



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



**Achieving Excellence
in Informatics
2017-2018**

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

National Institute of Informatics

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Inter-University Research Institute Corporation /
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National Institute of Informatics

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

SOKENDAI (The Graduate University for Advanced Studies) is Japan's first national graduate university. Established in 1988, its purpose is to cultivate the free flow of creative leadership in various fields, promote international research and science, and surpass the limits of current fields of study. The National Institute of Informatics (NII) offers 3-year and 5-year PhD within SOKENDAI (The Graduate University for Advanced Studies), in which it constitutes the Department of Informatics.

Fostering Creative Researchers with Broad Perspectives

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.

Every student can work as a Research Assistant

All 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 and government scholarship recipients). Additional hourly wages are paid to students who show outstanding research abilities. SOKENDAI (The Graduate University for Advanced Studies) also has a system for course-fee waiver applications.

Many graduates find work as researchers

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.



Informatics Changing the World.

Director General, National Institute of Informatics
KITSUREGAWA, Masaru

The field of informatics is widely expected to become one of the dominant areas of academic inquiry in the 21st century.

Rising from the traditional foundations of information science and engineering, informatics represents a new, comprehensive, interdisciplinary research field that examines information-related issues, including issues in 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 inter-disciplinary 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.



What is Informatics?

Chair, Department of Informatics
HU, Zhenjiang

The Department of Informatics consists of six fields: Foundations of Informatics, Information Infrastructure Science, Software Science, Multimedia Information Science, Intelligent Systems Science, and Information Environment Science. These fields are based on the traditional domains of computer science and information engineering. They are also part of new academic fields encompassing the humanities and social sciences. Moreover, our department covers research and education in all three phases: basic, applied and practical phases.

We aim to develop not only researchers, but also highly-skilled professionals, who turn out the next leaders in the field of informatics.

Our department has Five-year Ph.D. Course and Three-year Ph.D. Course: the former for undergraduate university graduates, where students can take plenty of time to develop good themes, and the latter for students coming from a master course, where students can concentrate on themes extending their research experiences.

Informatics students are students of SOKENDAI (The Graduate University for Advanced Studies) as well as members of NII. They can study in an internationally collaborative environment on a daily basis, participate in various research projects at NII, and train to become international researchers through exchange programs with foreign universities and institutes.

The fact that we have a high percentage of foreign students is also an important feature of our department. Many of the lectures are available in English, quite a few laboratories have seminars in English, and crosscultural communication among the students goes without saying. Thus, we offer a valuable environment for students envisioning an international career.

Scheduled classes. In some cases there maybe changes.

Department’s Special Subjects

Foundations of Informatics	Information Infrastructure Science	Software Science	Multimedia Information Science	Intelligent Systems Science	Information Environment Science
Logic in Computer ScienceTATSUTA, Makoto	Computer System DesignYONEDA, Tomohiro GOSHIMA, Masahiro	Mathematical Structures in ProgrammingHU, Zhenjiang	Digital Media InfrastructureECHIZEN, Isao KATAYAMA, Norio ANDO, Ryoichi TAKAYAMA, Kenshi AIZAWA, Akiko	Logical Foundations for Artificial IntelligenceINOUE, Katsumi	Information Environment ScienceOYAMA, Keizo
Theory of Numerical MethodsHAYAMI, Ken	Information and Communication SystemsJI, Yusheng ABE, Shunji FUKUDA, Kensuke KANEKO, Megumi	Distributed SystemsSATO, Ichiro	Fundamentals of Media ProcessingSATO, Shinichi KODAMA, Kazuya IKEHATA, Satoshi MO, Hiroshi	Knowledge Sharing SystemTAKEDA, Hideaki	Digital PublicationsKANDO, Noriko
Basis of Information Processing in Life Systems		Data EngineeringTAKASU, Atsuhiko	Applications of Multimedia ProcessingSUGIMOTO, Akihiro SATO, Imari GOTODA, Hironobu CHEUNG, Gene ZHENG, Yin, Qiang	Reasoning ScienceSATO, Ken	Information Retrieval
AlgorithmUNO, Takeaki		Software EngineeringNAKAJIMA, Shin	Interactive MediaARAI, Noriko AIHARA, Kenro ONO, Nobutaka YAMAGISHI, Junichi	Machine LearningICHISE, Ryutaro	Terminology
Mathematical LinguisticsKANAZAWA, Makoto		Signal ProcessorHASHIZUME, Hiromichi		Human-Agent InteractionYAMADA, Seiji	Governance among Humans, Technology and Social System in the ICT Society
Discrete MathematicsKAWARABAYASHI, Kenichi		Probabilistic Models in InformaticsKITAMOTO, Asanobu		Natural Language Processing	Scholarly Information Databases
Mathematical Logic		Constraint Programming		Intelligent RoboticsINAMURA, Tetsunari	Academic Information EnvironmentsOKADA, Hitoshi
Quantum Information SystemsNEMOTO, Kae		Service-Oriented ComputingISHIKAWA, Fuyuki		Intelligent User InterfacesPRENDINGER, Helmut	ICT-enabled BusinessSUN, Yuan
Quantum ComputationMATSUMOTO, Keiji		XML DatabasesKATO, Hiroyuki		Psycholinguistic	Introduction to Statistical Methods in BibliometricsNISHIZAWA, Masaki
Modern Cryptography		Database Programming Languages		Cluster AnalysisHOULE, Michael E	Methodology of Scientmetrics
Computational NeuroscienceKOBAYASHI, Ryota		Software Development ProcessTEI, Kenji		Intelligent Web SystemsOHMUKAI, Ikki	Record Management
Sublinear AlgorithmsYOSHIDA, Yuichi		Fundamentals of Web Application DevelopmentSAKAMOTO, Kazunori		Syntactic Semantic ParsingMIYAO, Yusuke	Information Society
Optimization TheoryKISHIDA, Masako		Programming Languages and TheoryTSUSHIMA, Kanae		Communication EnvironmentsBONO, Mayumi	Information Economics
Graph AlgorithmsIWATA, Yoichi				EconophysicsMIZUNO, Takayuki	
Algorithmic Market DesignYOKOI, Yu				Data MiningSUGIYAMA, Mahito	

Department’s Common Subjects

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

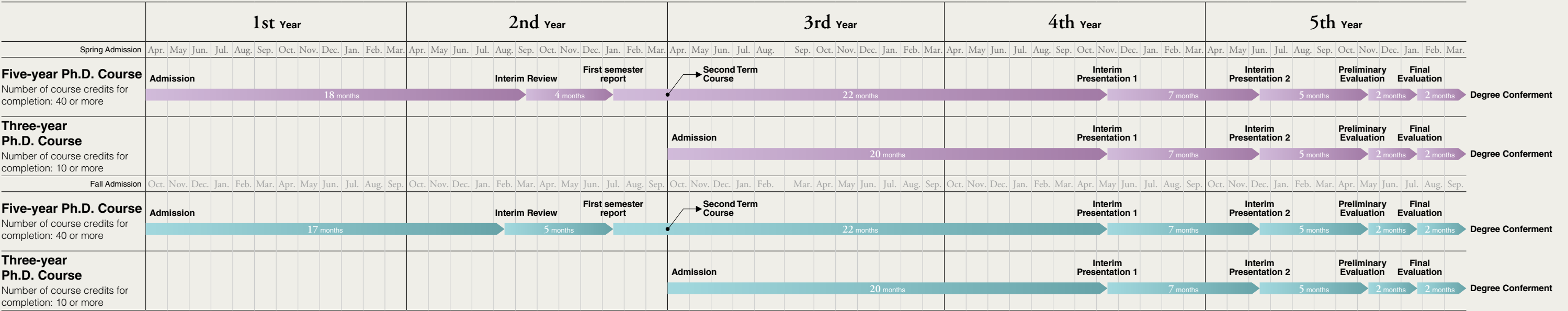
Common Specialized Basic Subjects

Introduction to Mathematical LogicTATSUTA, Makoto	Introduction to Software Science IAll professors in Software Science	Introduction to Intelligent Systems Science IISATO, Ken TAKEDA, Hideaki PRENDINGER, Helmut OHMUKAI, Ikki MIZUNO, Takayuki BONO, Mayumi SUGIYAMA, Mahito	Intellectual Property Rights	Introduction to Information Security InfrastructureECHIZEN, Isao OKADA, Hitoshi TAKAKURA, Hiroki
Introduction to AlgorithmsUNO Takeaki	Introduction to Software Science IIAll professors in Software Science	Introduction to Information Environment Science IAll professors in Information Environment Science	Research, Development and International Collaboration in a Changing World	Applied Linear AlgebraHAYAMI, Ken SATO, Shinichi ONO, Nobutaka GOTODA, Hironobu
Quantum information and ComputingNEMOTO, Kae MATSUMOTO, Keiji	Introduction to Multimedia Information ScienceAll professors in Multimedia Information Science	Introduction to Information Environment Science II	Presentation in English I	Introduction to Big Data ScienceProfessors related to Big Data
High-Performance ComputingAIDA, Kento KOIBUCHI, Michihiro TAKEFUSA, Atsuko	Introduction to Intelligent Systems Science IINOUE, Katsumi YAMADA, Seiji INAMURA, Tetsunari ICHISE, Ryutaro MIYAO, Yusuke HOULE, Michael, E	Intellectual Property Rights	Presentation in English II	
Information Sharing System ArchitectureURUSHIDANI, Shigeo TAKAKURA, Hiroki KURIMOTO, Takashi				

Requirements for Ph.D. Degree

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



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.



Lecture on Applied Linear Algebra.

RESEARCH

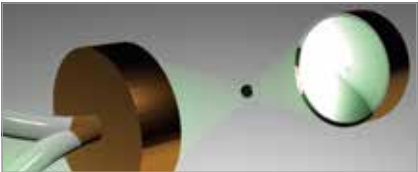
Quantum Information Science and Technology

The last decade has seen that our understanding of the principles of quantum mechanics lead to the development of technologies underpinned by it. These quantum principles of superposition and entanglement can be used to process, store, and transport information in radically new and powerful ways.

We can now coherently observe, explore and manipulate the quantum properties of many different physical systems. We have extended both our theoretical and experimental capabilities to understand and fabricate quantum systems well beyond the few qubits level. This is where novel features and new science & technologies possibilities are emerging.

Our research focuses around quantum computation,

quantum communication, quantum metrology and sensing, high precision measurements, programming quantum computers and quantum complex systems. While our approach is theoretical, we have a strong emphasis through collaboration on the realization of these new and emerging quantum information based systems.



Student's RESEARCH



HANKS, Michael Robert

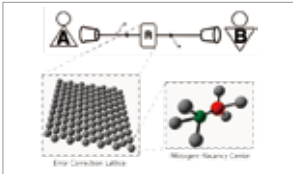
Enrolled in 2014,
5-year Ph.D. course,
Main supervisor:
Prof. NEMOTO, Kae

Quantum communication promises secure cryptographic key distribution as well as additional flexibility in the architectural design of quantum computers. However, its implementation on large scale

networks appears to require the use of quantum 'repeater' devices, and it is very likely that these devices will need some form of error correction.

My research centers on estimating the performance of repeaters built from nitrogen-vacancy centers, which are atomic impurity systems in diamond. In addition to the single operation level, I am also interested in how idiosyncrasies of these systems affect error correction codes, and what

advantages might be available in the specific case that are not present more generally.



Getting a PhD at NII

Vice chair,
Department of Informatics
INOUE, Katsumi

Vice Chair MESSAGE

The Department of Informatics is part of the National Institute of Informatics (NII).

Each student participates in a laboratory of a supervisor, and engages in research activities as a researcher of NII. For this purpose, NII employs every student as a research assistant (except students with full-time jobs and government sponsored foreign students). Students study advanced theories and

technologies of informatics, while receiving research advice from their supervisors and advisors, and make presentations at top-level international forums.

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, highperformance and dependable computing, network architecture, protocol, security, resource management, and performance evaluation methodology.



The Cooling Test for Submerging an In-water Computer and Fault-diagnosis Test Boards in Water.

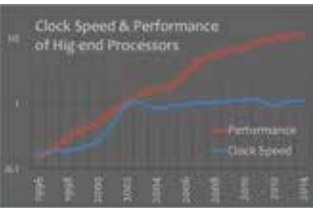
RESEARCH

The Last 10 Years and The Next 10 Years

A processor is the heart of a computer system. However, some say no more speedup of the processors is needed. I heard such opinions 10 and 20 years ago. If so, can they live with computers of 10 or 20 years ago? A good programmer only writes programs that can neatly work on existing processors. From another aspect, precisely because the processor speedup has been promising, wide variety of new applications have been developed. This continuous speedup provides the basis for the information society.

A speedup in clock frequency, which had been one of the major factors for the processor speedup, stopped more than 10 years ago. Even after that, the performance improvement of processors has been continued by

architectural means. My laboratory tries to extend the performance improvement of processors to the next 10 or 20 years, not by reforming existing techniques, but by a fundamental reconsideration of processor architecture.



Student's RESEARCH

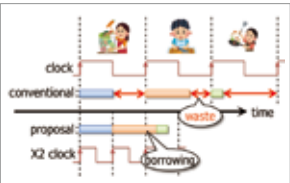


JIMBO, Ushio

Enrolled in 2015,
3-year Ph.D. course,
Main supervisor:
Prof. GOSHIMA, Masahiro

Operation of LSIs can be compared to the stages of dish procedure as shown in the figure. The processing time is usually different from stage to stage. In existing LSIs, this difference results in wasteful waiting time as

indicated by the red arrows. For this problem, I have proposed a method that can carryover the processing time to the next stages. As shown in the lower part of the figure, the preparation stage is longer than the cycle time, but the following frying stage is short; thus, the total procedure is in time even though the clock frequency is doubled. In this way, even with the present manufacturing technology, the method can realize 8GHz processors.



TOPICS National Institute of Informatics Open House

Every year sometime in June the National Institute of Informatics holds an open house where they present to the public results from their latest research. 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, introducing their work to a large audience.



Software: Enabling Technologies for IT

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



Sakamoto lab is developing a study application named "Smart Motivator." Professors and students sometimes do programming tasks jointly.

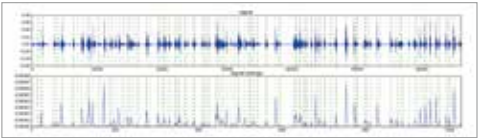
RESEARCH

Prof. TAKASU, Atsuhiko

Big Sensor Data Management and Analysis

Nowadays, many devices like smartphones are equipped with various kinds of sensors and big sensor data are gathered from them. By analyzing them, we can detect various events in the real world. We study technology for managing and analyzing big sensor data. We developed distributed spatio-temporal index for processing big data, which speeds up sensor data retrieval by the order of magnitude. We also study latent models and peak detection algorithms for detecting anomalies in sensor streams.

These techniques are applied to real world problems such as detecting incidents in large traffic network from the GPS data from cars. We are tackling the problem of detecting the symptoms of bridge faults from health monitoring sensors installed at bridges.



Student's RESEARCH



RAHMAN, MD. Mostafizur

Enrolled in 2015,
5-year Ph.D. course,
Main supervisor:
Prof. TAKASU, Atsuhiko

Recently, most people consider search engines as an expert of all domains therefore sometimes semantic search also not enough to meet the users' expectations. So, popular search engines exploit the power of Knowledge Graph (KG). If

the KG can be optimized for action oriented queries, search engines can recommend more meaningful facts regarding the queries.

Currently, I am focusing on Actionable Knowledge Graph Generation techniques and I have proposed a method to recommend potential actions relevance to users' query to support "actionable" search intents. My ultimate goal is to find an effective method to compare documents based on facts they cover

and provide users the most relevant documents which contain the most relevant facts regarding their query.



Research Interests

HASHIZUME, Hiromichi

- Human Interface
- Man-Machine Interface
- Digital Signal Processing

HASUO, Ichiro

- Logic
- Automaton
- Category Theory
- Formal Methods
- Cyber-Physical System
- Optimization
- Machine Learning

HU, Zhenjiang

- Programming Languages
- Functional Programming
- Parallel Computation
- Software Engineering

KATO, Hiroyuki

- Xml
- Databases
- Functional Programming
- Xquery

KITAMOTO, Asanobu

- Image Information Processing
- Pattern Recognition
- Database
- Earth Environment Information
- Digital Archive

NAKAJIMA, Shin

- Formal Methods
- Formal Specification and Verification
- Modeling

SAKAMOTO, Kazunori

- Software Testing
- Software Development Environments and Methodologies
- Computer Programming Education

SATOH, Ichiro

- Cloud Computing
- Ubiquitous Computing
- Middleware
- OS
- Distributed Computing

TAKASU, Atsuhiko

- Data Engineering
- Data Analysis and Machine Learning
- Text Pattern Analysis

TEI, Kenji

- Sensor Network
- Software Architecture
- Middleware

TSUSHIMA, Kanae

- Programming Languages
- Types
- Type Inference
- Type Debugging

YOSHIOKA, Nobukazu

- Security Software Engineering
- Security Patterns
- Privacy Software Engineering

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.



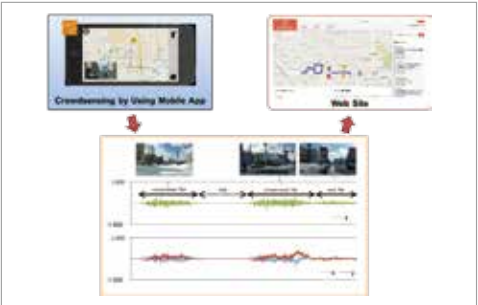
The Biometric Jammer, which affects a pseudo fingerprint pattern to fingertips, can prevent photographic capture of fingerprints without inhibiting normal use of fingerprint sensors.

RESEARCH

Assoc. Prof. AIHARA, Kenro

Crowdsourced Mobile Sensing for Grasping the Current Physical Situation in Town

Crowdsensing is one of the smart city applications to collect sensor data reflecting personal-scale, or microscopic, roadside phenomena using crowdsourcing. To collect data, a driving recorder smartphone application that records not only sensor data but also videos from the driver's view is used. To extract specific roadside phenomena, collected data are integrated and analyzed at the service platform. One example is estimating road surface conditions.



Student's RESEARCH



WANG, Xin

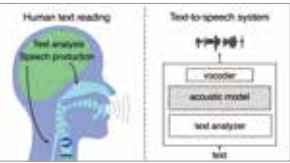
Enrolled in 2015,
3-year Ph.D. course,
Main supervisor:
Assoc. Prof. YAMAGISHI, Junichi

My research topic is on text-to-speech synthesis, a technology that enables the machine to read aloud in human-like voices. One approach of text-to-speech is to use various machine learning methods to figure

out the mapping from the text-to-speech. Although the synthesized speech from this approach is natural sounding, its quality is still imperfect. Possible reasons may be the various inappropriate assumptions researchers made on the statistical models.

My work is to find better statistical models and revise those assumptions. With the improved model and thus synthetic speech, I hope that text-to-speech technology can better serve

society, particularly during the next Olympic and Paralympic Games in Tokyo.



Research Interests

AIHARA, Kenro

- Human-Computer Interaction
- User-Centered Design

ANDO, Ryoichi

- Computer Graphics
- Physics Simulation
- Computational Fluid Dynamics (CFD)

ARAI, Noriko

- Knowledge Sharing
- Distance Learning

CHEUNG, Gene

- Video Compression
- Media Streaming & Transport
- Immersive Communication

ECHIZEN, Isao

- Content Security
- Information Security
- Data Distribution
- Information Hiding

GOTODA, Hironobu

- 3D Modeling, Rendering
- Animation

IKEHATA, Satoshi

- Computer Vision
- 3D Reconstruction
- Multi-View Stereo
- Photometric Stereo
- Deep Learning

KATAYAMA, Norio

- Multimedia Information Processing
- Multimedia Information Retrieval

KODAMA, Kazuya

- Image Sensing
- Image Restoration/Reconstruction
- Image/Video Coding
- Visual Communications

MO, Hiroshi

- Pattern Recognition
- Video Content Analysis

ONO, Nobutaka

- Source Separation
- Microphone Array
- Acoustic Scene Analysis
- Acoustic Signal Processing

SATO, Imari

- Image-based Modeling and Rendering, Computational Photography

SUGIMOTO, Akihiro

- Computer Vision
- Human-Computer Interaction

TAKAYAMA, Kenshi

- Computer Graphics
- Shape Modeling
- Geometry Processing
- Animation

YAMAGISHI, Junichi

- Speech Information Processing
- Statistical Learning
- Speech-Based Human Machine Interaction
- Speech Database
- Speech Assistive Technology

YU, Yi

- Social Interactions
- Geo-Tagged Multimedia Data
- Location-Aware Preference Mining
- Geographic Popularity
- Geo-Social Behaviors
- Location Recommendations
- Multimedia Content Diffusion

ZHENG, Yingqiang

- Geometric Computer Vision
- 3D Reconstruction
- Photometric Computer Vision
- Hyperspectral Imaging
- Mathematical Optimization



School for Students with Global Perspective

Vice chair,
Department of Informatics
TAKEDA, Hideaki

The mission of the Department of Informatics is to develop researchers that can work globally. The National Institute of Informatics has the global research network so that research for students is often a part of international cooperative research programs.

It is common that students present their work in conferences abroad and some stay in foreign universities

and institutes for research. Nearly a half of students are those from abroad. With internship students and researchers from abroad, the atmosphere of the student rooms is always multi-linguistical and multi-cultural. The outside of the department is Tokyo but its inside is truly international.



Ceremony to Present Commemorative Medals to 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.

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.



A machine learning experiment based on communication between human and robot, by using VR devices

RESEARCH

Exploring Social Knowledge Through the Web

Our society is deeply engaged with the Web, i.e., various social activities are mostly done on the Web and they have furthermore been changed by the Web. Web Informatics is the area of research in which data on the Web is analyzed and modeled as social behavior to create new mechanism and architecture for the future Web. It includes social network analysis of social media data such as Twitter and knowledge extraction from Wikipedia as collective intelligence. For instance, we collect and analyze NicoNico Douga data to model how people create new movies as massively collaborative process.



Prof. TAKEDA, Hideaki

Student's RESEARCH



MIYAZAWA, Akira
Enrolled in 2014,
5-year Ph.D. course,
Main supervisor:
Assoc. Prof. MIYAO, Yusuke

I study National Language Processing (NLP), especially how to deal with metaphors in NLP. Metaphor is a type of expression that introduces a different concept from the topic. For example, the expression "He is

burning with anger" uses the concept FIRE in addition to ANGER. We use metaphors in daily life to make expressions that are easy to imagine or understand and to create new meanings. However, this is difficult for computers. I would like to develop a system that automatically generates interesting metaphors. Then it can be as good as poets or novelists.



Research Interests

- BONO, Mayumi
- Sociolinguistics
 - Conversational Informatics
 - Utterance ■ Body Movement
 - Sign Language ■ Conversation Analysis
 - Social Interaction
- ICHISE, Ryutaro
- Machine Learning ■ Data Mining
 - Semantic Web
- INAMURA, Tetsunari
- Human-Robot Interaction
 - Intelligent Robots
 - Cognitive Development
 - Probabilistic information processing
- INOUE, Katsumi
- Artificial Intelligence
 - Knowledge Representation and Reasoning
 - Machine Learning ■ Logic Programming
 - Constraint Programming
 - Multi-Agent Systems
- MIYAO, Yusuke
- Natural Language Processing
 - Computational Linguistics
- MIZUNO, Takayuki
- Econophysics
 - Boom-Bubble Phenomenon
 - Big Data Mining ■ Web Mining
 - Statistical Physics ■ Macroeconomics
- OHMUKAI, Ikki
- Semantic Web ■ Social Network Analysis
 - Knowledge Sharing
- PRENDINGER, Helmut
- Life-like Characters
 - Automatic Content Creation for Virtual Worlds and the 3D Internet
 - Emotion and Sentiment Recognition from Text
 - Multimodal Interface
- SATOH, Ken
- Reasoning ■ Knowledge Representation
 - Multi-Agent Systems ■ Machine Learning
 - Computational Logic
- SUGIYAMA, Mahito
- Machine Learning ■ Data Mining ■ Statistics
 - Knowledge Discovery ■ Bioinformatics
- TAKEDA, Hideaki
- Semantic Web ■ Knowledge Sharing
 - Community-Support System ■ Design Theory
- YAMADA, Seiji
- Human-Agent Interaction
 - Human-Robot Interaction

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.



Virtual currency transforms coins and bills into digital form. The abstraction of value encourages trade across international borders.



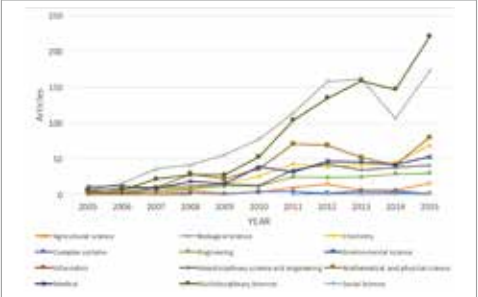
RESEARCH

The Relationship between a Press Release and a Scientific Publication

Scientometrics is the study of measuring and analyzing science, technology and innovation. We are exploring the basic points of academic research from the relationship between excellent research and support/investment of funds. Recently, we analyzed factors posted from the correlation between an academic research press release and a newspaper publication. Research on press releases related to top-tier Japanese universities has shown a generally increasing trend over time, and the number of organizations with active press release programs has grown rapidly in recent years. In addition, academic articles related to universities in newspapers have been increasing with the increase in press releases.

Assoc. Prof. NISHIZAWA, Masaki

academic journal impact factor, Altmetrics, and other measurable quantities. Through these studies, we are trying to find effective investment methods and timing for research, factors of newspaper publication and effective methods of dissemination.



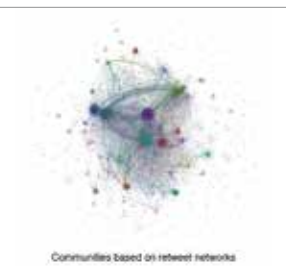
Student's RESEARCH



NARARATWONG, Rungsiman
Enrolled in 2013,
5-year Ph.D. course,
Main supervisor:
Assoc. Prof. OKADA, Hitoshi

From Thailand's historic flood in 2011, I am interested in how the online community could reinforce the ability of a society to be more resilient to the disaster and how it might affect individual perception of the situation.

Obtaining data from Twitter, I conducted keyword/topic extraction in Thai, as well as other data mining methods such as categorization and community detection. Thai language has been a huge challenge in processing the data. My ongoing work is to apply language processing methods to the language. The contribution would be more precise understanding of how society and individuals reacted to the disaster.



Research Interests

- KANDO, Noriko
- Information Retrieval
 - Information Access Technologies
 - Text Processing
 - Evaluation Methodology and Metrics
- NISHIZAWA, Masaki
- Scientmetrics ■ Bibliometrics
 - Research Trends ■ Statistical Analysis
- OKADA, Hitoshi
- Electronic Commerce ■ IT-enabled Services
 - Electronic Money
- OYAMA, Keizo
- Data Engineering ■ Information Retrieval
 - Information Systems
 - Web Information Processing
 - Information Access Technology
 - Text Processing
- SUN, Yuan
- Bibliometrics ■ Bibliometric Data
 - Statistical Methods



Cool Heads but Warm Hearts

Vice chair,
Department of Informatics
OKADA, Hitoshi

Vice Chair MESSAGE

The Department of Informatics possesses a highly interdisciplinary character, with researchers from a wide range of fields, and an outstanding global nature, where a wide variety of cultures intersect. This combination provides an exceptional research environment that strongly stimulates intellectual curiosity. In the intellectual production process that leads up to completing a doctoral thesis it is not only necessary to conduct the detailed and logical work which is enabled by a cool

mind. In academic life, a warm perspective rooted in human life can become the source of new ideas. Here you can find a challenging environment that brings forth true innovation. I invite you to join the circle of talented researchers that exists in the Department of Informatics and to experience the sparks given off by the contact with different cultures and different disciplines. You might be the one to discover something yet unknown to humankind.



TOPICS Informatics Department Homecoming Day

Nearly 140 Ph.D. degrees in Informatics have been awarded to date and in March of this year the first homecoming day of the Department of Informatics was held, with more than 30 alumni joining the celebration. The homecoming event also featured a workshop where current students were able to interact with alumni.

Visiting Professors and Other Research Staff

While they are not instructors, they have served as advisors.

■ Visiting Prof.

AIZAWA, Akiko

- Identification and Linkage of Text Information
- Statistical Language Analysis and Automatic Construction of Linguistic Resources
- Language Media and Interfaces

HOULE, Michael

- Data Mining (Search, Clustering, Classification)
- Design and Analysis of Algorithms
- Visualization, Combinatorial Geometry

ISHIKAWA, Fuyuki

- Software Engineering: Formal Methods
- Services Computing: Service Composition in Web and Physical World

SATOH, Shinichi

- A Study on Video Analysis Retrieval and Knowledge Discovery Based on Broadcast Video Archives
- A Studyon Image Retrieval

SONEHARA, Noboru

- Governance of ICT Society
- Data-Driven-Decision Making System

■ Other Research Staff

ADACHI, Jun

- Information Retrieval and Integration of Heterogeneous Data
- Modeling and Implementation of High-Performance Information Retrieval Systems
- Text Mining

HONIDEN, Shinichi

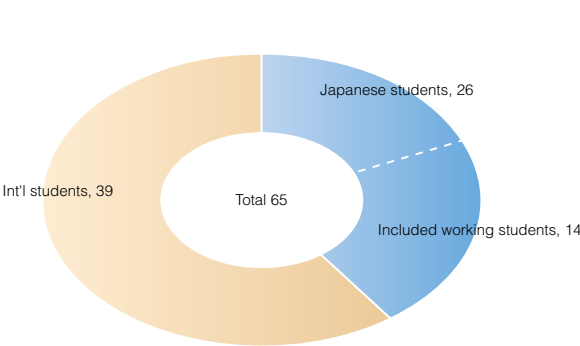
- Autonomous Agents and Multiagent Systems
- Ubiquitos Computing
- Software Engineering

TAKANO, Akihiko

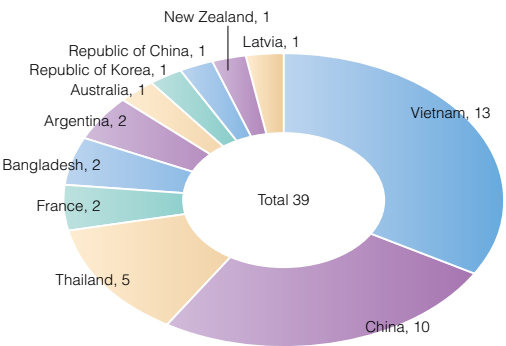
- Informatics of Association
- Algebra of Programming

Student Data

Current Student Data



Nationalities / Regions of Int'l Students



As of April, 2017

Study Abroad Program

To cultivate researchers with global perspectives, SOKENDAI (The Graduate University for Advanced Studies) has financial support programs for students who wish to study abroad for two weeks or longer. This grant aims for the promotion of international joint research activities, and the fostering of global-quality research abilities.



Message from an Alumnus



SUZUKI, Takahisa

2010-2015 Five-year Ph.D. course, Department of Informatics, SOKENDAI
2015-2016 Research Fellow of Japan Society for the Promotion of Science
2016-2017 Associate Lecturer, Faculty of Comprehensive Policy Development, Tsuda College
2017-present Associate Lecturer, College of Policy Studies, Tsuda University



I first heard about SOKENDAI when I was planning my academic path after I completed my master's program. At that time, I was studying data mining targeting web data, and the visualization of network data. While engaged in those studies, my interest had been shifting to how these technologies effected human behavior and society. Then I had been looking for a laboratory where I could study these themes. As a result, I found Kobayashi Lab at Department of Informatics, SOKENDAI.

At SOKENDAI I studied the conditions where human reputation extends to the networks of cooperative exchanges. The possibility to maintain cooperative exchanges by reputation had been suggested in many disciplines such as biology, sociology, economics and psychology. Recently, mechanisms have been implemented on the online auction systems.

However, there was not enough verification about these efficiencies. To deal with this problem, because it was significant to take account of psychological aspects and behavioral aspects, an approach that used multiple methods was needed. For that reason I chose the Department of Informatics SOKENDAI, which covers not only information engineering but humanities and social sciences as well.

SOKENDAI has several unique features. Since the professor-student ratio is low, students can discuss the details of their studies and have many opportunities to participate in the work of professors. This is an opportunity to acquire research skills and knowledge.

The location is great. There are antiquarian bookshops and various kinds of restaurants in Jimbocho. Also, from Jimbocho it is easy access any place in Tokyo. Because of its convenient location

many SOKENDAI students attend lectures at other departments and universities. I often used the library at Meiji University which was available to SOKENDAI students.

Students can also receive economic support from both of SOKENDAI and NII. I joined in the summer program at University of Michigan in US for one month with the help of SOKENDAI Short-Stay Study Abroad Program. Since students can get a salary as a Research Assistant (RA), the burden of living expenses is lightened. Both SOKENDAI and NII provide research awards respectively and there are many opportunities to apply.

These unique advantages of SOKENDAI enable students to focus on their studies.

■ Employment Place of Degree Recipients as of April 2017

The names of corporate bodies and companies as of April, 2017.

Research Institutes

NHK Broadcasting Culture Research Institute
Kwansei Gakuin Univ.
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
National Institute of Technology, Tokyo College

Toyohashi Univ. of Technology
Nara Institute of Science and Technology
Hosei Univ.
Japan Advanced Institute of Science and Technology
Ministry of Defense
Meiji Univ.
Yamanashi Univ.
RIKEN
Ritsumeikan Univ.
Waseda Univ.

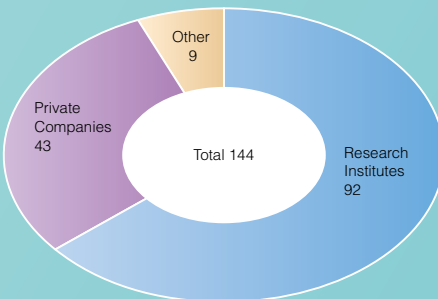
CITEC
Ho Chi Minh City University of Science
National Electronics and Computer Technology Center (NECTEC)
Royal Institute of Technology (KTH)
Univ. of Dhaka
Univ. of Quebec at Montreal (UQAM)
Bangkok Univ.
Hanoi Univ. of Science and Technology
Ecole Centrale

Private Companies

ACCESS CO.,LTD.
HCL JAPAN LTD.
SBI BITS Co, Ltd.
SECOM Co., Ltd.
IBM Japan
NEC Corporation
NTT Group
Nihon Unisys Ltd.
NTT East
Hitachi, Ltd.

FUJITSU
Fujitsu Laboratories Ltd.
Mitsubishi UFJ Research and Consulting Co., Ltd.
Works Applications Co.,Ltd.
Government Information Technology Service
Metamedia Technology Co., Ltd.
Total Access Communication PCL
Global Energy Interconnection Development and Cooperation Organization (GEIDCO)
Cooperation Organization(GEIDCO)

Degree Recipient Employment Organization Categories



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

For the Department of Informatics, both research and classes take place in the National Center of Sciences which is equipped with the lecture halls and facilities needed for these purposes.



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.



Research Cloud

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



Student Room

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



International Seminar House for Advanced Studies

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



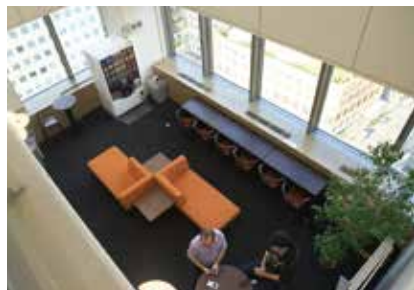
Library

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



Library (Stack Room)

With its core holdings of electronic journals in the area of information science, the library has a collection of about 30,000 books and 200 journal titles.



Lounge (18th floor)

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



Lounge (14th floor)

Located on an upper floor overlooking Tokyo, the lounge is a place where students can relax and interact.



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.

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/guide/general/>

■ 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/guide/pvscholarship/scholarship/>

■ Admission with Japanese Government Scholarship (MEXT scholarship)

MEXT scholarship Priority Graduate Program (MEXT PGP)

The program is inviting applications for Japanese Government Scholarships to provide outstanding international students with an opportunity to pursue doctoral degrees through our academic program.

http://www.soken.ac.jp/en/admission/guide/mextscholarship/scholarship_univ/sokendai-pgp/

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 non-degree program of SOKENDAI Department of Informatics, and then apply to our graduate program through the General Admissions System.

http://www.soken.ac.jp/en/admission/guide/mextscholarship/scholarship_jpn/

SOKENDAI Research Assistant

Research Assistant (RA) program for students of SOKENDAI

This program is a student employment system in which students work on a specific research topic under the guidance of an academic supervisor. Students are able to participate in the latest National Institute of Informatics research. Relevance to academic research is considered.

Hourly pay: 1,100 yen for students enrolled in the master's program or equivalent (Maximum approximately 90,000 yen monthly); 1,200 yen for students enrolled in the doctoral program or equivalent (Maximum approximately 100,000 yen monthly).

*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).

Currently employed students: Twenty-eight of 32 students (excluding working students and government scholarship recipients) (as of April 2017).

Scholarship Program

NII Scholarship

This grant is intended for especially outstanding students enrolled in the Five-year Ph.D. course or in the Three-year Ph.D. course who are in need of financial aid. The maximum is 52,000 yen monthly (as of April 2017). In addition to this monthly stipend, support is also provided for travel expenses, admission fee, and tuition fees.

* Outright grant, not a loan.

* Combining this aid with the Research Assistant program for students of SOKENDAI is possible.



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

National Institute of Informatics
Address: 2-1-2 Hitotsubashi, Chiyoda-ku,
Tokyo 101-8430
Email: daigakuin@nii.ac.jp

