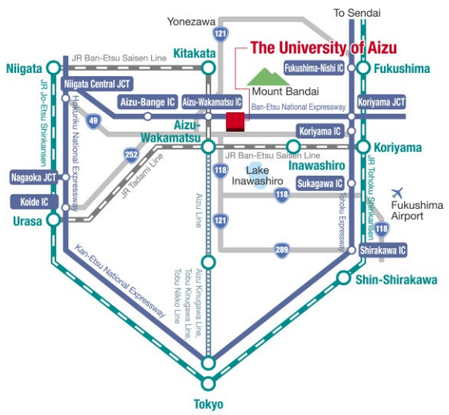
ACCESS MAP



Access

By Train

- From Tokyo (JR Tohoku Shinkansen): About 2 hours and 40 min.
- From Narita Airport via JR Ueno Station: About 3 hours and 20 min.
- From Sendai (JR Tohoku Shinkansen): About 1 hour and 50 min.
- From Aizu-Wakamatsu Sta. (by bus/taxi): About 10 min.

By Expressway Bus (to Aizu-Wakamatsu Station)

- From Busta Shinjuku (Shinjuku Station): About 4 hours and 20 min.

By Car

- From Tohoku Expressway Kawaguchi JCT: About 3 hours
- From Tohoku Expressway Sendai IC: About 2 hours
- From Jo-Ban Expressway Misato JCT: About 3 hours and 50 min.
- From Ban-Etsu Expressway Niigata IC: About 1 hour and 40 min.
- From Ban-Etsu Expressway Aizu-Wakamatsu IC (121+49): About 10 min.

Fukushima Airport

- From Fukushima Airport (by expressway): About 1 hour and 50 min.

AIZU
THE UNIVERSITY OF AIZU

The University of Aizu

Tsuruga, Ikki-machi, Aizu-Wakamatsu City, Fukushima, 965-8580, Japan

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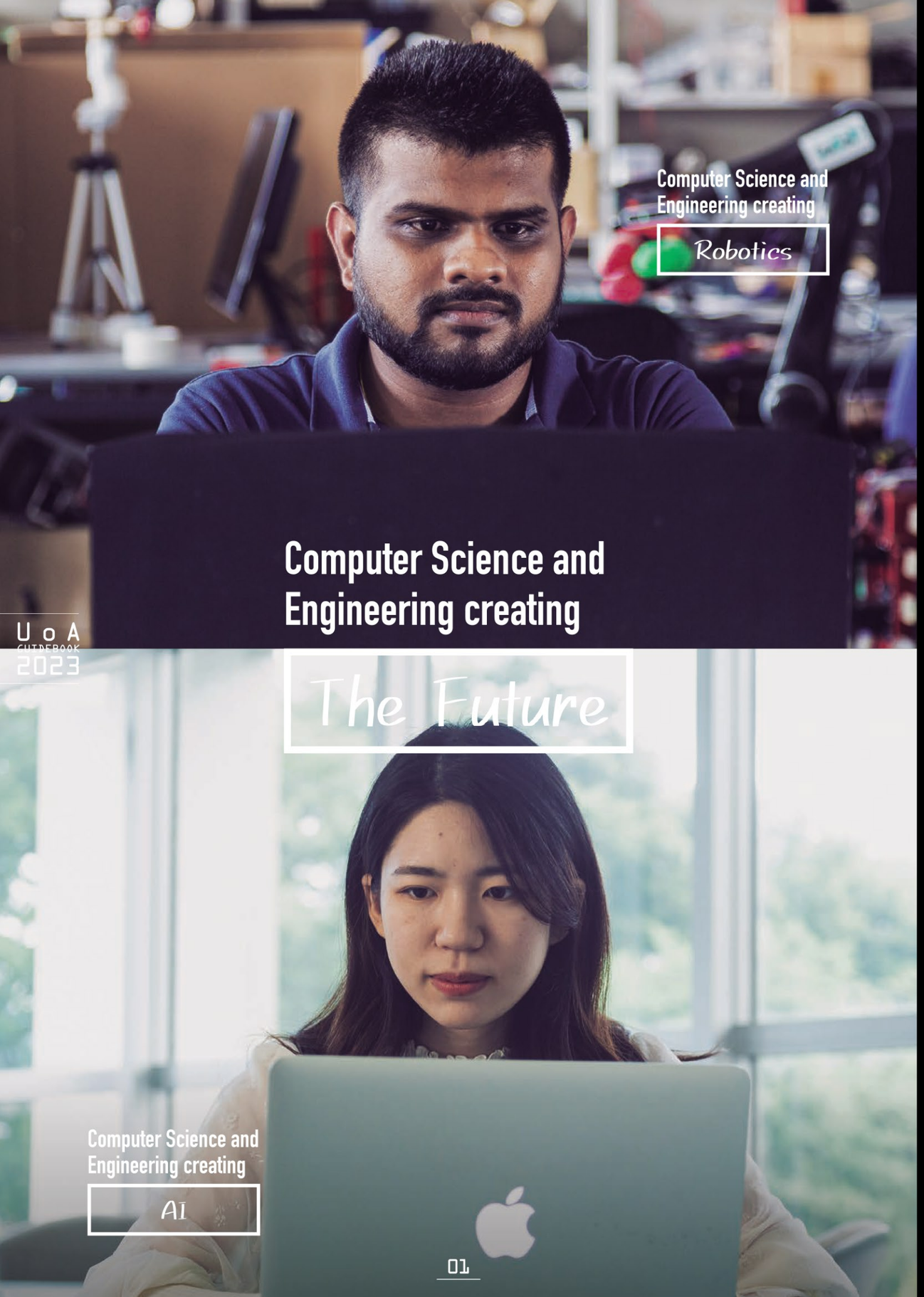
https://u-aizu.ac.jp/en/

Mobile Site▶

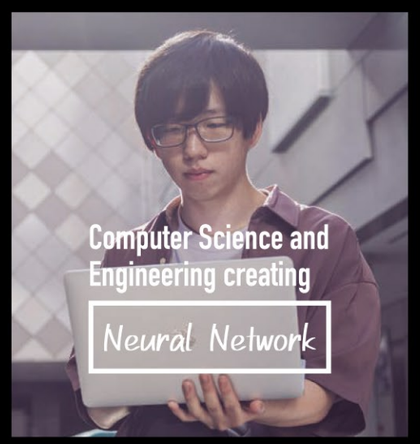
Computer Science and Engineering creating

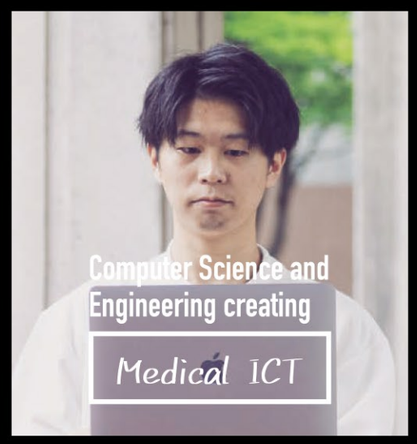


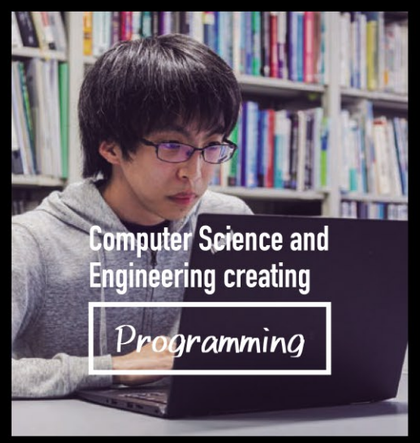
Computer Science and Engineering creating

UoA GUIDEBOOK 2023

What does it mean to study
“Computer Science and
Engineering” at the UoA?
It means learning to
create the future through
studies in a wide variety of areas.
Computer Science and
Engineering encompasses
not only PCs, smartphones,
gaming devices and
home electronics but also
medical care, AI, art and
outer space.
Computer Science and
Engineering comprises a
broad range of fields and
its potential for development is vast.
What kind of future will you
create through Computer Science and
Engineering?
Come to the UoA and explore
the possibilities.







U o A GUIDEBOOK 2023

The potential linked to Computer Science and Engineering

In Aizu, we have a tradition of empowering society through education. This spirit has been inherited by the University of Aizu, and has helped develop a great many talented people, who have acquired concrete knowledge and skills and are able to be active in the world.

The University of Aizu was established in 1993 as Japan's first university specializing in computer science and engineering, which is a highly promising discipline with wide applications.

Its possibilities have the power to "change" or "create" the future.

We are seeking people who are always looking outward to the world and continuing to challenge themselves.

Learn in Aizu, amaze the world!

CONTENTS




Welcoming tomorrow's ICT specialists who will Play key roles globally

The University of Aizu is the only university in Japan that specializes in research and education in information and communication technology (ICT) solely under the Faculty of Computer Science and Engineering. From every aspect of our daily life to cutting-edge science, computers and ICT are indispensable and ubiquitous today - from smartphones, home appliances, internet services including SNS, to self-driving cars, cutting-edge medical care, robots, and the fields of meteorology and outer space. The University of Aizu is working day and night to develop ICT research and researchers that will change the world.

All over the world, fierce competition is unfolding in advanced ICT. The latest information in ICT is communicated in English. For that very reason, students who study at the University of Aizu learn not only the basics of computers and programming but also study English intensively. English is a mainstay of the curriculum in the same way as reading, writing and arithmetic are the basics in elementary school. For students of ICT, programming is the necessary tool for instructing a computer to perform desired processes while English is the essential tool for acquiring the latest ICT information. Only those persons who thoroughly master these can join ICT researchers and engineers around the world on an equal footing.

The University of Aizu is taking active steps to further strengthen its research capabilities and promote internationalization. In cooperation with universities and research institutes in Japan and overseas, we are taking on new challenges with experts in diverse research fields including space, robots, medical care, Post-5G, IoT and AI applications.

For persons who are keen to impress the world with amazing technology, the University of Aizu is ready to welcome you. An exhilarating environment that you will not find elsewhere awaits you.

Admission Policy

The University of Aizu is the first university in Japan solely dedicated to computer science and engineering. Computer science and engineering, including all of the fields of information communication technology (ICT), is a promising and cutting-edge discipline with wide applications that is becoming a core for technology regarding knowledge production. Setting forth the founding principles "Starting from Local Communities to the World" and "to Advance Knowledge for Humanity", since its founding the University of Aizu has conducted world-leading research and education in computer science and engineering with a faculty comprised of highly achieved researchers from all around the world that is unprecedented at other Japanese universities.

The University of Aizu seeks individuals who will constantly strive to realize the University's mission "to Advance Knowledge for Humanity" through the field of computer science and engineering with an international outlook from the standpoint of the Aizu area. The goals of the University of Aizu are as follows.

・Nurture internationally viable individuals, rich in creativity and guided by sound ethics, who will support technological innovations as researchers, technical experts, leaders and entrepreneurs.
・Promote world-leading research and development in computer science and engineering contributing to society and academia.
・Contribute to the advancement of industry and culture in Fukushima by pursuing practicality and effectiveness in many different fields including education and research.

Based on the above, the University of Aizu has set the following ideal undergraduate student and basic admissions selection policy.

The Ideal Undergraduate

People with the fundamental academic abilities needed to study Computer science and engineering and to whom one or both the following applies:
- Curious students with a spirit of taking on ideas and challenge and a true desire to study computer technology for whom the University of Aizu is their first choice
- People who wish to broadly contribute to the world by using ICT

Basic Admissions Selection Policy

The University of Aizu administers examinations to confirm that applicants have the fundamental academic abilities, especially mathematics skills and English proficiency, needed to study the latest computer science and engineering.

Computer Science and Engineering as a springboard to the world!

An unparalleled computer environment, in-depth English education, top-level faculty from around the world...the University of Aizu offers an exceptional environment for training professionals capable of playing active roles in the world. Education at the University of Aizu is attracting attention not only in Japan but also around the world.

Features of the University of Aizu from the viewpoint of numbers

18th

"THE Japan University Rankings 2022" ranks the University of Aizu 18th in Japan!

British educational journal Times Higher Education (THE) ranked the University of Aizu 18th in "THE Japan University Rankings 2022," published on March 24, 2022. This ranking evaluates universities based on 16 performance indicators across the four key areas of Resources, Engagement, Outcomes, and Environment and placed the University of Aizu second among public universities.

A computer environment with about 3,000 computer terminals — 2.5 computers per student!

The most notable features of the University of Aizu are its excellent computer education and research environment. A multimedia computer network has been established on campus to provide students with an ample number of computers and an environment for developing skills necessary for a broad range of cutting-edge research fields from basic research to applied research. For off-campus connection, the university uses SINET6, an academic information and communication network constructed and operated by the National Institute of Informatics (NII) as an academic backbone network for universities and research institutes all over Japan.

3,000 Terminals

Pick up!! Leading-edge computer education

With one of the highest number of computers of any university in Japan and classrooms with 24-hour access, the University of Aizu offers an "optimal computer environment" that allows students to study whenever they wish.

Pick up!! A computer education environment with the next generation of technology in mind

The University of Aizu helps students learn the basics and the workings of computers by offering diverse operating systems for classes with different learning contents and objectives. Provided are Unix-like operating systems such as Linux and macOS as well as Windows.

1:10

A teacher is always nearby!

The student-faculty ratio at the University of Aizu is 10 to 1, which is considerably lower than the national average of 20.3 to 1.* Many classes are organized for a small number of students, and teachers are always on hand, so students can receive attentive instruction.

(*From Asahi Shimbun x Kawaijuku Joint Survey, "HIRAKU Japanese Universities," 2015)

26 Countries & Regions 101 Universities

Joint research with universities overseas!

Committed to internationalization of education and research ever since its founding, the university has exchange agreements with 101 universities and research institutes in 26 countries and regions around the world.

about 40%

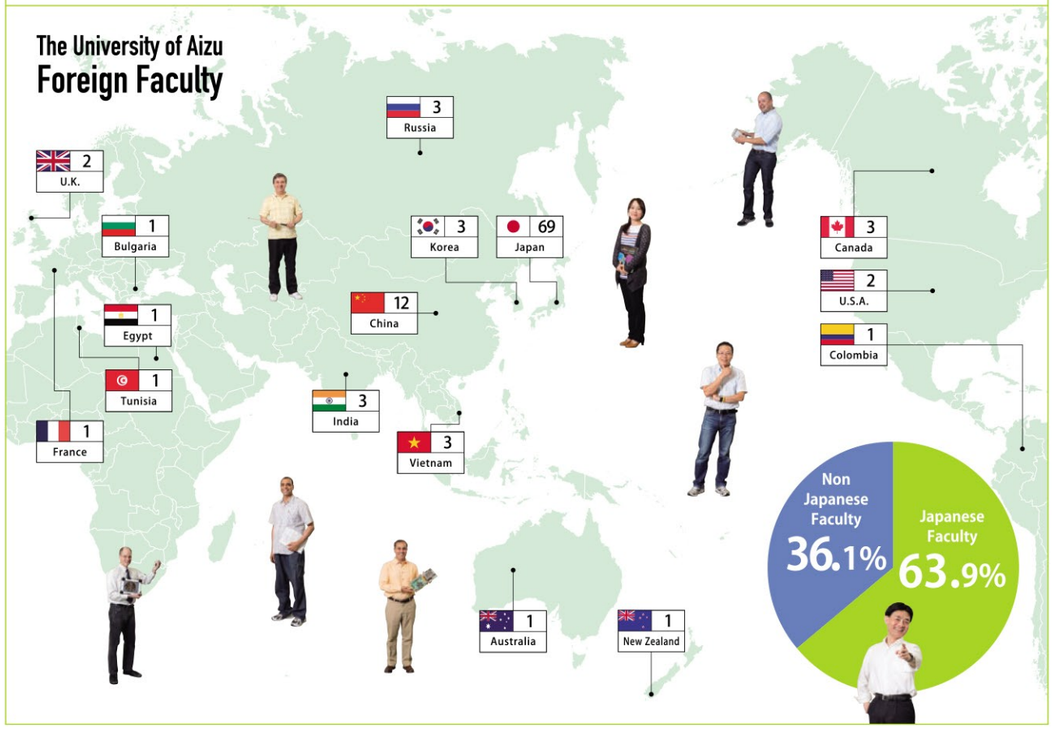
About 40% of the faculty are foreign teachers!

The University of Aizu seeks outstanding human resources both in Japan and abroad, and rigorously assesses their achievements in their fields of expertise. As a result, approximately 40% of all faculty members come from foreign countries.

Pick up!! English education with a focus on international awareness

Computer science and engineering are disciplines based mainly on English, so a high level of English proficiency is essential. Therefore, rather than having a curriculum for a second foreign language, the University of Aizu provides thorough English education, and students must achieve a certain TOEIC score in English proficiency to advance from the second year to the third year in undergraduate programs.

The University of Aizu Foreign Faculty



36% : 64%

Fukushima Prefecture : Outside The Prefecture

University of Aizu students come from all over Japan and the world!

More than half of the students enrolled are from outside the prefecture. There are many students from abroad as well. By studying together, students can expand their world by learning about differences in cultures and environments.

200,000㎡

Total campus area is the size of 28 football pitches!

The total area of the campus is 200,000 square meters! Located in a pleasant leafy setting, the sprawling campus grounds, which could hold more than twenty-eight football pitches, house an extensive range of facilities.

We are a Global University!

Student's VOICE

KWANGWARI Kundai

4th year student(from Zimbabwe)

The University of Aizu offers a conducive educational and research environment. The facilities are good and the classes are conducted entirely in English. There is a lot of nature and opportunities to make new friends, try delicious local food and learning about new cultures. The university also offers a lot of Japanese language support and job hunting assistance if you are interested in working after graduation. We look forward to having you join us at The University of Aizu!

Student's VOICE

SHIRAI Kaho

3rd year student(from Fukushima Prefecture)

I am enrolled in the ICT Global Program : All-English Course. What I like most about this course is that I can concentrate on my studies without stress. Since there is more class discussion than classes in Japanese, problems can be clarified on the spot, and this makes things easier to understand. When there is something we don't understand, Japanese students and international students sometimes get together and teach each other. One of the attractions of this course is that we can make friends through our classes. Please join us if you are even a little interested in learning in English.

Student's VOICE

SY Zeke Raphael Lim

2nd year student(from Philippines)

The best aspect of the university is the opportunities it gives students to take great leaps in advancing their own career and their close inside and outside the classroom. Not only this university made my move to Japan seamless, but there have been numerous beneficial opportunities to further my development. The freedom and aid this university gives to students to be able to really pursue what they are interested in is what makes the University of Aizu special. For those who are passionate about the subject, this is the perfect university to attend and I personally look forward to learning and experiencing even more in the coming years.

The Top Global University Project

The Project aims to enhance Japan's research and educational competitiveness in higher education by supporting university reforms which promote internationalization and cooperation with top overseas universities. (Ministry of Education, Culture, Sports, Science and Technology)

37 universities were selected for the project from 781 universities in Japan.

Only two public universities, one of which was the University of Aizu, were selected for the project!

ICT Global All-English Program

This is the first all-in-English academic program in Japan which features computer science and engineering professional education. It provides undergraduate students the opportunity to learn basic knowledge and earn a Bachelor's degree of Computer Science and Engineering in English.

Check!

All academic activities are conducted entirely in English.

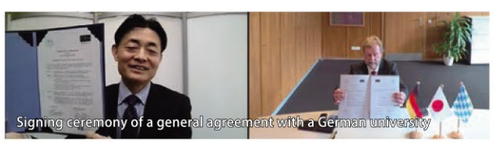
Japanese language lectures and cultural experiences are also provided.

Application Guide for Admission	
Eligibility	Individuals who have completed a 12-year school education equivalent to that of Japanese high school graduates
Requirements	Academic Proficiency: ACT, EJU, A-level, IB, SAT, AP, Gaokao (China), HKDSE, Class XII examinations (India), STPM/UEC (Malaysia) /English Scores: TOEFL iBT, IELTS, TOEIC or others* (Can't be exempted if meeting the requirement).)
Application Period	January - February
Tuition (JPY)	520,800, Payment in two installments of 260,400 each by the end of April and October

One-time Admission Fee (JPY)	
Admission Fee	564,000
Insurance Fee	9,380
Others	76,080
Total	643,380

Collaboration with overseas partner universities and establishment of innovation hubs

To date, the University of Aizu has engaged in research and concluded academic exchanges with 101 universities and research institutes in 26 countries and regions. The university hosts domestic and international conferences every year. Overseas, the university has set up "innovation hubs" in Silicon Valley in the United States and Dalian and Shenzhen in China to learn about the world's most advanced technology and collect information. The University of Aizu also conducts overseas training programs and research presentations, and provides opportunities to interact with local engineers. The university itself also serves as a hub for gathering and disseminating information locally.



Signing ceremony of a general agreement with a German university

Shenzhen, China Hub

Silicon Valley, the United States Hub

Student's VOICE

GOZALY Angelita

2nd year student (from Indonesia)

As an international student, one thing that I like the most about studying in this university is the constant support provided by the university. I received great help from the university staff and from my seniors and friends that I met here, and thus I have no problem adjusting to life here in Japan. The university also encourages the students to study hard and research and provides us with all necessary facilities . I believe that I will have a great time at this university.

Student's VOICE

KAGAMI Motoki

3rd year student (from Yamanashi Prefecture)

My goal is to work in an English-speaking country in the future. I wanted to come into contact with an English-speaking environment as early as possible, so I enrolled in ICT Global Program: All-English Course. Although it is sometimes difficult to follow classes that are conducted entirely in English, being able to learn terms related to computer science and engineering in English is very useful. I recommend enrolling in the University of Aizu as a place where you can make the most of the university's English-speaking environment.

Study Abroad and Internships

For students who are motivated to study and research overseas, the University of Aizu provides opportunities to study and train overseas by arranging various programs to suit the stage and objectives of each student's study. Students can obtain credits from the University of Aizu for short-term programs. The university also recognizes credits students earn during medium-term overseas study programs as credits of the University of Aizu.

Specialized research and education, technical skills

■Internship

Place: Silicon Valley, United States

Development of prototypes related to IoT (Internet of Things), AI, etc., and visits to renowned universities and companies.

■Internship

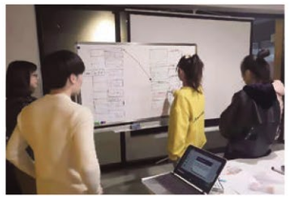
Place: Dalian, China

Training on international ICT business planning at Dalian Neusoft University of Information and an internship at a local company.

■Overseas business development project

Place: Dalian, China

Training and planning an international virtual ICT business at the innovation creation facility of Dalian Neusoft University of Information in China.



Medium-term study abroad program

Overview: Study abroad for a period of 3 months to 1 year at a university with which the University of Aizu has signed an agreement.

Place: Rose-Hulman Institute of Technology (United States), Karlsruhe University of Applied Sciences (Germany), or other university/research institutes with which the University of Aizu has an exchange agreement.

This is a program that students undertake research, participate in an internship and obtain credits. The University of Aizu provides a certain amount of financial support with travel and accommodation expenses necessary for overseas study. Students stay in student dormitories, etc.

Please take a look at the reports of students who have experienced study abroad and other programs from the QR codes on the right.

Short-term/medium-term study abroad, English experience program for study abroad preparation, etc.

Overseas internship program/overseas business development project

Global Lounge/Buddy Program/Aizu Geek Dojo

■Global Lounge

This is a space where international students and Japanese students can deepen their understanding of different cultures and improve their language skills in a friendly, relaxed atmosphere. Students can learn languages and interact in "International Talk" during lunch time or have conversations about a wide range of topics in "EEE-Chat" (English) and "JJJ-Chat" (Japanese).

https://www.u-aizu.ac.jp/osip/abroad/gl.html

■Buddy Program

This is a program in which Japanese students provide support to international students who have just enrolled in the university in their classes and everyday lives. This also helps Japanese students improve their English communication skills.

■International activities in the community

Japanese students together with international students enthusiastically engage in international and local exchanges including regional revitalization activities.

■Aizu Geek Dojo

Aizu Geek Dojo is a space with a seminar area and a workshop area containing equipment and manufacturing facilities. It is a place where students interested in a startup business and students who like technology get together and interact. Students can give presentations and hold events in the seminar area, and in the workshop area, students can use equipment, work on electronics, and hold workshops.

Honors Program

The University of Aizu offers the following two programs for outstanding students and students with unique talents who plan to pursue independent activities: Integrated Undergraduate-Master's Program and Unique Talent Discovery Program

Integrated Undergraduate-Master's Program

Students in this program complete an undergraduate and Master's degree in five years, during which time they may take up to one year's special leave for their Honors Year study.

Type A: Graduate from an undergraduate program in 4 years → Complete Master's program in 1 year

Type B: Graduate from an undergraduate program in 3 years → Complete Master's program in 2 years

Scholarship Program: Students accepted in an Integrated Undergraduate - Master's program may apply for a scholarship upon their admission to Graduate School.

Unique Talent Discovery Program

This is a program for discovering and nurturing the development of a unique talent. Students in this program have the opportunity to receive various kinds of support including financial assistance to pursue their activities.

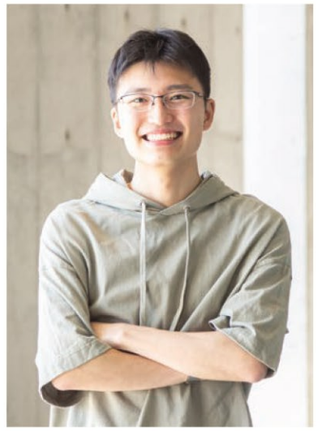
Student's VOICE

TANIKAWA Naoya

3rd year student(from Aichi Prefecture)

Q. As a student accepted into the Unique Talent Discovery Program, what kind of activities do you want to pursue in the future?

I applied and was accepted into the Unique Talent Discovery Program to develop my own ideas into an actual business start-up with the support of the university. In the 2020 Entrepreneur Koshien contest, I presented a design that allows one piece of clothing to be adapted to all styles of fashion, and I received the Jury Special Award. Starting up a business while still in university has the advantage of being able to tap into and utilize the university's intellectual property and ideas from your instructors. If you want to master technology and start a technical business, I recommend the University of Aizu.



Student's VOICE

NAMATAME Reon

Master's student(from Miyagi Prefecture)

Q. What made you decide to take on the challenge of the Integrated Undergraduate-Master's Program?

The catalyst was an information session I attended soon after enrollment. If I can complete the undergraduate program in three years and take the Honors Year, I believe that with the support of the university, I will have time to concentrate on the things I want to do. For example, I might consider a long-term internship at a company or experience study broad. I am aware that the conditions for completing the program are somewhat demanding, but I feel it is well worth the effort to achieve this goal.

Student's VOICE

HASHIMOTO Shihomi

Master's student(from Thailand)

(She is taking Honors Year this academic year.)

Q. What made you decide to take on the challenge of the Integrated Undergraduate-Master's Program?

I wanted to enroll in the Honors Program to commence research of biological signals that I am interested in as soon as possible. I redlized that I needed to acquire deeper knowledge to become involved in biomedical engineering. Going to graduate school a year earlier has been very stimulating as I can engage in discussions with professors and study specialized fields. You can achieve personal growth in this program. I recommend it to those who want a challenge.

Offering wide-ranging courses, including Student Cooperative Class Projects (SCCPs) and 7 Factories for Experiencing Starting Up Ventures, enables the University to flexibly accommodate the varying interests of 1st and 2nd year undergraduate students.

Student Cooperative Class Projects (SCCPs)

SCCPs enable 1st year students to choose projects of interest to them, and think about graduation research themes while taking part in practical classes and training. Given that it is difficult for 1st year students to engage in high-level research, SCCPs are designed in such a way that students can carry out research without special knowledge and skills. The advantage of taking these courses is that students are able to visit laboratories soon after enrollment at the university and deepen exchange with faculty and seniors when, for example, asking for advice on learning and research.

Creation of sound and visual contents by computers

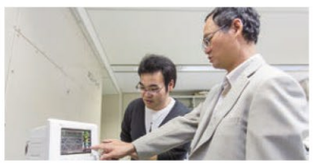
NISHIMURA Satoshi, Senior Associate Professor

This SCCP is for learning computational creation of visual and musical contents. Utilizing various tools, each student group designs and creates 3DCG, 2DCG, Flash, MIDI, live-action movies, and other such content.

CATEGORY Total of 29 projects including the development of competition robots

Venture Start-up Factories

"Factories for Experiencing Starting Up Ventures" is the name given to courses taught using PBL (Project Based Learning: project-based problem-solving learning), a practical educational method that has been attracting educators' attention. Students identify issues relevant to the university, companies, or region, and work in teams to address a particular development theme and implement their solution. They can also receive advice directly from professional engineers, and experience starting-up a venture business and/or developing software under circumstances similar to those in the actual industrial world.



Building "Kaifu" "Kairei" health big data infrastructure

CHEN Wenxi, Professor

In this class, each student can work in his or her own fields of interest while maintaining a focus on bio-signal measurement and analysis. Each member can set his or her own theme, such as "Research and development of measurement devices and analysis algorithms for various biological signals such as ECG, PWV and EEG." Lecturers and TAs give advice for solving attempted problems. Through this course, students can attain knowledge and skills, mainly in biomedical engineering, and develop their problem-detection skills, problem-solving ability, and capacity for imagination.

CATEGORY Basic Venture Courses: Theory I / II / Venture Experience workshop (7 workshops in total)

Competitions and Regional Contribution

Hosting of Competitions

The University hosts "PC Koshien," an annual programming contest for high school and technical college students nationwide.

Participation in the International Collegiate Programming Contest (ICPC)

The International Collegiate Programming Contest (ICPC) is an international competition in which prominent universities around the world match wits in the field of computers. The University of Aizu team has passed through the domestic qualifiers and advanced to the Asian Regional Contest every year, and works hard to qualify for the World Championships. So far, the team has participated in Asian Regional Contests held in 8 countries including Japan, Korea, Taiwan, Thailand, Singapore, and Malaysia, and they have also participated in the World Championships in 2009, 2016, 2017, and 2020.

ACM-ICPC World Finals 2017 in Rapid City (USA)
(Placed a 56th out of 133 universities. It was the second time in eight years.)

https://u-aizu.ac.jp/circles/acpc/

Regional Contribution

The University of Aizu's founding principle was one of "contributing to the industry and culture of Fukushima Prefecture," and it has been working to promote activities that contribute to the region ever since. We proactively collaborate with local industries to create new industries centered around our research and technology in partnership with local companies.

University-Business Innovation Center (UBIC)

"The University-Business Innovation Center (UBIC)" was established on campus as a gateway and a hub for university-industry collaboration. UBIC creates innovative ideas and engages in collaborations with the local community as a means of sharing the UoA's research and educational achievements with industry and the region.

University-Business Innovation Center (UBIC)

Aizu Reconstruction Support Center (ARC)

To contribute to the reconstruction of Fukushima Prefecture, we are engaging in various research projects in our advanced ICT laboratories equipped with data centers, promoting innovation through industry-academia collaboration in our "Aizu Open Innovation (AOI) Meetings," and making efforts to nurture the development of ICT human resources.

※Aizu Reconstruction Support Center (ARC)

5 Fields enable you to realize your chosen path

5 FIELD CURRICULUM

The curriculum of the Undergraduate School comprises 5 fields. Studies in each field will satisfy students' diversified intellectual curiosity: "What are the fundamental principles of computers?" "I want to design computers." "How does the Internet work?" "I am interested in robotics and medical science." "I hope to develop a large-scale computing system." Under this curriculum, students can take courses in specialized fields corresponding to their plans for the future. However, not everything needs to be decided at once. The curriculum has flexibility, which allows students to change courses and/or fields based on advice from their curriculum advisors and graduation research supervisors. The University of Aizu values such flexibility as a very important factor in naturally maximizing your abilities.

Fields

Computer Science
Learn how to use computer through mathematical theory and algorithms.

Sample Paths
- Financial engineering analyst
- IT consultant, etc.

Computer Systems
Learn how to design and construct computer systems.

Sample Paths
- Computer system development
- Development of home appliances and vehicle-mounted devices, etc.

Computer Network Systems
Learn about computer networks, network construction methods, and services provided via computer networks.

Sample Paths
- Network engineer
- Communications, etc.

Applied Information Technologies
Learn about IT required in a wide range of fields such as business, politics, health, and education.

Sample Paths
- Robotics
- Medicine
- Game development, etc.

Software Engineering
Learn how to systematically develop, operate, and manage large-scale software systems while considering reliability and efficiency.

Sample Paths
- Large-scale computer system development
- Project manager
- System administrator, etc.

Admission

Undergraduate School

First-year students | Second-year※2 students | Third-year students | Fourth-year students

Specialized Fundamental Courses
In these courses, you'll learn the basics of computing.
☐Mathematics and Related Courses ☐Natural Sciences and Related Courses
☐Computer Fundamentals and Related Courses ☐Programming and Related Courses
☐Fundamentals of Computer Science & Engineering and Related Courses

General Education Courses
You'll develop a sound mind and body in these courses.
☐Humanities and Social Sciences ☐Physical Activities

Foreign Language Courses
Students will learn practical English needed by computer science and engineers. Alternatively, international students can study Japanese as a foreign language.

Practical Projects
Exercise courses including the contents of various subjects.

Advanced Courses
Regular Courses to deepen specialized knowledge and skills
☐Computer Systems
☐Computer Network Systems
☐Applications
☐Software Engineering
☐Other Courses

Venture Start-up Factories
Project-based learning (PBL) offers students simulated experience of the practices in the real-world industry.

Student Cooperative Class Projects (SCCPs)
In these courses, undergraduates from year one to four study and conduct research together.

Career Design I (First-year students)
Here you will learn how to plan your future.

Career Design I (Second-year students)

Choosing a Graduation Thesis Supervisor

Career Design I (Third-year students)

Career Design II

Graduation Thesis (GT)
Every student's four years of learning culminates in writing a graduation thesis in English.

Mid-term Presentation of Graduation Thesis

Graduation Thesis Presentations

Courses for the Teaching Profession
These courses are for students aiming to obtain teaching certificates.
Acquirable teaching certificates:
First Class certificate for teaching in junior high school (Mathematics)
First Class certificate for teaching in high school (Mathematics and Information)

Integrated Undergraduate-Master's Program ※1

■Type A
(Four-year Undergraduate + One-year Masters)

First-year students | Second-year students | Third-year students | Fourth-year students → First-year Master's students | Completion

■Type B
(Three-year Undergraduate + Two-year Masters)

First-year students | Second-year students | Third-year students → Entering Graduate School after completion of third year → First-year Master's students | Second-year Master's students

Graduation (Enter the workforce or a Master's program)

Graduate School

First-year Master's students | Second-year Master's students

Regular Courses
Develop specialized knowledge and skills.

Master's thesis Research
Conduct research to write a Master's thesis

Seminars
Here you will engage in broad-spectrum learning beyond your specialization.

Project Development Arena
In this course, you will improve your problem-solving skills.

Master's Thesis Presentations

Courses for the Teaching Profession
Acquirable teaching certificates:
Advanced Class certificate for teaching in junior high school (Mathematics)
Advanced Class certificate for teaching in high school (Mathematics and Information)

Completion (Enter the workforce or a Doctoral Program)

※1 Integrated Undergraduate-Master's Program: Type A (4 years Undergraduate + 1 year Master's),Type B (3 years Undergraduate + 2 years Master's). For example, integrated undergraduate and Master's students can obtain an Honor's Year (special leave of absence) up to a maximum of one year for their own study (such as overseas study or an internship) while enrolled at the graduate school.

※2. Students must meet credit requirements and achieve a specified TOEIC score to advance from second to third year in undergraduate programs.

Specialized Fundamental Courses

Learn the basics

Specialized Fundamental Courses are categorized into five groups: Mathematics, Natural Sciences, Computer Literacy, Programming, and Fundamentals of Computer Science and Engineering. Students learn the basic computer knowledge they will need, before going on to advanced courses.

Introduction to Programming

Quite a few of the new students learn programming for the first time after their entrance to UoA. In this class, you start from the basics, learning the most popular programming language C.
This course is aimed at helping you learn how fun programming can be, and faculty member and TAs give every possible help for you to learn.

Introduction to Computer Science and Engineering

This class is designed to help new students learn about the UoA's curriculum and potential future career paths. At the same time, by attending lectures by external experts in the field of computer science and engineering, you can gain an understanding of both the research being carried out in the field and its significance. By absorbing knowledge about the potential of computer science and engineering from multiple angles, you will gain the ability to utilize that knowledge when designing your future.

CATEGORIES

Mathematics and Related Courses
- ☐Linear Algebra I·II
- ☐Calculus I·II
- ☐Fourier Analysis
- ☐Complex Analysis
- ☐Probability and Statistics
- ☐Mathematical Logic
- ☐Introduction to Topology
- ☐Applied Geometry and Topology
- ☐Applied Algebra

Natural Sciences and Related Courses
- ☐Dynamics
- ☐Electromagnetism
- ☐Quantum Mechanics
- ☐Semiconductor Devices
- ☐Thermodynamics and Statistics Mechanics

Computer Fundamentals and Related Courses
- ☐Literacy
- ☐Introduction to Computer Science and Engineering
- ☐Introduction to Computer Systems
- ☐Information Security
- ☐Information Ethics
- ☐Introduction to Multimedia Systems
- ☐Introduction to Computer Networking
- ☐Creativity Studio
- ☐CSE Exercise I·II
- ☐Information and Occupations
- ☐Fundamentals of System Development and Project Management

Programming and Related Courses
- ☐Introduction to Programming
- ☐C Programming
- ☐JAVA Programming I
- ☐JAVA Programming II
- ☐C++ Programming
- ☐Computer Languages

Fundamentals of Computer Science & Engineering and Related Courses
- ☐Algorithms and Data Structures I
- ☐Discrete Systems
- ☐Logic Circuit Design
- ☐Operating Systems
- ☐Automata and Languages
- ☐Introduction to Data Management
- ☐Algorithms and Data Structures II
- ☐Information Theory and Data Compression
- ☐Computer Architecture
- ☐Language Processing Systems
- ☐Numerical Analysis
- ☐Introduction to Software Engineering

Integrated Exercises

Acquire comprehensive abilities

Students in these courses acquire knowledge and skills regarding computer systems and software through practical exercises that cover a range of subjects without concentrating too heavily on any particular ones.

Advanced Courses

Deepening specialization

Advanced courses are categorized into five groups: Computer Systems, Computer Network Systems, Applications, Software Engineering, and Other Courses. These courses enable students to gain confidence as computer scientists and/or computer engineers as they acquire essential knowledge and skills for these professions.

Advanced Logic Circuit Design

Logic design refers to the two-valued (0-1) logic design of functions to be realized within the digital integrated circuits comprising the central processing unit (CPU) of a computer.
In Advanced Logic Circuit Design, you will learn a hardware description language (HDL) actually used in design, and about design support tools and their usage.

CATEGORIES

Computer Systems and Related Courses
- ☐Electronics
- ☐Embedded Systems
- ☐Parallel Computer Systems
- ☐VLSI Design
- ☐Advanced Logic Circuit Design

Computer Network Related Courses
- ☐Network Security
- ☐Network Programming
- ☐Wireless Networks
- ☐Modeling and Simulation of Computer Networks

Applications and Related Courses
- ☐Artificial Intelligence
- ☐Computer Graphics
- ☐Image Processing
- ☐Robotics and Automatic Control
- ☐Human Interface and Virtual Reality
- ☐Signal Processing and Linear Systems
- ☐Sound and Audio Processing
- ☐Geometry for Visual Computing
- ☐Information Retrieval and Natural Language Processing

Software Engineering Related Courses
- ☐Web Engineering
- ☐Introduction to Data Mining
- ☐Advanced Software Engineering
- ☐Software Studio
- ☐Concurrent and Distributed Computing
- ☐Database System Theory

Student's Voice

YAMAGUCHI Hunter
4th year student
(from Osaka Prefecture)

Many University of Aizu students earn all required credits by the end of third year so they can focus on research in the fourth year. The university also supports undergraduates considering studying at the graduate level by offering advanced courses and allowing them to register for one graduate course each semester.

LEUNG Hei Ching Agnes
4th year student
(from China (Hong Kong))

When I was a senior high school student, I attended a summer camp at this university on the recommendation of my teacher. In the short period of one week, I learned programming and observed the variety of research taking place. I also experienced Japanese culture. These experiences allowed me to get a sense of what the University of Aizu has to offer. After enrolling, I lived at Somei House for around a year and a half. There were students from various countries there, and it was good to be able to make friends with them.

SREEPADA Tarun
3rd year student
(from India)

I'm a 3rd year student from India. After joined in this university, I became more motivated to achieve goals through many practical projects. I tried to create my own product by combining different ideas and technologies in these projects. I will continue to challenge myself starting with what I can do in this university.

Profile of Autonomous Professional

Develop engineers (computer scientists and computer engineers) with the following traits who can contribute "to Advance Knowledge for Humanity," which is the founding principle of the university:

- Rich in creativity and high ethical standards
- Possess a broad education and scientific thinking skills
- Have the ability to learn independently and continuously
- Rich in humanity and possess the ability to understand diverse values, traditions, and institutions
- Well-developed communication skills and the ability to work as part of a team

*The above describes engineers sometime after entering society and not at the time of graduation.

CHALLENGE

Driven researchers creating the future

"To Advance Knowledge for Humanity," we will make discoveries and inventions that will contribute to peace and prosperity for humankind.
We have researchers with this vision of the University of Aizu in mind, who continue to take on challenges in the world from our local campus. Our researchers also do their utmost to support students who are eager to take up the "challenge" of creative research.

Learning state-of-the-art technologies that make our lives more convenient and that affect the future of humanity

ZHAO Qiangfu

Professor

Computer Science and Engineering creating

AI

Compared with humans, computers have much higher capabilities in calculation, control, and data storage. Computers can solve problems instantly that may take 10 or 100 years for us to solve. But all these capabilities are a product of programming by humans, and cannot be put to good use without human intervention. The term "artificial intelligence" (AI) is often used nowadays, but at its birth, we needed enormous amounts of data just to train AI to distinguish between humans and animals. With advances in "deep learning," AI is now used in our smartphones, hands-free speakers and in call centers to talk with people. Deep learning technology is based on "neural networks" that mimic the mechanism of brain, which is a neural network generated by our mother nature. By adding multiple learning layers, computers can learn more information. Further evolution of deep learning will certainly increase precision and safety in voice recognition, automated driving, medical research, industrial automation, and more. AI will play a significant role in our future lives. Learning a technology affecting the future of humanity is both challenging and exciting. The University of Aizu offers ample opportunities for such learning.

*IThe image annotation tool developed by our group

Research keywords: AI (artificial intelligence), machine learning modeling and algorithms, image recognition, image-based anomaly/defect detection, data analysis

Creating a trend in global health care technology in Aizu

ZHU Xin

Senior Associate Professor

Computer Science and Engineering creating

Medical CT

Medical devices and medical information technology have been instrumental in breathtaking advances in health care, supported by evolution in programming, software and hardware. The University of Aizu partners with Fukushima Medical University Aizu Medical Center and other hospitals and faculties of medicine to conduct research and development in medical information technology that combines medicine, engineering, and informatics. Recently, we are developing "AI" used device to detect colorectal polyp by colonoscopy, and to diagnose colorectal cancers automatically. The device is expected to improve efficiency of testing, reduce physical burden on patients, and lead to early detection and treatment of colorectal cancers. Clinical trials are underway at several university hospitals. Data from the trials, information from the sites, and comments from users will improve the device. Normally, research and improvement are confined within each research field. A major risk with this process is that if there is a hitch in one of the research fields, the whole project grinds to a halt. Because we cooperate across all disciplines without barriers at our university, we can carry out our work seamlessly. Timely information is also accessible from our network of clinical trial sites. We need health care professionals as well as researchers like us to promote people's health. Let's work towards development of global health care from the field of computer science and engineering in Aizu.

Research Keywords: automatic detection of arrhythmia,medical record information analysis of heart disease and cancer, automatic interpretation of CT/MRI/ultrasound/ endoscopic images,automatic analysis of pathological images, heart model

NAKAMURA Akihito

Professor

Computer Science and Engineering creating

Security

In this day and age, personal computers, smartphones, and smart speakers are an integral part of our lives. Home appliances can be controlled via the Internet for our convenience. At the same time, an increase in cyberattacks against businesses and cybercrimes against ordinary citizens is threatening our heretofore placid sense of security and safety. Unauthorized access to a company's servers has forced factories to shut down, and website contents have been falsified. Against these serious incidents, security technology must evolve. An estimated 100 million types of computer viruses are created every year for use in cyberattacks. The viruses access the servers via the Internet and leave behind a massive amount of access logs. It is beyond human capacity to deal with each of these logs, but "AI" can provide the solution to this impractical problem. Recent advances in AI have led to the development of technologies for detecting cyberattacks, analyzing system flaws and risks, and verifying security measures using simulated attacks. We also address issues more familiar to the general public in their use of the Internet, such as risk analysis of information disseminated across social media, measures against phishing scams, and protection of online privacy. The University of Aizu is training professionals in the field of security that is growing in importance every day.

Constantly updating the increasingly important security field

Research Keywords: security measures, cyberattacks, cybercrimes, hacking

VILLEGAS Julián
Senior Associate Professor

Computer Science and Engineering creating

Computer Arts

We mostly use vision to gather everyday information. Television and smartphone screens are common examples. Smartphones are especially convenient for gathering information via searching the Internet, finding our way with a map app, etc.
Although sound is all around us, its use for gathering information is often limited to instances such as alerting us of an arriving or departing train at a station, or when a pedestrian signal is turned green.
Because most information is gathered through screens and signs, our vision is at a saturation point. For example, focusing on a smartphone to gather information visually distracts one's attention from the surroundings and may lead to serious accidents. Texting while walking is dangerous especially in crowded cities. If some of the required information is communicated from loudspeakers and headphones, we could enrich our lives and protect ourselves from nearby dangers. Moreover, linking vision and sound in various situations is expected to play an important role in improving information gathering and communication. Research into the technology for using sound to gather and communicate information is difficult and underdeveloped. This also means that this field is wide open for developing new technologies. If you are interested in sound, let's work together and explore new opportunities.

Research keywords: sound and acoustics, spatial sound, applied psychoacoustics, applied phonetics

YOSHIOKA Rentaro
Professor

Computer Science and Engineering creating

Software

Computers, an indispensable part of modern life, are more accurate and efficient than humans and can do things we cannot. All of this, however, is possible thanks to the sophisticated "software." In addition to the OS that runs computers, it is the software that makes word processing, Internet browsing, and virus protection possible. The robots in car factories that consistently turn out automobiles of identical quality are run by software. Used for different purposes, software is all around us, supporting us in our work and pastime as well as robots. Our interaction with computers today is a one-way process: either humans use computers or computers use us. It is believed, however, that we will enter a new phase where humans and computers communicate on an equal footing to solve intractable problems together. To maximize computers' capabilities in this new phase, we need to identify when humans need to control the computers and when they can be left alone to do their jobs and switch roles. This will require an environment where humans can understand the information and calculations presented by computers and support them in thinking and decision-making and where our intentions can be accurately communicated to computers. Software developers who understand and solve social and community issues will be sought after in future years. It will be necessary to develop perceptive talents willing to solve problems using AI and IT. I hope you will use what you will learn at the University of Aizu to solve local issues across Japan.

Research Keywords: systems for supporting collaboration between humans and computers and creative activities, reliable automation, reliable computers and systems for creating knowledge

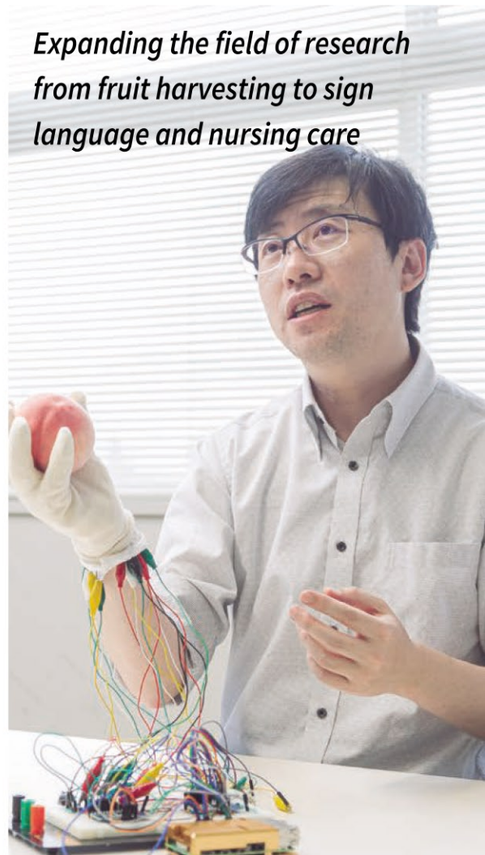
JING Lei
Senior Associate Professor

Computer Science and Engineering creating

Neural Network

Recent advances in computers have had a significant impact on society. The evolution of AI has made voice recognition, automated driving, and automated food delivery commonplace. Communicating by gestures, however, is still a challenge. In our laboratory, we research neural network technology for adjusting pressure applied when grasping objects and for transliterating sign language. Fukushima Prefecture, one of Japan's leading producers of peaches, apples, and other fruits, faces problems of ageing farmers and shortage of people willing to continue the farming business. Fruit production requires knowledge and experience. Applying too much pressure on the fruits when harvesting will damage the fruits and cannot be sold. But with gloves that correctly adjust the pressure, even inexperienced workers can harvest the fruits. Once a reality, the gloves will help train the next generation of pickers and secure the necessary workforce. Hand movement detection can also be used to transliterate sign language, facilitating communication with the deaf and hard of hearing. Motion recognition alone holds much promise, including assisting patients and the physically challenged in the field of nursing care. To make these technologies a reality, neural networks must evolve much more. What makes the University of Aizu unique is that you can seamlessly conduct research on the software for controlling programming and algorithms and the hardware for controlling motion.

Research Keywords: motion recognition, AI(artificial intelligence) (artificial intelligence), ergonomics, sensor data integration, IoT(Internet of Things)



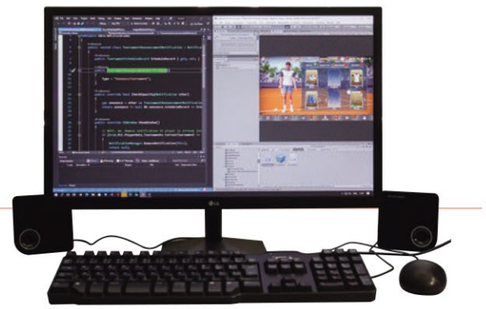
MOZGOVOY Maxim

Associate Professor

Computer Science and Engineering creating

Game AI

AI can sometimes be so good as to beat shogi masters and world chess champions. This may make playing games with the computer unexciting, however. If so, the essential “fun” element of playing games would be lost, and no one would play games anymore. After all, games have to be fun. It is definitely more enjoyable and interesting when the characters in the games move more like us than robots. So, what should we do? If we can build more “reality” into the games, that is to say, create closer resemblance to us humans so that we can bond with the characters, games will be fun and immersive. For example, if you can attach human characteristics and habits to the characters in fighting games and footballers in soccer games, the players can immerse themselves as if they were the characters, roaming freely in the world of games. However, creating “realistic” characters requires us to study and record human behavior in detail and analyze commonalities in behaviors. This is a very difficult task, but AI makes it possible to create more human-like characters. We believe that our research findings can also be applied to areas outside games. “Fun AI” and “human-like AI systems” have great potential to benefit education and medicine. By studying AI, we also understand ourselves better.



Research Keywords: game AI, human-like AI, machine learning, case-based reasoning, believability

WATANOBE Yutaka

Senior Associate Professor

Computer Science and Engineering creating

Programming

You may have heard the word “programming” but know its meaning only vaguely. Simply put, it is “the process of writing down the sequence of tasks you want a computer to perform.” Because computers cannot understand human language, we instruct them with a “programming language” that they understand. A “program” is a related term. It is “a set of instructions given to a computer in a language it can understand.” Therefore, programming is the process of creating a program. “Big data,” the latest buzzword, are chunks of all kinds of data. By analyzing big data, we gain useful insight for business and society, with the potential for creating new mechanisms and systems. The convergence of big data and IT is giving birth to convenient, safe services, goods, and environments in our lives. The disciplines underpinning such advances in society are data science and software engineering. In my laboratory, we conduct research and development on data mining for discovery of valuable new knowledge from large sets of data, machine learning algorithms, and programming languages and user interfaces that aid users’ understanding and execution. Today, there is an urgent need to train engineers skilled in data science and software development. Programming, in particular, is the tool for creating all kinds of systems and executing calculations, and is indispensable for the development of modern society and science. You will find ample opportunities to acquire these skills at the University of Aizu.

Research Keywords: programming, data science, e-learning, software, machine learning

HASHIMOTO Yasuhiro

Senior Associate Professor

Computer Science and Engineering creating

Social Media

Over the past decade, smartphones and social media, such as SNS and video sharing sites, have deeply penetrated our lives. They are indispensable information-gathering tools and interactive media universally used to disseminate information and interact with one and another over the Internet with ease. Alongside development of these media, a new discipline called “computational social science” was born. More than 4 billion people worldwide, 80 million in Japan alone, use social media today. By exploring the users’ trends, we gain understanding about their interests and where they are now. In other words, we capture the flow of information. We tend to think that we deliberately choose our behaviors, but only some part of our choices are made consciously. Our behaviors are strongly swayed by our environment, including the day’s weather, interactions with others, and information from the media. As smartphones are widely used today, we can now quantify, visualize, and analyze vast amounts of behavioral information generated by social media and GPS. In the future, we can even use such information to forecast changing social trends and come up with new ideas. Are you the type of person keen on “knowing global trends” or “setting new trends”? If you are interested in the social media that we casually use, why not take a deep dive into this world?

Research Keywords: Computational Social Sciences, social evolution, social media, big data, ecosystems, creativity

ARC-Space
Aizu Research Cluster or Space Science

CAIST
Research Center for Advanced Information Science and Technology

Research Center for Advanced Information Science and Technology (CAIST) was established in April 2009 as an organization conducting advanced research based on computer science and engineering in collaboration with other institutions. It aims to use research results to promote local industries and create new industries. Many students are participating in research at CAIST. At present, the Aizu Research Cluster for Robot (ARC-Robot) and the Aizu Research Cluster for Internet of Things (ARC-IoT) have been established as two priority research areas. Following designation by the Ministry of Education, Culture, Sports, Science and Technology as "the Center for Lunar and Planetary Exploration Archive Science" in April 2019, the Aizu Research Center for Space Informatics (ARC-Space) developed out of CAIST to become an independent center that is jointly used for research by scientists from across Japan.

The University of Aizu employs a top-down education policy, in which students are first exposed to cutting-edge research results (top) and then they consider what fundamentals they need to learn to achieve such results themselves (down). Students embark on cutting-edge research through joint research projects with other institutions, and they have all exhibited rapid development through software development and other activities. These are some of the ways in which ARC-Space and CAIST use research results directly connected with the needs of society to promote regional industries and create new industries.

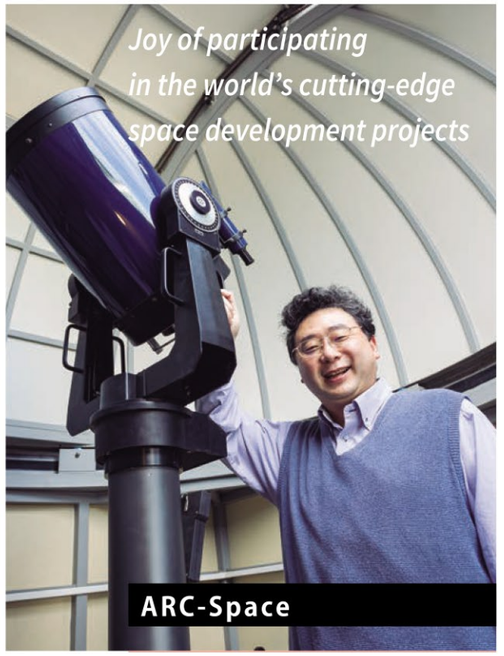
NARUSE Keitaro
Professor

Computer Science and Engineering creating

Robotics

Robots are rapidly and constantly evolving. They can walk on two legs and hold conversations, and can even work in hazardous environments inaccessible to humans. But these robots in the world today still cannot come anywhere near imitating human movements that come naturally to us. Take, for example, the action of turning on a tap. We unconsciously "locate, hold, and turn" the tap. But robots have to be programmed to control such actions as finding the tap (object recognition), estimating its shape (shape estimation), determining the location and posture for holding the tap (motion planning of the arm), and actually holding and turning the tap (motion control of the arm). Moreover, robots cannot match the tactile sensations of our fingers and our ability to freely adjust how much pressure we apply with our hands. Modern robot technology has improved dramatically with the development of artificial intelligence (AI). But further advances will require developing a large number of programs to operate the robots, the software that connects and controls the robots in a network, and the hardware. The University of Aizu brings together professionals in their respective fields, and combines them in close-knit teams to promote cutting-edge research. What started out as bits of curiosity can multiply tenfold, a hundredfold, and result in infinite possibilities. This is the true "learning" offered at the University of Aizu, a field in which you can expand your possibilities.

Research Keywords: mobile robot, robotic arm, autonomous movement, object recognition, AI (artificial intelligence)



DEMURA Hirohide
Professor

Computer Science and Engineering creating

Space Technology

What comes to your mind when you hear "technology in space development"? It may be that the field is for specialists with superlative knowledge and technology and totally out of your reach. Engineers with specialized knowledge and skills do form the "core," but there is more besides. You may have heard of Hayabusa and Hayabusa2. They are spacecrafts for exploration of asteroids. Students of the University of Aizu have joined those projects. The communications equipment on the explorer, the impactor for reaching deep under the asteroid's surface, and the parachute in the sample capsule returning to the Earth were all developed and manufactured by companies and factories in Fukushima Prefecture. Now that you know local companies from Fukushima were participating in projects that gained worldwide attention, you may be persuaded to think that "space is more within reach than imagined." The University of Aizu is contributing to space development in Japan and abroad through research on analytical methods, development of onboard observation equipment and software, sharing of data products, and disclosure of analytic know-how. Faculty members and students have contributed to these researches and developments. It has been exciting and thrilling to make new discoveries and achievements through trial and error. There are many universities in Japan with faculties of information and engineering, but universities where students are involved in such cutting-edge projects while being students are few and far between. Dream big and without bounds! Why not work with the faculty and alumni of the University of Aizu in lunar, Martian, and asteroid space development projects.

Research Keywords:
space development, earth observation, remote sensing, data science, machine learning

SAITO Hiroshi
Professor

Computer Science and Engineering creating

IoT

Almost 20 years have passed since the Internet came into general use. At first connected from PCs in our homes and offices, the Internet today is more and more connected from mobile devices, such as smartphones and tablets. Rapid advances have also been made in digitization of our society and the Internet of Things (IoT), where home appliances, cars, and other "things" are connected to the Internet, including for such use as operating construction vehicles in hazardous locations. More recently, IoT is used together with artificial intelligence (AI) to sort images and detect objects. This use of AI is expected to be highly effective in reducing crop damage by wild animals. For example, AI can be made to memorize images of bears, wild boars, and other wild animals to distinguish between them and humans and other animals, helping to drive away wild animals and prevent damage to the crops. AI can, moreover, be made to memorize the distinctive characteristics of each wild animal as an effective means for counting their numbers for wildlife protection. IoT technology is beginning to be used in a variety of fields, including medicine, agriculture, manufacturing, and logistics. It will, moreover, play an important role in solving local issues, such as preservation of nature and animals' ecosystems and crop damage. The big data collected by IoT devices are analyzed by AI and used to develop yet more AI models. Join us at the University of Aizu to engage in the research of IoT technologies that help to address local community issues and to enrich our lives.

Research Keywords / IoT (Internet of Things),
AI (artificial intelligence), digital circuit design

Graduate School

Graduate School of Computer Science and Engineering

The University of Aizu Graduate School has a diverse faculty and an outstanding educational environment. It aims to provide diverse courses and nurture creativity in students, also in response to recommendations from Japan's business sector. To develop problem-solving skills in a global environment, classes are basically taught in English.

Master's Program — Developing practical skills

The curriculum of the Master's Program is designed to provide students with specialized knowledge and skills on the basics and application of computer science and engineering, preparing them to solve practical problems in ICT and related industries. Students learn research methods on the structure and function of information systems.

Expertise development

"Regular Courses" include Core Courses dealing with the basics in each specialization and more sophisticated Advanced Courses. Because the Master's Program curriculum is aligned with the fields in the university's undergraduate curriculum, students can make their course plans across both undergraduate and graduate, and develop their expertise systematically.

Knowledge output

"Seminar Courses" give students opportunities to scrutinize their independently led studies from multiple angles and from a wider perspective than their area of specialization. Students deliver presentations in English, contribute research papers to journals, and participate in problem-based learning so that they can learn and hone their presentation techniques and skills.

◎Graduate Department of Computer and Information Systems

Based on computer science and engineering and using computer systems to solve real-world problems, students study the structure and function of "information" processed by computer systems. The two-year Thesis Research Course, a required course that culminates in a master's thesis, is primarily designed for students to lead their own problem-based research. Thirty credits are required for completion.

Regular Courses (16 credits)
- ☐Fundamental Core Courses
- ☐Application Core Courses
- ☐Advanced Courses

Seminars (8 credits)
- ☐Research Seminar I
- ☐Research Seminar II
- ☐Research Progress Report Seminar
- ☐External Presentation/Publication Seminar
- ☐Creative Factory Seminar
- ☐Research Paper Writing I
- ☐ICT Global Venture Laboratory
- ☐Effective Academic Research Presentation Seminar

Thesis Research Course (6 credits)

Students select their own research theme, conduct independently led research under the guidance of a faculty advisor, and finally write and present their master's theses.

◎Graduate Department of Information Technologies and Project Management

(curriculum change from AY 2023)

Students are educated to solve practical problems in the ICT industry. The aim is to cultivate internationally educated, cutting-edge information technology professionals who are able to work in teams on a variety of projects and foster leadership and initiative both in collaboration with others and as individuals. forty credits are required for completion.

Regular Courses (16 credits)
- ☐Fundamental Core Courses
- ☐Application Core Courses
- ☐Advanced Courses

Seminars (10 credits)
- ☐PM Research Seminars
- ☐Educational Seminars
- ☐Conference Presentation
- ☐Tea Seminars
- ☐Contests
- ☐Creative Factory Seminar
- ☐Research Paper Writing I
- ☐ICT Global Venture Laboratory

Project Development Arena (14 credits)

Students collaborate in team projects and write a technical report each semester for a total of four technical reports.

Creative Factory Seminar — PICK UP!

Students have the opportunity to pursue development and other creative activities. Working with researchers from companies and other universities, students gain an accurate understanding of needs in society, actively engage with society, and return the fruits of research to society.

Project Development Arena — PICK UP!

With guidance and advice from faculty members and coaches from companies, students partake in research and development projects, identifying concrete requirements of users and customers to fulfill social needs. Students develop their communication, leadership, and management skills through practical experiences gained from the projects.

Presentation at academic conferences — PICK UP!

The quality of research papers by the University of Aizu graduate students is well-recognized internationally, and many awards have been presented to our students. In an effort to develop talents who can play an active role on the international stage, the graduate school encourages students to present their research at international conferences and cultivate skills in writing and presenting their research papers. A travel subsidy program provides students with ample financial support to participate in international conferences.

Doctoral Program — Developing creativity

◎Graduate Department of Computer and Information Systems

In the Doctoral Program, students use a broad range of highly specialized knowledge and techniques to solve various problems in computer science and engineering and related fields, and study the structure and function of information systems. They acquire knowledge on trends in their research field, research ethics, and intellectual property rights. They learn to write theses in English and validate their hypotheses, and promote independently led research based on these competencies. Ten credits are required for completion.

The research assistant (RA) system has been introduced to enhance and strengthen our research support system, to help foster in young researchers the ability to execute research, and to provide financial support to graduate students through remuneration.

Master's Student's Voice

SHINTOMI Yuta
Master's student (from Miyagi Prefecture)

◎Why did you decide to study at the University of Aizu?
I vaguely thought that if I could master computers, I could do something amazing. I wanted to study information science, including computers. The University of Aizu has a focus on information science and internationalization, which suited me well. That is why I applied and enrolled at the university.

◎About student life in Aizu
The classes allowed me to learn how to use computers, how they work, the relation between computers and society, and other contents that cut across the discipline, mainly focusing on computers. However, that alone was not enough for me to develop practical skills. So, I used what I learned in class to create my own software and do extra study on what interested me.

◎What kind of research do you do?
My research topic in my laboratory is about automated driving in the real world using a control model that has been trained on a simulator. This means that I mainly do research that connects computer-based world and the real world. As an undergraduate, I did research on 3D reconstruction that uses sensor data to create 3D models. I am currently researching a field called Sim2Real that uses the control models trained in a simulator in the real world. I would like to join in a research laboratory to apply the knowledge acquired in my graduate studies for innovative research.

◎What are your plans after graduation?
I would like to keep working on connecting computer-based world and the real world for many years into the future. I would like to work for a company where I can do research and development in this field.

Doctoral Student's Voice

AREVALO Camilo
Doctoral student (from Colombia)

◎What made you to come to Japan?
When I visited Japan to present the results of my undergraduate research thesis at a conference in collaboration with professor Julián Villegas, he invited me to continue my graduate studies at the University of Aizu.

◎What do you research?
Audio spatialization for VR environments. We use artificial intelligence techniques to personalize the auditory features of a listener to achieve an accurate representation of a sound source location in a VR environment.

◎How is your life in Aizu?
I love to live in Aizu, which is a quiet city perfect to focus on studies with a good combination between nature and urbanization. People in Aizu are also friendly and kind to foreigners. Aizu is an area with many activities to do around the year. These activities include swimming in summer, skiing in winter, and hiking in autumn or spring.

◎what would you like to do after graduation?
I would like to join in a research laboratory to apply the knowledge acquired in my graduate studies for innovative research.

High Employment Rate of UoA Graduates

Ever since the University's establishment, employment rates for our graduates have continuously averaged 97% for the undergraduate school and 100% for the graduate school.

Average job placement rate since its foundation

97%

Major Employers Of International Students

Communications	SOFTFRONT	OSTech GROUP	Manufacturing	ZMP
solekia	Digital Grid Solutions	Works Applications	ALPINE	Services
Fujitsu	NTT DATA MSE	CyberAgent	TOSHIBA LIFESTYLE	Outsourcing Technology
Murakumo	Blue innovation	Ficha	TRILLIUM	YUME TECHNOLOGY
Mitsubishi Electric Information	Valley Campus Japan	KDDI Research	Bosch	

The University of Aizu is a place where you can learn the knowledge and skills necessary to become an engineer who can play an active role internationally.

Space Communication Systems Laboratory Researcher
Wireless Networks Research Center

National Institute of Information and Communications Technology (NICT), Tokyo, Japan

TRINH Viet Phuc
(2017 Ph.D. Degree in Computer Science and Engineering)
Born in Vietnam

Q. Why did you decide to study at the University of Aizu?

My former supervisor at the Posts and Telecommunications Institute of Technology (PTIT) in Vietnam had obtained his Ph.D. at the University of Aizu and he recommended this university as an excellent institution for studying the latest in computer science and engineering, so I enrolled in a Master's Degree program.

Q. What kind of research did you do at the university?

I studied new wireless communication technologies necessary for 5G networks. At that time, I developed mathematical models that describe how the atmospheric environments affect wireless signals and the volume of data transferred.

Q. Please tell us details of your current work.

At NICT, I participate in various research projects to develop laser communication systems for drones, aircraft, and satellites. Laser communications is instrumental in realizing the transmission of extremely large volumes of data essential for "Beyond 5G" networks, which enable 4K and 8K video transmissions, virtual reality (VR), autonomous driving and remote medical care.

Q. Has what you learned at university been useful in your career?

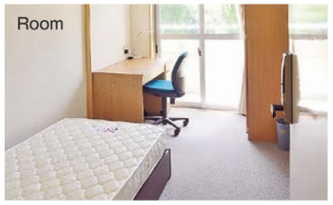
The knowledge I gained in communications technology is directly related to my current work. The University of Aizu also has a large number of faculty members and students from many countries, and I was able to study in a stimulating international environment. Colleagues in my current workplace also come from various countries, so I have been able to utillze the experience I gained at the University of Aizu.

Q. What advice can you give to prospective students?

As a place to study, the University of Aizu is an excellent choice for those who are interested in computer science as well as those who would like to become engineers capable of playing active roles internationally. The University of Aizu has faculty members of diverse fields in computer science and engineering, who teach the latest knowledge and technologies. Therefore, I also recommend the University of Aizu for students considering careers in fields such as research and teaching.

Accommodation Support

On the university campus, students from all over the country and around the world learn about being social and cooperative through communal living and communal use of facilities. University accommodation at Somei House is also available in order to support improved ambition to study and a harmonious student lifestyle.


Room

Each unit has 10 rooms, each with a bed, closet, desk, air conditioning and intercom. *2 people can also share a room with a bunk bed.


Open living room

Each unit has an open living room (shared space). You can cook in the kitchen, study together, talk or watch TV. It is a place for the tenants to relax.


Laundry area

Each unit comes equipped with two washing machines and two dryers.


Shower rooms, wash basins

Each unit has two shower rooms. There are shampoo-dresser wash basins in the washrooms for female students. Male student washrooms only have wash basins.

Monthly living expenses

In Somei House (Yen)

Rent	19,000
Utilities	5,800
Entertainment	5,000
Food	20,000
Other	15,000
Total	64,800

*For one person living alone at Somei House

In Apartment (Yen)

Rent	38,000
Utilities	13,000
Entertainment	2,000
Food	20,000
Other	5,000
Total	78,000

*This is an example.

Aizu-Wakamatsu City Housing Information

☐Apartments, Boarding Houses, Rental Rooms

You can view information on apartments and boarding houses at the Student Affairs Division. An Accommodation Guide containing information on apartments and boarding houses is also distributed to successful candidates who pass the university's entrance examination.

Apartments	Approx. 30,000 yen ~ 50,000 yen (with kitchen, bath and toilet)
Boarding Houses	Approx. 50,000 yen ~ 70,000 yen (with shared kitchen, bath and toilet)
Rental Rooms	Approx. 15,000 yen ~ 25,000 yen (with shared kitchen, bath and toilet)

☐International Student Dormitory

"International Student House (Male only)"

This is a dormitory for students at the University of Aizu, managed and operated by Student Life Support (SLS), which was established for the purpose of supporting student life.(with shared toilet, shower rooms, kichen and wash basins)

Capacity	11 persons
Rent (monthly)	8,000 yen~15,000 yen
Utilities (monthly)	5,000 yen (April - September)
	8,000 yen (October - March)

Facilities Well-designed to Support Learning

Our large campus has a variety of spacious health and welfare facilities to help students lead fulfilling campus lives full of sports and cultural activities. For example, the indoor swimming pool is available for year-round use and the Study and Research Living Unit (SRLU), which is equipped with fitness machines is accessible around the clock.

4 Coffee Shop

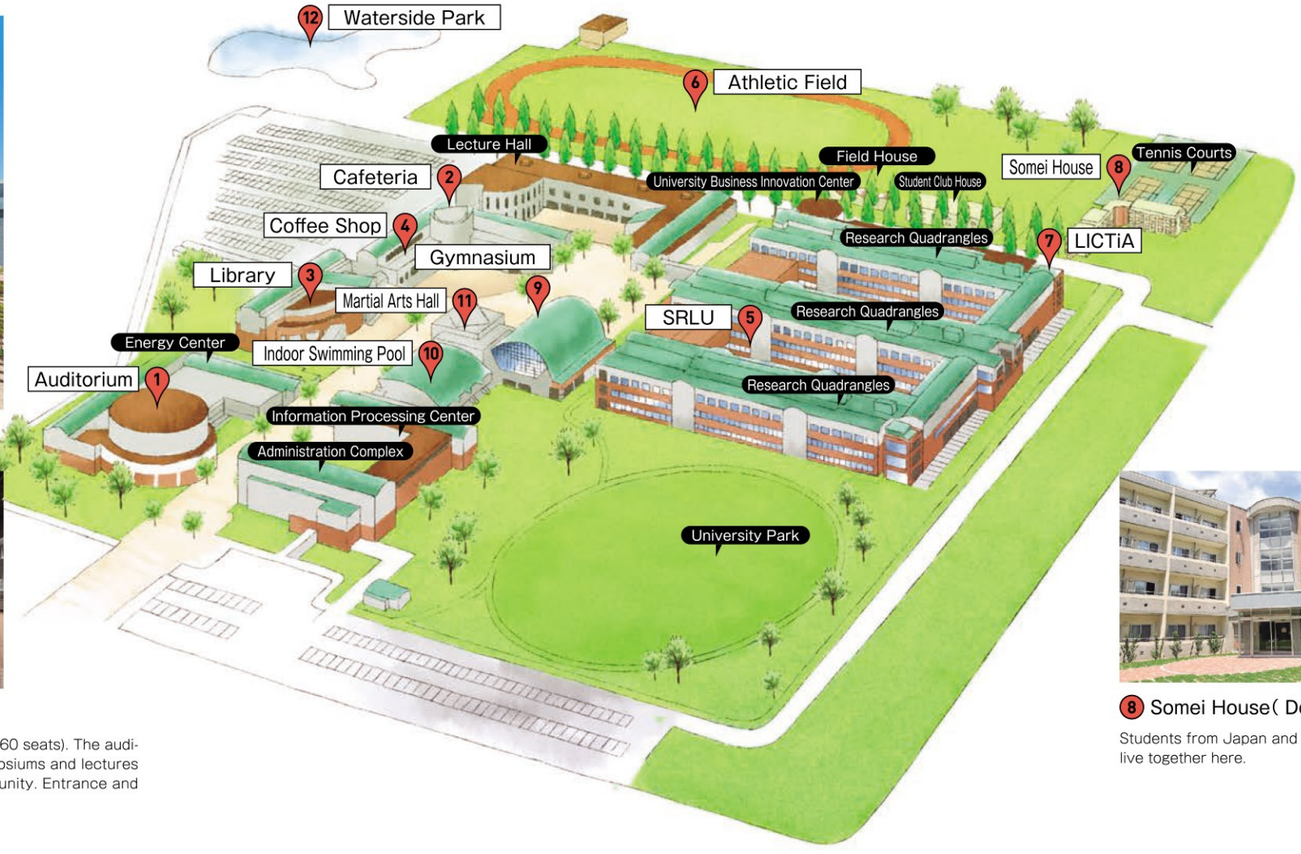
Beverages such as coffee and cafe latte and homemade waffles are popular at the cafe. *Temporarily out of service

5 SRLU(Study & Research Living Unit)

Equipment for physical strength training are available 24 hours a day.

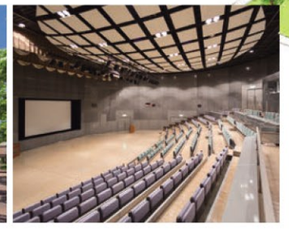
6 Athletic Field

Spreading out in front of Mt. Bandai, our sports field accommodates a variety of outdoor sports, such as football.



7 LICTiA

Opened on October 1, 2015 as a center of advanced ICT in Fukushima prefecture, LICTiA provides a research environment for companies as the hub for university-industry cooperation, as well as free space for students, researchers, and companies to communicate freely with each other.



1 Auditorium

This multipurpose auditorium accommodates variable seating (maximum of 460 seats). The auditorium is used for campus events and is open to the local community. Symposiums and lectures are frequently held, and contribute to cultural activities for the local community. Entrance and degree conferment ceremonies are also held here.

8 Somei House(Dormitory)

Students from Japan and all over the world live together here.

9 Gymnasium

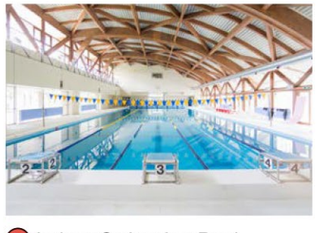
People enthusiastically enjoy indoor sports in the comfort of our wooden gym.

2 Cafeteria

The cafeteria serves nutritionally-balanced satisfying lunches, a wide variety of freshly-made dishes, and carefully-prepared homely meals.

3 Library

Our university library houses approximately 128,000 library materials. A large number of academic journals and foreign books related to computers are available.



10 Indoor Swimming Pool

Our heated swimming pool is available for use year-round. The building has a unique wooden ceiling.

11 Martial Arts Hall

This hall is used for martial arts such as kendo and aikido (art of weaponless self-defense). Martial arts have long flourished in Aizu.

12 Waterside Park

The park is a popular place of relaxation and refreshment for students and locals alike.