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.

- **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.

- **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.

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.
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. 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.

What is SOKENDAI?
SOKENDAI (The Graduate University for Advanced Studies) 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 models 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.
Features of the Dept.

Getting a Ph.D. at NII

Vice chair: Department of Informatics

SUGIMOTO, Akhiro

The department of Informatics has been installed in the National Institute of Informatics (NII). Each student belongs to the laboratory of the professor, 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 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

JL Yusheng

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 such 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.

Many graduates find work as a Research Assistant both in Japan and abroad

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.

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.

Department’s Special Subjects

Foundations of Informatics

- Algorithm
- Algorithmic Design
- Computational Networks
- Central Theory and Optimization
- Cryptography and Computer Security
- Digital Mathematics
- Graph Algorithms
- Logic in Computer Science
- Logic Programming
- Mathematical Logic
- Numerical Analysis
- Probabilistic Systems
- Quantum Computation
- Sublinear Algorithms

Software Science

- Data Engineering
- Distributed Systems
- Formal Methods in Cyber-Physical Systems
- Information and Communication Systems
- Theory of Numerical Methods

Information Infrastructure Science

- Computer System Design
- Information and Communication Systems

Multimedia Information Science

- Applications of Multimedia Processing
- Digital Media Infrastructure
- Fundamentals of Media Processing
- Interactive Media

Environmental Science

- Climate Change
- Ecological Engineering
- Environmental Science

Modern Mathematics

- Algebra
- Analysis
- Geometry
- Topology

Seminar

- Machine Learning
- Natural Language Processing
- Reasoning Systems
- Robotics

Information Sharing

- Information Sharing

Information and Computing

- Computer Networks
- Computer Security
- Information Science

Software Engineering

- Database Systems
- Information Systems
- Programming Languages and Theory

Signal Processing

- Information Retrieval
- Signal Processing

Information Science

- Information Retrieval
- Signal Processing

Mathematical Sciences

- Algebra
- Analysis
- Geometry
- Topology

Information Infrastructure Science

- Computer System Design
- Information and Communication Systems

Multimedia Information Science

- Applications of Multimedia Processing
- Digital Media Infrastructure
- Fundamentals of Media Processing
- Interactive Media

Requirements for Ph.D. Degree

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

Department’s Common Subjects

Research in Informatics for PhD (A, B, AB, BA)

- All professors

Summer or Early Course in Informatics IA, IB, IB

- All professors

Common Specialized Subjects

- All professors

Applied Linear Algebra

- All professors

High-Performance Computing

- All professors

Software Engineering System Architecture

- All professors

Introduction to Algorithms

- All professors

Introduction to Big Data Science

- All professors

Introduction to Information Systems Science I

- All professors

Introduction to Information Systems Science II

- All professors

Introduction to Mathematical Logic

- All professors

Introduction to Multimedia Information Science

- All professors

Introduction to Software Science I

- All professors

Introduction to Software Science II

- All professors

Quantum Information and Computing

- All professors

Practical Data Science

- All professors

Scientific Presentation

- All professors

Scientific Writing

- All professors

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

Presentation Schedule

- Interim Presentation 1
- Interim Presentation 2
- Preliminary Evaluation
- Final Evaluation

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

Website of the Dept.

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

SOKENDAI syllabus system

https://soken.cloud-syllabus.com/
Research field and Advisors at the Dept.

Foundations of Informatics

- **HAYAMI, Ken**
  - Professor
  - Keywords: Numerical Analysis, Numerical Linear Algebra, Iterative Solution of Systems of Linear Equations and Least Squares Problems, Numerical Solution of Inverse Problems
  - (Titles of Papers): Cluster Gauss-Newton method for sampling multiple solutions of nonlinear least squares problems – with applications to pharmaceutical models
  - (Research): Implementation of iterative interface methods for IP based on fixed substructure iterative solvers with inner-iteration preconditioning

- **NEMOTO, Kae**
  - Professor
  - Keywords: Quantum Information and Computation, Quantum Optics, Theoretical Physics
  - (Titles of Papers): Fast Talbot Effect Quantum Circuits: From, Compilation and Description
  - (Research): High-Adaptive spin measurement on the nanobridge vacancy-center system

- **TATSUTA, Makoto**
  - Professor
  - Keywords: Programming Logic, Lambda Calculus, Type Theory, Constructive Logic, Software Verification
  - (Titles of Papers): Equivalence of Intuitionistic Definitions and Cyclic Proofs under Axiom of Choice
  - (Research): Decision Procedure for Entailment of Symbolic Horns with Arrays

- **UNO, Takeaki**
  - Professor
  - Keywords: Algorithms, Combinatorial Optimization, Data Mining, Data Engineering
  - (Titles of Papers): Efficient Data Clustering in Large Databases
  - (Research): Using Maximal Independent Sets with Minimal Space and Bounded Delay

- **KISHIDA, Masakazu**
  - Associate Professor
  - Keywords: Control Theory, Optimization, Uncertain Systems, Networked Systems
  - (Titles of Papers): Event-Triggered Control for Discrete-Time Nonlinear Systems Using State-Dependent Riccati Equation
  - (Research): Problems involving eigenvalues for uncertain matrices by structured singular value

- **MATSUMOTO, Keiji**
  - Associate Professor
  - Keywords: Quantum Information, Quantum Computation, Statistics, Information Theory, Entanglement
  - (Titles of Papers): Entanglement and Quantum Information Processing
  - (Research): Hypothesis testing for an entangled state produced by spontaneous parametric down conversion

- **HAYASHI, Yuichi**
  - Associate Professor
  - Keywords: Algorithms, Theoretical Computer Science, (Combinatorial) Optimization
  - (Titles of Papers): A Characterization of Locally Testable Affine-Invariant Properties via Descriptive Theories
  - (Research): Finding Assignments to Constraint Satisfaction Problems

- **HIRAHARA, Shuichi**
  - Assistant Professor
  - Keywords: Computational Complexity Theory, Parameterized Complexity, Graph Algorithms, Combinatorial Optimization
  - (Titles of Papers): On Branching Structures of Minimum Circuit Size Problem
  - (Research): Non-black-box circuits: average-case reductions from the NP-hardness of minimum circuit size problem for OR-AND-MOS Circuits

- **IWATA, Yoichi**
  - Assistant Professor
  - Keywords: Discrete Algorithms, Parameterized Complexity, Heuristics
  - (Titles of Papers): On 2SAT with a Path
  - (Research): Lower Bounds on Feedback Vertex Set

- **YOKO, Yu**
  - Assistant Professor
  - Keywords: Algorithms, Mechanization Design, Combinatorial Optimization
  - (Titles of Papers): Envy-Free Allocation with Lower Quotas
  - (Research): Finding a Stable Allocation in Polymatroid Intersection

- **YONEDA, Tomohiro**
  - Professor
  - Keywords: Algorithms, Systems, Dependable Systems, Cloud Computing, Real-Time Systems
  - (Titles of Papers): A New Algorithm for Location-Based Service in Cloud Provider

- **ABE, Shunji**
  - Associate Professor
  - Keywords: Information Networks, Network Performance Analysis, Control-Improvement of Content Delivery Network
  - (Titles of Papers): A New Direction for a Japanese Academic Backbone Network

- **FUKUDA, Kensuke**
  - Associate Professor
  - Keywords: Internet Protocol, Traffic Measurement, Analysis and Modelling, Scalable Traffic Networking
  - (Titles of Papers): Approximating the Size of Network Event Logs
  - (Research): A Theory of Generalized Traffic Parsing

- **KANEKO, Megumi**
  - Associate Professor
  - (Titles of Papers): Distributed Resource Allocation with Local SD Coordination and Scheduling for OFDMA Based MIMO Networks
  - (Research): Throughput Analysis of OFDMA with Imperfect Frequency Selectivity in Full-Duplex Enabled OFDMA

- **KURIMOTO, Takashi**
  - Associate Professor
  - Keywords: Network Protocols, Network Node Architecture
  - (Titles of Papers): SINET5: A Low-Latency and High-Bandwidth Backbone Network for IPv6 MIPv6
  - (Research): An IPv6 and IPv6o Internet virtualization architecture for cloud and MVN Interconnection

- **TAKOFUSA, Atsuko**
  - Associate Professor
  - Keywords: Parallel and Distributed Computing, Resource Management, Cloud Computing, Cloud Computing, Edge Computing
  - (Titles of Papers): A Framework and Job Scheduling
  - (Research): A Virtual Cloud Service System for Building Effective Inter-Cloud Infrastructure

- **NAKAMURA, Shunsuke**
  - Associate Professor
  - Keywords: Network Protocols, Network Node Architecture
  - (Titles of Papers): SDN / NFV Era
  - (Research): Full Duplex-Enabled WLAN

- **ABE, Shunji**
  - Associate Professor
  - Keywords: Information Networks, Network Performance Analysis, Control-Improvement of Content Delivery Network
  - (Titles of Papers): A New Direction for a Japanese Academic Backbone Network

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.

Research Keywords and Major Research Papers Titles

- **AIDA, Kento**
  - Professor
  - Keywords: Parallel and Distributed Computing, Grid Computing, Cloud Computing
  - (Titles of Papers): A Portable Load Balancer for Kubernetes Cluster
  - (Research): Virtual Cloud Service System for Building Effective Inter-Cloud Infrastructure

- **GOGISHIMA, Masahiro**
  - Professor
  - Keywords: Computer Architecture, Microarchitecture, Digital Circuit
  - (Titles of Papers): Novel MultiStacked/Multibanked Register File for Area and Energy Efficiency
  - (Research): Application of Crossing Scheme That Enables Dynamic Time Bounding

- **JI, Yusheng**
  - Professor
  - Keywords: Network Architectures, Resource Management, Quality of Service, Mobile Computing
  - (Titles of Papers): Mobile Edge Computing for the Internet of Vehicles: Offloading Framework and Job Scheduling
  - (Research): Plato: Learning-based Adaptive Streaming of 300-Degree Videos

- **TAKAKURA, Hiroki**
  - Professor
  - Keywords: Cyber Security, High-Performance Networking, Network Imagery, Data Mining
  - (Titles of Papers): SPINZ: A Speculating Incident Zone System for Incident Handling
  - (Research): Construction of Secure Internet Networks with Communication Disabling System

- **URUSHIDANI, Shigeo**
  - Professor
  - Keywords: Network Architectures, Network Service Systems
  - (Titles of Papers): Optimization model for designing multiple virtualized campus area networks coordinating with a wide area network
  - (Research): Robust optimization model for failover resource allocation in cloud provider

- **YONEDA, Tomohiro**
  - Professor
  - Keywords: Algorithms, Systems, Dependable Systems, Cloud Computing, Real-Time Systems
  - (Titles of Papers): A New Algorithm for Location-Based Service in Cloud Provider

- **ABE, Shunji**
  - Associate Professor
  - Keywords: Information Networks, Network Performance Analysis, Control-Improvement of Content Delivery Network
  - (Titles of Papers): A New Direction for a Japanese Academic Backbone Network

Computer systems and information-communication networks form the foundation of information systems. 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.
Research field and Advisors at the Dept.

Software Science

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.

Research Keywords and Major Research Papers Titles

Media Information Science

Information Systems, as "media" that appropriately provides 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 utilities for between people and information systems or among people.

Research field and Advisors at the Dept.

HASHIZUME, Hiromichi

Associate Professor

Human Interface, Man-Machine Interface, Digital Signal Processing

Keywords:

[Titles of Papers]

• User Interface Design
• Human-Computer Interaction
• User Experience Design

TAKASU, Atsuhiro

Professor

Cloud Computing, Utilitarian Computing, Middleware, OS, Distributed Computing

Keywords:

[Titles of Papers]

• Cloud Computing
• Middleware

HASUO, Ichiro

Assistant Professor

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

Keywords:

[Titles of Papers]

• Logic
• Game Theory
• Automated Reasoning

KITAMOTO, Asanobu

Assistant Professor

Data-driven Science, Digital Humanities, Earth Environmental Informatics, Image Processing, Digital Archives, Open Science

Keywords:

[Titles of Papers]

• Data-driven Science
• Digital Humanities

YOSHIKA, Nobukazu

Assistant Professor

Security Software Engineering, Security Patterns, Privacy Software Engineering

Keywords:

[Titles of Papers]

• Security in Cloud Computing

KATO, Hironobu

Assistant Professor

Computer Vision, Human-Computer Interaction

Keywords:

[Titles of Papers]

• Computer Vision

SEIKYAMA, Taro

Assistant Professor

Programming Languages, Type Systems, Formal Methods

Keywords:

[Titles of Papers]

• Programming Languages

TSUSHIMA, Kazuo

Assistant Professor

Programming Languages, Type Systems, Type Inference, Type Debugging

Keywords:

[Titles of Papers]

• Programming Languages

KATAYAMA, Kenso

Assistant Professor

Human Computer Interaction, User-Centered Design

Keywords:

[Titles of Papers]

• Human Computer Interaction

YOKOHIKI, Katsuya

Assistant Professor

Image Sensing, Image Restoration / Reconstruction, Image / Video Coding

Keywords:

[Titles of Papers]

• Image Sensing

DOJO, Hiroto

Assistant Professor

Multimedia Information Processing, Multimedia Information Retrieval

Keywords:

[Titles of Papers]

• Multimedia Information Processing

KATAYAMA, Norio

Associate Professor

Multimedia Information Processing, Multimedia Information Retrieval

Keywords:

[Titles of Papers]

• Multimedia Information Processing

ARAI, Noriko

Professor

Knowledge Sharing, Distance Learning

Keywords:

[Titles of Papers]

• Knowledge Sharing

ECHIZEN, Isao

Professor

Multimedia privacy, Multimedia security

Keywords:

[Titles of Papers]

• Multimedia Privacy

SUGIMOTO, Akihiro

Professor

Computer Vision, Human-Computer Interaction

Keywords:

[Titles of Papers]

• Computer Vision

YAMAGISHI, Junmi

Professor

Speech Information Processing, Machine Learning, Speech-based Human Machine Interaction, Speech Database, Bioacoustic, Media Forensics

Keywords:

[Titles of Papers]

• Speech Information Processing

AIHARA, Kenro

Assistant Professor

Human Computer Interaction, User-Centered Design

Keywords:

[Titles of Papers]

• Human Computer Interaction

GOTO, Hiroto

Assistant Professor

Multimedia Information Processing, Multimedia Information Retrieval

Keywords:

[Titles of Papers]

• Multimedia Information Processing

KODAMA, Kazuya

Assistant Professor

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

Keywords:

[Titles of Papers]

• Image Sensing

ZHENG, Qinqiang

Assistant Professor

Computer Graphics, Shape Modeling, Geometry Processing, Animation

Keywords:

[Titles of Papers]

• Computer Graphics

MD, Hiroshi

Assistant Professor

Pattern Recognition, Video Content Analysis

Keywords:

[Titles of Papers]

• Pattern Recognition

TAKAYAMA, Katsuki

Assistant Professor

Computer Graphics, Shape Modeling, Geometry Processing, Animation

Keywords:

[Titles of Papers]

• Computer Graphics

YU, Yi

Assistant Professor

Social Interactions, Geo-Tagged Multimodal Data, Location-Aware Professors Mixing, Geospacial Popularty, Geo-social Behavior, Location Recommendations, Multimedia Content Distribution

Keywords:

[Titles of Papers]

• Social Interactions

Research Keywords and Major Research Papers Titles
Research Keywords and Major Research Papers Titles

**Intelligent Systems Science**

**AI Technology Enhancing Human Intelligent Tasks**

Artificial Intelligence (AI) is an emergent technology that 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.

---

**ICHIWA, Akiko**

**Keywords:** Machine Learning, Data Mining, Semantic Web

- **Titles of Papers:**
  - An Automatic Knowledge Graph Creation Framework from Natural Language Text
  - Linked Data Entity Resolution System Enhanced by Configuration Learning Algorithms

**INOUE, Katsumi**

**Keywords:** Machine Learning, Logic Programming, Constraint Programming, Multi-Agent Systems

- **Titles of Papers:**
  - Linear Algebraic Characterization of Logic Programs
  - Learning from Interpretation Transition

---

**NISHIZAWA, Masaki**

**Keywords:** Electronic Commerce, IT-enabled Services, Electronic Money

- **Titles of 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

---

**SATOH, Ken**

**Keywords:** Reusing, Knowledge Representation, Multi-Agent Systems, Machine Learning, Computational Logic

- **Titles of Papers:**
  - Classifying Legal Puzzles as Story Types in Nominate Systems
  - Voluntary Maniaustion: Intention-to-Kill in Meta-Argumentation with Sponsors

---

**TAKEDA, Hideaki**

**Keywords:** Semantic Web, Knowledge Sharing, Community Support System, Design Theory

- **Titles of Papers:**
  - Preserving and presenting the change in taxonomic knowledge for linked data
  - Understanding massive artistic cooperation: the case of Nino Niso Danza

---

**YAMADA, Seiji**

**Keywords:** Human-Agent Interaction, Human-Robot Interaction

- **Titles of Papers:**
  - How is scientific research announced in a press release? –Focusing on its relationship with news articles

---

**BONO, Mayumi**

**Keywords:** Sociolinguistics, Conversational Informatics, Utterance, Embodied Actions, Adept Language, Communication Analysis, Social Interactions

- **Titles of Papers:**
  - Challenges for Robots Acting in a Stage: Creating Sequential Structures for Interaction and the Interaction Process with the Audience
  - The Practice of Showing What You Are: A Multimodal Analysis of Encounters between Science Communicator and Visitors at Science Museum

---

**Research field and Advisors at the Dept.**

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.

---

**Research field and Advisors at the Dept.**

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.

---

**Annual events at the Dept.**

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.
Students’ Research

MASUOKA, Yukihiro

Enrolled in 2016, 3-year Ph.D. course
Main supervisor: Prof. TATSUYA, 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 study mathematical properties of them.
Actually, basic properties of cyclic proofs are not known, so I am eager to study it.

\[
P \vdash Q
\]
\[
P \ast S \vdash Q \ast S
\]

DINH, Thi Ha Ly

Enrolled in 2017, 3-year Ph.D. course
Main supervisor: Assoc. Prof. KAWAKI, Masayuki

Given the ever-increasing number of wireless subscribers and the expansion of IoT communication, the volume of mobile 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.

LUONG, Hieu Thi

Enrolled in 2017, 3-year Ph.D. course
Main supervisor: Prof. HAMAZAKI, Junki

A Text-to-Speech (TTS) is an automatic system which generates speech given a text content.
The development of such system normally required several hours of a text content.

Actually, basic properties of cyclic proofs are not known, so I am eager to study it.

NGUYEN, Tri Phuc

Enrolled in 2017, 3-year Ph.D. course
Main supervisor: Prof. TAKAI, Hiroaki

I am studying data integration which is technology enables combining numerical tabular data from different sources and forming a unified view of them.
Its application is in business, i.e., merging databases from different companies, or scientific research, i.e., intertwining research outcomes from multidisciplinary research filed.
With the holistic view of data, we are not only to answer more advanced analytical questions but also discover new knowledge from integrated data.

I am approaching it by combining Semantic Web and Machine Learning as the former approach.
I am building a knowledge base for numerical tabular data.
As the latter approach, I use Deep Learning to capture data patterns corresponding to the knowledge base.

RAHMAN, Md. Mostafizur

Enrolled in 2015, 5-year Ph.D. course
Main supervisor: Assoc. Prof. OKADA, Hitoshi

Recently, many 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 relevant 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.

NARARATWONG, Rungsisman

Enrolled in 2013, Graduated in 2019, 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.
This language has been huge challenges in processing the data. My ongoing work is to apply language processing methods to the language.
The contribution should be more precise understanding of how society and individuals reacted to the disaster.

Message from an Alumnus

Shimon Machida, Ph.D.
2012 - 2016
3-year Ph.D. course
Department of Informatics
SOKENDAI

Director - Field Services Japan
SAP CX Successes & Services
SAP Japan Co., Ltd.

I entered SOKENDAI as a working adult student to get Ph.D. while working at a private IT company.

My motivation to enroll was that I was very interested in the landscape of information technology as a historical topic, but wanted to research privacy protection concerning to user's context in DNS based on the research in my master's program.
And then, I was introduced SOKENDAI by Prof. Echizen laboratory by a professor in my master's program.
As a result, I could start my research under Prof. Echizen's supervision.

After enrolling the school, we, students, usually face various difficulties. For instance, there are research steps how to effectively

students can get more opportunities to present research progress in workshops such as NIT Open House and workshops organized by your professor aside from other domestic/international conference.

The SOKENDAI is the best environment for you to easily confirm and correct on the right research path through many presentations and comments provided by audience.

Furthermore, as one of characteristics of SOKENDAI, many international students and interns are studying in the school.

We can spend with them in our research work, and also sometimes get close to academic community through discussion of research topics with them.

It is one of strengths that we can naturally learn different cultures and English from daily small talk.

Lastly, Jimbocho where SOKENDAI is located in is a very good location for working adult students who have limited time to study because the area is easy to access from main office areas in Tokyo.
In my case, as the area was fortunately within a walking distance, I visited the school after my work every day, and secured my research time adding weekend.
In the end, SOKENDAI is a very attractive school for not only students focusing on study but also working adult students.

In the end, SOKENDAI is a very attractive school for not only students focusing on study but also working adult students.

[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, Teikoku Univ., The Univ. of Tokyo, Hoshi Univ., Japan Advanced Institute of Science and Technology, Kwansei Gakuin Univ., Kyushu Univ., Ministry of Defense, Meijo Univ., Yamanashi Univ., Ritsumeikan Univ., RIKEN, Waseda Univ., CITEC, Ho Chi Minh City University of Science, National Electronics and Computer Technology Centre(NECTEC), Royal Institute of Technology(KTH), Univ. of Osaka, Univ. of Quebec at Montreal(JAQAB), Bangalore Univ., Hanoi Univ. of Science and Technology, Ecole Centrale

[Private Companies]
Scholarship and other financial supports

SOKENDAI 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 all new students (excluding working students and government scholarship recipients). *Relevance to academic research is considered.

Maximum annual hours of employment: 960 hours (20 hours weekly).*
*Additional hourly wages are paid to students who show outstanding research abilities.
The employment is determined every year. [Employment status: 4,482 students (including working students and government scholarship recipients) as of April 2018]

Other scholarship program
Scholarship by private foundations

<table>
<thead>
<tr>
<th>[Hourly pay]</th>
<th>for students enrolled in the 1–2 year of 5-year course</th>
<th>1,100yen (Approx. 30,000 yen / month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>for students enrolled in the doctoral program or equivalent</td>
<td>1,200yen (Approx. 100,000 yen / month)</td>
</tr>
</tbody>
</table>

*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 have financial difficulties but are proven to have outstanding academic performance.

Other financial supports
Scholarship Programs

SOKENDAI Short-term Research Abroad & Long-term Internship Program
SOKENDAI provides 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”
Department of Informatics establishes a financial aid program to encourage students to participate in prominent international conferences (Top Conference).

[Applied int'l conferences]
- ISIT
- ICME
- CVPR
- IEEE LCN
- SMC
- IEEE ICASSP
- ICIP
- Interspeech
- ARES
- IJCAI
- IPDPS
- TAMC
- ACCV
- ICONIP
- IFIP
- IEEE ICASSP

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.

[Accommodation information]
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 accessible 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), IEE (IEEE, IEE),
MathSciNet (American Mathematical Society),
Springer Link (Springer Nature), Science Direct (Elsevier B.V.),
Wiley Online Library (John Wiley & Sons.)

Support for internship and int’l conference

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.

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

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

Cases in 2018
17

Preliminary and long-term collaborative research project in and outside Japan.

Scholarship Programs

SOKENDAI has basically employed all new students (excluding working students and government scholarship recipients) as of April 2018.

Support for internship and int’l conference

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.

[Accommodation information]
https://www.soken.ac.jp/en/campuslife/international/supports/