gradual typing
- Handling polymorphic algebraic effects

TSUSHIMA, Kanae
Assistant Professor

[Keywords]
Programming Languages, Types, Type Inference, Type Debugging
[Papers]
- A Common Framework Using Expected Types for Several Type Debugging Approaches
- A semi-embedded incremental parsing

Multimedia Information Science

Information Systems, as "media" that appropriately offers relevant information

This field studies a variety of different problems from "media": theories and technologies that are necessary for processing target information consisting of different media; theories and technologies as the foundation for efficiently handling large amounts of media information; basic technologies for media processing in general, such as pattern recognition and signal processing; and media utility for interactions between people and information systems or among people.

ARAI, Noriko
Professor

[Keywords]
Knowledge Sharing, Knowledge Base, Reading
[Papers]
- Semantic Parsing of Pre-university Math Problems
- Reading Skill Test to Diagnose Basic Language Skills in Comparison to Machines

SATO, Imari
Professor

[Keywords]
Image-based Modeling and Rendering, Computational Photography
[Papers]
- SymPS: BRDF Symmetry Guided Photometric Stereo for Shape and Light Source Estimation
- Wetness and Color from a Single Multispectral Image

SUGIMOTO, Akihiro
Professor

[Keywords]
Computer Vision, Digital Geometry, Human-Computer Interaction
[Papers]
- Paired-D GAN for Semantic Image Synthesis
- Modeling Large-scale Indoor Scenes with Rigid Fragments using RGB-D Cameras

YAMAGISHI, Junichi
Professor

[Keywords]
Speech Information Processing, Machine Learning, Speech-Based Human Machine Interaction, Speech Database, Biometrics, Media Forensics
[Papers]
- Wasserstein GAN and Waveform Loss-based Acoustic Model Training for Multi-speaker Text-to-Speech Synthesis Systems Using a WaveNet Neural Vocoder
- ASVspoof: the Automatic Speaker Verification Spoofing and Counter-measures Challenge

AIHARA, Kenro
Associate Professor

[Keywords]
Human-Computer Interaction, User-Centered Design
[Papers]
- Detecting the Road Surface Condition by Using Mobile Crowdsensing with Drive Recorder
- Traffic Surveillance System for Bridge Vibration Analysis

GOTODA, Hironobu
Associate Professor

[Keywords]
3D Modeling, Rendering, Animation
[Papers]
- A multilayer display augmented by alternating layers of lenticular sheets
- Design of time-multiplexed autostereoscopic displays based on virtual stacking of multi-layer panels

KATAYAMA, Norio
Associate Professor

[Keywords]
Multimedia Information Processing, Multimedia Information Retrieval
[Papers]
- The SR-tree: An Index Structure for High-Dimensional Nearest Neighbor Queries
- Unsupervised Estimation of Video Continuity Model from Large-Scale Video Archives and Its Application to Shot Boundary Detection

KODAMA, Kazuya
Associate Professor

[Keywords]
Image Sensing, Image Restoration / Reconstruction, Image / Video Coding, Visual Communications
[Papers]
- Efficient Reconstruction of All-in-Focus Images Through Shifted Pinholes from Multi-Focus Images for Dense Light Field Synthesis and Rendering
- Robust removal of fixed pattern noise on multi-focus images

ANDO, Ryoichi
Assistant Professor

[Keywords]
Computer Graphics, Physics Simulation, Computational Fluid Dynam-ics (CFD)
[Papers]
- A Stream Function Solver for Liquid Simulations
- Highly Adaptive Liquid Simulations on Tetrahedral Meshes

IKEHATA, Satoshi
Assistant Professor

[Keywords]
Computer Vision, 3D Reconstruction, Multi-View Stereo, Photometric Stereo, Deep Learning
[Papers]
- From Bayesian Sparsity to Gated Recurrent Nets
- Panoramic Structure from Motion via Geometric Relationship Detection

MO, Hiroshi
Assistant Professor

[Keywords]
Pattern Recognition, Video Content Analysis
[Papers]
- Unsupervised Estimation of Video Continuity Model from Large-Scale Video Archives and Its Application to Shot Boundary Detection
- Enhanced Visualization of News Shot Cloud with Employing Circular Layout

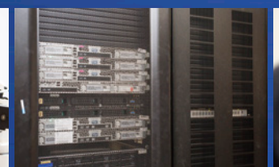
TAKAYAMA, Kenshi
Assistant Professor

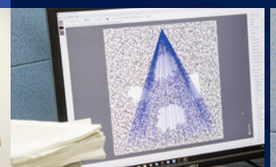
[Keywords]
Computer Graphics, Shape Modeling, Geometry Processing, Animation
[Papers]
- Dual Sheet Meshing: An Interactive Approach to Robust Hexahe-dralization
- Data-Driven Interactive Quadrangulation

YU, Yi
Assistant Professor

[Keywords]
Representation Learning, Deep Generative Models, Multimedia Content Analysis, Artificial Intelligence
[Papers]
- Category-Based Deep CCA for Fine-Grained Venue Discovery from Multimodal Data
- Conditional LSTM-GAN for Melody Generation from Lyrics







Research Field and Advisors at the Dept.

Research Keywords and Major Research Papers Titles

Intelligent Systems Science

AI Technology Enhancing Human Intelligent Tasks

Artificial Intelligence (AI) is an emergent technology which enhances human intelligent tasks by intelligent computer systems. The intelligent systems science course offers studies on intelligent systems to give students a full understanding of various advanced research topics in the field and aims to foster human resources to create core technology on intelligent systems.

AIZAWA, Akiko
Professor

[Keywords]
Natural Language Interface, Natural Language Understanding, Knowledge Acquisition, Document Analysis, Semantic Parsing, Dialogue Systems
[Papers]
- Language-Conditioned Feature Pyramids for Visual Selection Tasks
- Constructing A Multi-hop QA Dataset for Comprehensive Evaluation of Reasoning Steps

INOUE, Katsumi
Professor

[Keywords]
Artificial Intelligence, Knowledge Representation and Reasoning, Machine Learning, Logic Programming, Constraint Programming, Multi-Agent Systems
[Papers]
- Linear Algebraic Characterization of Logic Programs
- Learning from interpretation transition

PRENDINGER, Helmut
Professor

[Keywords]
Artificial Intelligence, Human-Machine Interaction, Unmanned Aircraft Systems Traffic Management
[Papers]
- Speedup of Deep Learning ensembles for semantic segmentation using a model compression technique
- An experimental space for conducting controlled driving behavior studies based on a multiuser networked 3D virtual environment and the Scenario Markup Language

SATOH, Ken
Professor

[Keywords]
Reasoning, Knowledge Representation, Multi-Agent Systems, Machine Learning, Computational Logic, Legal Reasoning
[Papers]
- Obligation as Optimal Goal Satisfaction
- Modelling Last-act Attempted Crime in Criminal Law

TAKEDA, Hideaki
Professor

[Keywords]
Semantic Web, Knowledge Sharing, Community-Support System, Design Theory
[Papers]
- Presenting and preserving the change in taxonomic knowledge for linked data
- Understanding massive artistic cooperation: the case of Nico Nico Douga

YAMADA, Seiji
Professor

[Keywords]
Human-Agent Interaction, Human-Robot Interaction
[Papers]
- Response Times when Interpreting Artificial Subtle Expressions are Shorter than with Human-like Speech Sounds
- Expressing Emotions through Color, Sound, and Vibration with an Appearance-Constrained Social Robot

BONO, Mayumi
Associate Professor

[Keywords]
Sociolinguistics, Conversational Informatics, Utterance, Embodied Action, Sign Language, Conversation Analysis, Social Interaction
[Papers]
- Challenges for Robots Acting on a Stage: Creating Sequential Structures for Interaction and the Interaction Process with the Audience
- The Practice of Showing 'Who I am': A Multimodal Analysis of Encounters between Science Communicator and Visitors at Science Museum

ICHISE, Ryutaro
Associate Professor

[Keywords]
Machine Learning, Data Mining, Semantic Web
[Papers]
- Skill-based Curiosity for Intrinsically Motivated Reinforcement Learning
- Generalized Translation-based Embedding of Knowledge Graph

INAMURA, Tetsunari
Associate Professor

[Keywords]
Human-Robot Interaction, Intelligent Robot, Human Behavior Modeling, VR based Neurorehabilitationg
[Papers]
- SIGVerse: A cloud-based VR platform for research on social and embodied human-robot interaction
- Optimization of criterion for objective evaluation of HRI performance that approximates subjective evaluation: A case study in robot competition

MIZUNO, Takayuki
Associate Professor

[Keywords]
Computational social science, Econophysics, Complex networks, Economic big data, Finance
[Papers]
- The power of corporate control in the global ownership network
- Structure of global buyer-supplier networks and its implications for conflict minerals regulations

SUGIYAMA, Mahito
Associate Professor

[Keywords]
Machine Learning, Data Mining, Statistics, Knowledge Discovery, Bioinformatics
[Papers]
- Tensor Balancing on Statistical Manifold
- Legendre Decomposition for Tensors

SUGAWARA, Saku
Assistant Professor

[Keywords]
natural language processing, computational linguistics, natural language understanding, machine reading comprehension, task design, machine learning
[Papers]
- Assessing the Benchmarking Capacity of Machine Reading Comprehension Datasets
- Evaluation Metrics for Machine Reading Comprehension: Prerequisite Skills and Readability





Information Environment Science

An Indispensable Academic System for Achieving the Information Society

The information environment is a new concept for viewing the following as a whole: information, information-communication infrastructures, information management, circulation and retrieval systems, people, and social foundations. It has been regarded as an indispensable academic system for achieving the information society. This field sets digital documents and academic information environments as the core subjects and studies the basics to application.

ECHIZEN, Isao
Professor

[Keywords]
Multimedia Security, Multimedia Forensics, Biometrics, and Privacy
[Papers]
- Generating Sentiment-Preserving Fake Online Reviews Using Neural Language Models and Their Human- and Machine-based Detection
- MesoNet: a Compact Facial Video Forgery Detection Network

KANDO, Noriko
Professor

[Keywords]
Information Retrieval, Information Access Technologies, Text Processing, Evaluation Methodology and Metrics
[Papers]
- Investigating Result Usefulness in Mobile Search
- A Two-Stage Model for User's Examination Behavior in Mobile Search

OYAMA, Keizo
Professor

[Keywords]
Information Retrieval, Information Systems, Web Information Processing, Information Access Technology, Text Processing
[Papers]
- Context Oriented Analysis of Interest Reflection of Tweeted Web-pages based on Browsing Behavior
- An Exploratory Analysis of Browsing Behavior of Web News on Twitter

YAMAJI, Kazutsuna
Professor

[Keywords]
Scholarly Communication, Database, Open Science, Research Data Management
[Papers]
- Specifying a Trust Model for Academic Cloud Services
- Development and Deployment of the Open Access Repository and Its Application to the Open Educational Recourses

NISHIZAWA, Masaki
Associate Professor

[Keywords]
Scientmetrics, Bibliometrics, Research Trends, Statistical Analysis
[Papers]
- A Study on the Academic and Research Impact of Shared Contents in Institutional Repositories in Related to Performance Indicators of University Rankings
- How is scientific research announced in a press release? – Focusing on its relationships with journal indicators

OKADA, Hitoshi
Associate Professor

[Keywords]
Electronic Commerce, IT-enabled Services, Electronic Money
[Papers]
- Impact of Nationality Information in Feedback on Trust in a Foreign Online Store
- Evaluating the influence of country-related pictures on the perception of a foreign online store

SUN, Yuan
Associate Professor

[Keywords]
Personalized Learning, Cognitive Diagnostic Modelling, Knowledge Tracing, Bibliometrics
[Papers]
- Modeling Learner's Dynamic Knowledge Construction Procedure and Cognitive Item Difficulty for Knowledge Tracing
- Research on the Development of Preprint Platform from the Perspective of Open Communication

Visiting Professors

HU, Zhenjiang
Software Science
Visiting Professor

ICHIKAWA, Fuyuki
Software Science
Visiting Associate Professor

SATOH Shin'ichi
Multimedia Information Science
Visiting Professor

HOULE, Michael E.
Intelligent Systems Science
Visiting Professor

PLANAS, Emmanuel
International Relations
Visiting Professor

Annual Events at the Dept.

NII Open House

Every June, the National Institute of Informatics holds an open house where they present results from their latest research to the public. The event draws around 1,000 people annually. At this event students from the Department of Informatics have the opportunity to display posters detailing results of their own research and introduce their work to a large audience.


Ceremony to Present Commemorative Medals to Graduates · Final presentation by Graduates

A special ceremony for students graduating with a Ph.D. degree in Informatics from SOKENDAI will be held at the National Institute of Informatics. Each graduate will be presented individually with a medal to commemorate their achievement
Final presentation will be held afterword and this will be the final presentation as a compilation of their work.


Students' Research

MASUOKA, Yukihiro

Enrolled in 2018, 5-year Ph.D. course
Main supervisor: Prof. TATSUTA, Makoto

I study basic theory for software verification.

Software verification is to mathematically prove that programs satisfy requirements.

Especially, I am interested in verification with separation logic and cyclic proofs both of which come from mathematical logic, and I study mathematical properties of them. Actually, basic properties of cyclic proofs are not known, so I am eager to study it.

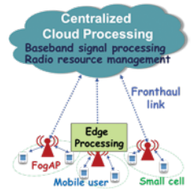
$$\frac{P \vdash Q}{P * S \vdash Q * S}$$

DINH, Thi Ha Ly

Enrolled in 2017, 5-year Ph.D. course
Main supervisor: Assoc. Prof. KANEKO, Megumi

Given the ever-increasing number of wireless subscribers and the expansion of IoT communications, the volume of mobile data traffic is expected to grow exponentially. However, radio spectrum scarcity poses a major challenge for the design of future wireless communication systems, required to support such a deluge of data while guaranteeing excellent performances.

My research addresses this issue by investigating spectrum and energy-efficient resource management for distributed cloud & fog radio access networks, which will be part of next-generation wireless networks. Specifically, I am aiming at designing intelligent resource allocation and interference management methods leveraging both mathematical optimization and machine learning techniques, in order to support application-specific heterogeneous Quality of Service requirements, while improving global network performances.

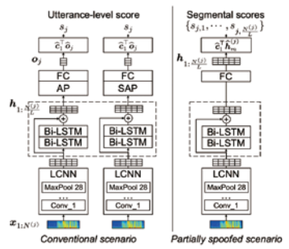


ZHANG, Lin

Enrolled in 2020, 3-year Ph.D. course
Main supervisor: Prof. YAMAGISHI, Junichi

Automatic speaker verification (ASV) is vulnerable to manipulation through presentation attacks. To protect ASV from spoofing attacks, countermeasures (CMs) are proposed to distinguish bona fide and spoofed biometric data.

But all existing CMs only consider detecting attacks in the utterance-level, which is not suitable for realistic scenarios. My research aims to develop more elaborate countermeasures, which can detect spoof at the segmental-level or linguistic units such as words and phrases. That makes it easier to display and visualize which segment of the voice signal is the spoofed voice and thus improves the possibility of explanation for the whole audio.



PHUA, Yin Jun

Enrolled in 2019, 3-year Ph.D course
Main supervisor: Prof. INOUE, Katsumi

Recent years have seen a surge in machine learning applications within various fields. As practitioners seek to utilize machine learning methods in areas that affect our daily lives, accountability and verifiability are still seen as the biggest obstacle to mass adoption of machine learning technologies. On the other hand, machine learning methods that utilize symbolic logic has always been verifiable, however their poor accuracy with real world data has limited their applicability.

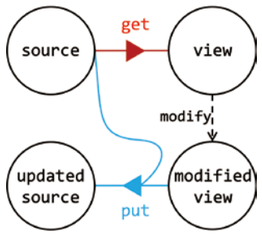
By combining neural network and symbolic logic, my research aims to produce an artificial intelligence technology that is both accurate, verifiable and applicable in the real world.

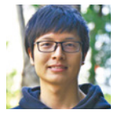
NGUYEN, Trong Bach

Enrolled in 2018, 5-year Ph.D course
Main supervisor: Assoc. Prof. HASUO, Ichiro

Bidirectional transformations (BXs) serve to maintain consistency between two representations of related and often overlapping information, one referred to as the source and the other as the view. When the view is modified, the source may need updating to restore the consistency. BXs are applied in many fields, for instance, databases, user interface design and model-driven development.

My research is mainly related to bidirectional programming which are means of constructing well-behaved BXs. I have proposed different interpretation methods to optimize the evaluation of bidirectional programs especially those formed by composing simpler programs. Currently I am studying the synthesis of bidirectional programs from given specifications that can be a set of input-output examples or refinement types.



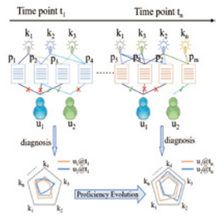


GAN, Wenbin

Enrolled in 2019, 3-year Ph.D course
Main supervisor: Assoc. Prof. SUN, Yuan

Intelligent tutoring systems (ITS) have provided students with substantial opportunities to learn and perform exercises individually. One of the key issues in such systems is knowledge tracing (KT), which is essential for adaptive learning to obtain students' current states of knowledge for the purpose of providing adaptive service.

My research involves creating new methodologies to assess and trace students' knowledge states based on their past performance in exercise-solving. I have proposed a KT model that traces the evolution of students' knowledge acquisition over time by explicitly modeling their learning and forgetting behaviors as well as the cognitive item difficulty. The new model I proposed and related results will potentially benefit the development of online learning systems and related research on educational management.



Message from an Alumnus

WAGA, Masaki Ph.D.

2018 - 2020
3-year Ph.D. course, Department of Informatics, SOKENDAI

Assistant Professor, Graduate School of Informatics, Kyoto University
He is working on quality assurance of cyber-physical systems using lightweight formal methods.

After finishing my master's program, I entered the Graduate University for Advanced Studies, SOKENDAI for the third year due to the transfer of my supervisor, Professor Ichiro Hasuo. In SOKENDAI, I studied the quality assurance of cyber-physical systems requiring high reliability, such as automobiles. In my research, I utilized mathematical methods such as logic and automata to improve reliability. Currently, I am an assistant professor at the Graduate School of Informatics, Kyoto University. I am continuing my research on improving the reliability of cyber-physical systems.

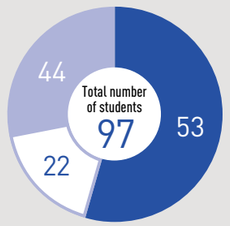
In the Department of Informatics at SOKENDAI, all students are hired as research assistants at the National Institute of Informatics (NII) except for MEXT scholarship students and working students. Moreover, there is a special research assistant program for outstanding students. The qualified students can receive a higher salary. These financial supports by employment, which are unfortunately not very common in Japanese universities, are very helpful for full-time students.

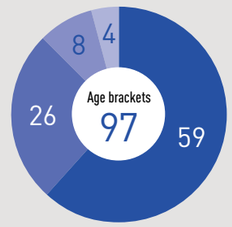
At SOKENDAI, there are a lot of opportunities to have a discussion with many other researchers. The Open House of NII is one of such opportunities. The Open House is an annual event of NII to present the research to the public, including researchers in other fields, researchers in industry, and the general public. The students in this department have an opportunity to present their research at this event and discuss their research with various people. Such an opportunity is helpful in looking at our own research from other viewpoints.

Another fruitful opportunity to broaden the scope is a discussion with various students, many of them are from abroad. There are many international students and internship students at SOKENDAI. We can broaden our research scope through discussion with them, which is, in my experience, quite helpful to the research. We can also improve our English skills and learn about different cultures through daily conversations with them.

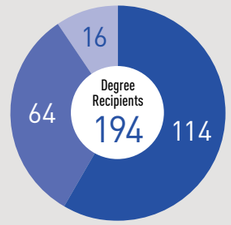
Overall, there are many opportunities to broaden the research perspectives as well as many other supports by SOKENDAI. I believe that broadening the research perspectives is highly helpful in deepening our research, and thus, the environment in SOKENDAI is very attractive.

Students Data





Employment Place of Degree Recipients as of April 2021



[Research Institutes]
NHK Broadcasting Culture Research Institute, Nara Institute of Science and Technology, National Institute of Informatics, National Institute of Advanced Industrial Science and Technology, National Institute of Information and Communications Technology, Ministry of Internal Affairs and Communications, Tsukuba Univ., The Univ. of Tokyo, Hosei Univ., Japan Advanced Institute of Science and Technology, Kwansei Gakuin Univ., Kyushu Univ., Kyoto Univ., Ministry of Defense, Meiji Univ., Yamanashi Univ., Ritsumeikan Univ., RIKEN, Waseda Univ., CITEC, Ho Chi Minh City Univesity of Science, National Electronics and Computer Technology Center(NECTEC), Royal Institute of Technology(KTH), Univ. of Dhaka, Univ. of Quebec at Montreal(UQAM), Bangkok Univ., Hanoi Univ. of Science and Technology, Ecole Centrale

[Private Companies]
ACCESS CO.,LTD., Cyber Agent, Inc., FUJITSU, Fujitsu Laboratories Ltd., G.TASTE Co.,Ltd., Government Information Technology Services, HCL JAPAN LTD., Hitachi Ltd., IBM Japan, KDDI Corp., Metamedia Technology Co.,Ltd., Mitsubishi UFJ Research and Consulting Co.,Ltd., NEC Corporation, Nihon Unisys Ltd., Nintendo Co., Ltd., NTT Group, NTT East, Panasonic Corporation, Rrakuten Inc., SBI BITS Co, Ltd., SECOM Co., Ltd., Toshiba Memory Corporation, Total Access Communication PCL, Works Applications Co.,Ltd.

Conference presentation award

- 29th International Conference on Artificial Neural Networks (ICANN20), Springer & ENNS Best Paper Award
- The Acoustical Society of Japan, 2020 Autumn Meeting Best Student Award
- ILP 2019: 29th International nference on Inductive Logic Programming, Best Student Paper Award
- Semantic Web Challenge on Tabular Data to Knowledge Graph Matching, First prize
- 17th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2019), Oded Maler Award
- Information Processing Society of Japan, Doctoral Theses Recommended by IPSJ
- Information Processing Society of Japan, Best Paper Award of the 81st National Convention of IPSJ

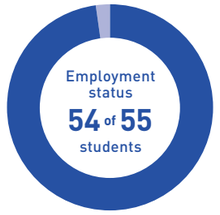
etc.

Scholarship and Other Financial Supports

Scholarship Programs

Research Assistant (RA)

This program is a student employment system in which students work on a specific research topic under the guidance of an academic supervisor.
NII will basically employ new students (excluding working students, government scholarship recipients and SOKENDAI Special Researcher)
*Relevance to academic research is considered.



(excluding working students, government scholarship recipients and SOKENDAI Special Researcher) (as of April 2021).

Hourly pay	
for students enrolled in the 1-2 year of Five-year course	for students enrolled in the doctoral program or equivalent
1,100 yen (Approx. 90,000 yen/month)	1,200 yen (Approx. 100,000 yen/month)

*The employment is determined every year.
*Additional hourly wages are paid to students who show outstanding research abilities.
*Maximum annual hours of employment: 960 hours (20 hours weekly).

SOKENDAI tuition exemption system

SOKENDAI has a tuition / admission fee exemption system for students who has financial difficulties but are proven to have outstanding academic performance.

Other scholarship program

Scholarship by private foundation

[Amount of provision]
Approx.
70,000-100,000 yen/month

*Student can apply through SOKENDAI after enrollment.

SOKENDAI Special Researcher

This program is designed to foster future leaders in academic research by appointing SOKENDAI students as special researchers and providing financial support to them. A special researcher with outstanding achievements will be offered a two-year research position at the parent institute* upon the completion of their doctoral course.
*Parent institute: The Inter-University Research Institute, where their department is located.

Scholarship	
Fellowship (for living expenses)	Research grant
190,000 yen/ month (Amount of provision for 2021)	up to 220,000 yen/year

*Application screening and interview will be conducted.
*This shall not preclude the students from being offered a position with research institutes and private corporations after graduation.

Support for internship and int'l conference

SOKENDAI Student Dispatch Program

SOKENDAI provide financial support for a short-term research opportunity abroad and/or a long-term collaborative research project in and outside Japan.

Financial aid program for SOKENDAI students to attend "Top Conference"

Dept. of Informatics establishes a financial aid program to encourage students to participate in prominent international conferences (Top Conference).

Applied int'l conferences

- •COLING (Spain, Barcelona) *Changed to online
- •ECCV (UK, Edinburgh) *Changed to online
- •EMNLP (Dominican Republic) *Changed to online
- •ICPR (Italy, Milan) *Changed to online
- •IEEE GLOBECOM (Republic of China, Taipei) *Partly online
- •IFIP/IEEE (Spain, Barcelona) *Changed to online
- •Interspeech (China, Shanghai) *Changed to online
- •VLDB (Japan, Tokyo) *Changed to online

Accommodation information

Although the Dept. don't have dormitories, students can apply for public accommodation such as UR (Urban Renaissance) apartment or the Tokyo International Exchange Center, which is located in bay area of Tokyo.
SOKENDAI also has a "Comprehensive Renters' Insurance" for Int'l students who wish to rent an apartment through an agency.

https://www.soken.ac.jp/en/campuslife/international/supports/

Research / Campus Environment

A Research Environment with Cutting-edge Facilities, Located in the Heart of the City

Research Environment

Network

- Wireless / Wired networks are available at each floor.
- Research resources are accesibble from outside of NII by using Virtual Private Network (VPN)
- Wireless network (Eduroam) at other university/ institutes in Japan or abroad are available by using NII account

Research Cloud

A high performance cloud system set up by NII for internal research uses.

Library

The library located on the 18th floor is open 24 hours a day. Books can be checked in and out at any time.

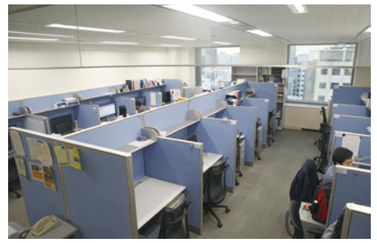
Available main online journals

ACM Digital Library (Association for Computing Machinery),
APS online (American Physical Society), IEL (IEEE, IEE), MathSciNet (American Mathematical Society), Springer Link (Springer Nature), Science Direct (Elsevier B.V.), Wiley Online Library (John Wiley & Sons.)

Campus Environment

Lecture Room

The lecture room at NII is designed so that lectures at the Department have an intimate, one-to-one feel. Students can also attend lectures remotely.



Student Room

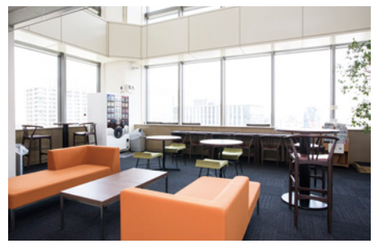
Student room with private desk is available for students. It is open for 24 hours a day.

Dining Hall

The dining hall is a bright, clean space where students can take their meals in comfortable surroundings.

Cafeteria

Provides light meals and refreshments; also serves as a venue for small informal parties organized by students.



Lounge

Located on the 14th and 18th floor, Tokyo Skytree can be seen from the lounge. Mixer events for students and researchers are held in this area.

International Seminar House for Advanced Studies

Students can use the International Seminar House for Advanced Studies in Karuizawa for study retreats.

Overview of Admissions

Department of Informatics, SOKENDAI offers several enrollment options for international students who are seeking to obtain a Ph.D. degree.

•General Admission

This program is for applicants residing in Japan. The entrance examination is composed of an on-site interview.
https://www.soken.ac.jp/en/admission/general_admission/

•Special Admission for Applicants Residing Abroad

This program is for applicants residing abroad. The interview is administered via internet, thus applicants need not to come to Japan for the application and the exam.
https://www.soken.ac.jp/en/admission/pvscholarship/scholarship/

•Admission with Japanese Government Scholarship (MEXT scholarship)

MEXT scholarship Priority Graduate Program (MEXT PGP)

This scholarship is offered for the special program "Interdisciplinary PhD Program on AI and Data Science for Global Leaders", which has been granted to SOKENDAI by Ministry of Education, Culture, Sports, Science and Technology (MEXT).

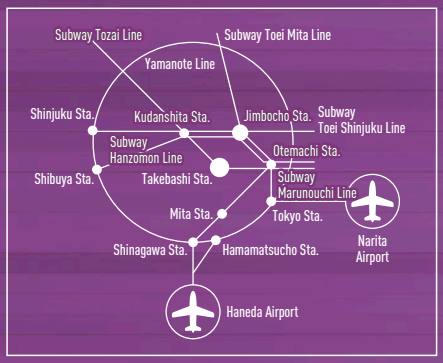
The program aims at developing next-generation global researchers and highly skilled professionals who should lead researches on Artificial Intelligence (AI) and Data Science (DS) as well as many scientific fields that apply AI and DS.
https://www.soken.ac.jp/en/admission/mextscholarship/university_recommendation__pgp_/index.html

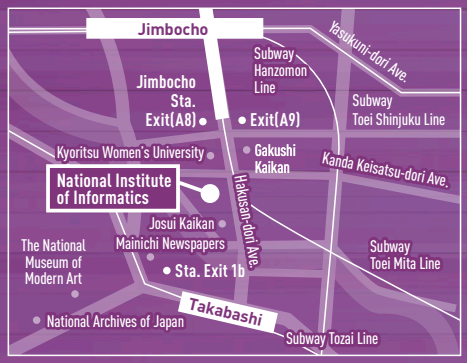
•Embassy recommendation process for MEXT scholarship

Scholarship recipients are recruited and initially screened by a Japanese embassy. The students who passed the initial screen first enroll in a nondegree program of SOKENDAI Department of Informatics, and then apply to our graduate program through the General Admissions System.
https://www.soken.ac.jp/en/admission/mextscholarship/scholarship_jpn/

Access

Our campus is conveniently situated in the center of Tokyo, near the Imperial Palace and within 2km distance from Tokyo station.





3 min. walk from Jimbocho Sta. or Takebashi Sta.

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