Saitama University 埼玉大学

NEWS LETTER

Energy System Information Technology Innovation

Saitama University
Graduate School of Science & Engineering

Vol. 4
APRIL 2025

Energy System – Information Technology Innovation
International Professional Program

Another glorious year of 2025 has started….
Spring is finally here, bringing warmer days, fresh beginnings, and new opportunities! Whether you're diving into studies, preparing for exams, or enjoying campus events, we hope this spring brings you inspiration and motivation.
We're also delighted to publish this newsletter and share exciting updates with you. It's a joy to connect with you through this platform and bring you fresh, engaging content to enrich your university life. Stay curious, stay motivated, always!

News & Events

Selected for the MEXT Scholarship Program
In December 2024, our program was once again selected for the **International Scholarship Program (University Recommendation/Special Selection)** under the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan. Through this scholarship, we can accept **eight outstanding international students each year**, providing them with the best possible education environment. The program is open to students from Southeast Asia, Southwest Asia, and other developing countries. (For details of application requirements, please see the back page of this letter.)

Congratulations to our Graduates!! : in 2024 & Spring 2025
During 2024 and Spring 2025, we are proud to announce that we had the honor of sending off a total of **twelve international students** from our program as they embarked on their next journeys.
The recent Degree Awarding Ceremony was held on March 25th, 2025.
These graduates have worked hard, overcome challenges, and contributed greatly to our academic community. Their achievements reflect the dedication and excellence that our program strives to foster. We are confident that they will make a positive impact in their respective fields and beyond.
Congratulations to our graduates! We wish them success and fulfillment in all their future endeavors.

Dr. Dung Tien Nguyen (Vietnam, Mechanical Engineering Course) was selected as the student representative on Fall 2024 Degree Awarding Ceremony

Message from Alumni

Dr. Teerayut Cordkaew (Thailand)
Manufacturing and Machine Tool Laboratory (Professor Kaneko Jun'ichi)
Graduated in March 2025

Research Subject: The Study of DED-Arc Wire Combined with FSB Tools of Austenitic Stainless Steel 316L

I received a Royal Thai Government Scholarship to pursue a Ph.D. abroad, which was a valuable opportunity for academic and professional growth. I chose Japan for its leadership in technology and education, as well as its high quality of life and safe environment, which foster an excellent learning experience.
At Saitama University, I conducted research in the manufacturing and machine tool laboratory, focusing on additive manufacturing (AM) by direct energy deposition arc (DED-Arc) technology. In this work, we contributed to finding a new technique that integrates with DED-Arc and a machine tool called "simultaneous processing," which is valuable for improving the material properties.
My time in Japan was invaluable, providing advanced technical knowledge and insights into Japan's structured work culture, teamwork, and commitment to excellence. These experiences enhanced my problem-solving and systematic thinking, shaping my professional career. After graduation, I became a lecturer at Rajamangala University of Technology Lanna, Chiang Mai, Thailand, where I apply the knowledge and experiences gained to my teaching and research.

VOICES from ESITI Students

IRHAMILLAH KHAMSIM (Malaysia)

Laboratory: Tsutsumida Lab

Computer Science Department since April 2024

My research focuses on the spread of the invasive beetle Aromia bungii, known in Japan as “クビアカツヤカミキリ” or “kubi-aka-kamikiri”. This species poses a major threat to the Rosaceae family, particularly cherry blossom trees. First detected in the port area of Aichi Prefecture in 2012, it likely arrived through wood transport or nursery imports. Despite its economic impact in Japan, Germany, and Italy, limited studies have examined its local-scale dispersal.

My research integrates key geographical variables into an ecological model to simulate its spread using a deep learning approach. The findings will aid in pest management strategies, helping to predict and mitigate future outbreaks effectively.

I first came to Saitama University in October 2022, after Japan reopened its borders. While visiting my brother in Chiba, I contacted the university's Foreign Office and submitted a proposal to a potential supervisor with Ms. Inomori's help. I remember the beautiful autumn scenery around the university, feeling relieved (安心 or anshin). I believed it was the perfect place for my PhD journey, despite the challenges ahead. After living in Europe for two years, I wanted to experience life in an Asian country rich in culture and tradition. Japan was ideal. Hanami, a cultural tradition, reflects life's fleeting nature, as expressed in the saying 人間の一生は桜のように儚い (ningen no isshō wa sakura no yō ni hakanai). This phrase reminds me that life is precious. I am committed to preserving hanami's cultural significance for future generations through my research.

NATTHAPHON HATSAKORNKHANACHOK (Thailand)

Laboratory: Parinya Lab.

Computer Science Department since October 2024

The name of my research is the weight perception in Virtual Reality.

The research aims to know about different vibrations for weight perception in Virtual Reality. The reason for weight perception isn’t perceived by looking, touching or lifting objects. Vibration can get weight perception but using only vibration may not be enough for perception, so I used Pseudo Haptic technique combined with vibration for enhancing to the weight perception. However, I used the two techniques but in the real world I would like to know about the real vibrate when water dripping in the bottle for applying to test in Virtual Reality.

The main reason I choose to study at Saitama University because in department of science and engineering have become one of the best the department in university at Japan. My supervisor is supportive, helpful, kind and good management for consulting students. However, in university have top class professors on research and have facilities in the laboratory or new devices for used in research. In the location of Saitama university are peaceful, beautiful and good weather for foreign student in Southeast Asia.

Saitama university is the best university of research and academic to study and develop research in the world. Finally, Japan is the best weather, transportation, technology, the best of anime and J-Rock song.

RAHMAN MD HAFIJUR (Bangladesh)

Laboratory: Shimamura Lab.

Computer Science Department since October 2024

Research Summary: Image Quality Enhancement: Existing Limitations & Scopes for Improvement → Image enhancement (IE) has been prominently utilized in a variety of disciplines, including medical, underwater, and satellite imaging systems, due to the greater clarity of image features. Existing IE methods usually suffer from various limitations. The main purpose of this research is to analyze the limitations deeply and provide solutions to the problems by introducing novel techniques, especially using fuzzy mathematics and logic.

Saitama University has a beautiful green campus in Japan. I am very happy to have a professor like Dr. Tetsuya SHIMAMURA at this university. The research facilities of my lab are awesome. On March 5, 2025, I joined the 2025 7th International Conference on Image, Video and Signal Processing at Meiji University (Ikuta campus), Kawasaki, Kanagawa, Japan. The hospitalities I received on my journey from Saitama University to Meiji University and at the conference dinner will always be fresh in my memory. Maybe these hospitalities can only be expected in Japan.

ABDUL MANAN (Pakistan)

Laboratory: Azumi Lab.

Computer Science Department since October 2024

Research Field: Coordination between the Scheduler and Dynamic Voltage and Frequency Scaling (DVFS) in the Autoware Kernel

Research Summary: This research focuses on optimizing energy efficiency in the Autoware Kernel, a real-time operating system supporting DAG scheduling. The goal is to develop novel techniques for coordinating the scheduler with DVFS, ensuring real-time performance while reducing power consumption. Key objectives include designing DAG-aware DVFS algorithms, implementing slack-time utilization strategies, and integrating thermal awareness. The research aims to enhance energy efficiency in autonomous vehicle systems without compromising real-time guarantees, contributing to both academic knowledge and practical applications in the automotive industry.

Saitama University offers a world-class research environment, Its strong emphasis on innovation and academic excellence aligns perfectly with my research aspirations. The university provides exceptional facilities, including a comprehensive library, advanced laboratories, and resources tailored for international students. I chose Saitama University because of its reputation for cutting-edge research and its welcoming environment for global scholars. Japan’s rich cultural heritage, commitment to hard work, and technological leadership make it an ideal setting for academic growth. I am honored to be a part of the Azumi Lab under the guidance of Professor Takuya Azumi, who is extremely supportive and encouraging. His mentorship greatly motivates me to pursue impactful research.

AMIR MUHAMMAD (Pakistan)

Laboratory: Yaguchi, Yagi, Fujikawa Lab

Electrical & Electronic Systems Department since October 2024

Being a part of Saitama University has been an incredible experience, both academically and personally. The university provides a dynamic research environment where innovation and collaboration thrive. Under the esteemed guidance of Professor Shuhei Yagi, I am exploring **Innovative Approaches for Effective Light Absorption and Distribution in Multi-Junction Tandem Solar Cells**—a field that holds immense potential for the future of renewable energy. The well-equipped research facilities and state-of-the-art laboratories have greatly supported my work, making each day an exciting step toward discovery.

Beyond the lab, the warmth and hospitality of the university staff, faculty members, and fellow researchers have made my transition to Japan seamless. The I-House management team has played a crucial role in ensuring that international students feel comfortable and at home. Japan itself has been an inspiring place to live and study. The rich cultural heritage, combined with the discipline and kindness of the people, has left a profound impact on me. From the well-organized academic system to the respect for tradition and innovation, every aspect of life here offers a unique learning experience. I consider myself fortunate to be part of such a vibrant and forward-thinking academic community. To all new students joining Saitama University, I encourage you to embrace this journey with curiosity and enthusiasm. This experience will not only shape your academic path but also enrich your perspective on the world. Wishing all future scholars, the very best in their endeavors!

HAMIDA ZIA (Pakistan)

Laboratory: Yaguchi, Yagi, Fujikawa Lab

Electrical & Electronic Systems Department since October 2024

Research Field: III-V semiconductor-based ultraviolet (UV) LEDs and their related technologies.

Research Summary: III-V semiconductor-based ultraviolet (UV) LEDs are key technology for applications such as sterilization, water purification, medical treatment, and sensing. These LEDs are made from III-V compound semiconductors, particularly aluminum gallium nitride (AlGaN), gallium nitride (GaN), and indium gallium nitride (InGaN), which are suitable for UV emission due to their wide bandgap. It can emit in the UV-A (320–400 nm), UV-B (280–320 nm), and UV-C (200–280 nm) ranges by adjusting the composition of AlGaN and related alloys. Compared to traditional mercury-based UV lamps, UV LEDs consume less power and have a longer operational lifetime. Unlike mercury lamps, UV LEDs are mercury-free and environmentally safer. III-V materials allow for miniaturization, making UV LEDs suitable for portable and embedded applications.

Studying abroad in Japan has been an enriching experience, both academically and culturally. I fortunately got the opportunity to join the Quantum Optodevice Laboratory under Prof. Hiroyuki Yaguchi at Saitama University. He refers me to work as a student trainee in Riken a renowned institute of Japan under the Prof. Hideki Hirayama. The opportunity to learn from distinguished professors, engage in advanced research, and immerse myself in Japan's unique culture has broadened my perspective and deepened my appreciation for global education. Joining the physics department at Saitama University in Japan marks the beginning of an exciting journey of exploration and discovery. I look forward to engaging in cutting-edge research, collaborating with esteemed professors, and immersing myself in Japan's rich academic culture. Physics has always been a gateway to understanding the universe, and joining Saitama University in Japan allows me to dive deeper into this fascinating field. I am thrilled to learn, explore, and contribute to scientific advancements in an environment known for its excellence. The professors in the physics department at Saitama University are incredibly knowledgeable and supportive. Their guidance and expertise create an inspiring learning environment, fostering both academic growth and innovative research. I am grateful to be part of Saitama University physics department, where the professors are not only experts in their fields but also dedicated mentors. Their encouragement and insightful teaching make learning an enriching experience. I will make sure that my stay in Japan enhance the academic and culture linkage between Pakistan and Japan, may stay act as a gate way for students to come to Japan.

MD. MAMUN-OR-RASHID (Bangladesh)

Laboratory: Yaguchi, Yagi, Fujikawa Lab

Electrical & Electronic Systems Department since October 2023

Research Subject: Photocurrent Enhancement in Ion-Implanted GaPN Intermediate Band Solar Cells

The development of high-efficiency solar cells is crucial for improving renewable energy conversion and addressing global energy demands. Intermediate band solar cells (IBSCs) present a promising approach to surpassing the Shockley-Queisser efficiency limit by enabling the absorption of sub-bandgap photons. This capability enhances photocurrent generation, allowing solar cells to utilize a wider spectrum of sunlight. GaPN (Gallium Phosphide Nitride) is a highly suitable candidate for IBSCs due to its tunable bandgap, which allows for the optimization of energy absorption and emission properties. Additionally, GaPN's compatibility with existing semiconductor technologies makes it a practical choice for advanced photovoltaic applications.

Ion implantation offers a significant advantage as an alternative fabrication technique for introducing intermediate energy states within the GaPN structure. Unlike traditional methods, ion implantation allows for precise control over dopant distribution, which can be tailored to enhance the formation of the intermediate band. Our recent studies have demonstrated that ion-implanted GaPN IBSCs exhibit improved photocurrent generation, effectively utilizing a broader portion of the solar spectrum, which enhances the overall efficiency of the solar cell.

This research highlights the potential of ion-implanted GaPN IBSCs as a pathway toward the next generation of high-efficiency photovoltaics. The ability to enhance solar energy conversion through intermediate band absorption represents a significant step forward in advancing sustainable energy technologies for the future.

Pursuing my PhD here has been transformative, providing me with an exceptional academic environment and opening doors for research in renewable energy. I am deeply grateful to the Japanese government for the MEXT scholarship, which has allowed me to study at one of Japan's esteemed institutions and contribute to solar energy research. Saitama University has played a pivotal role in my academic growth, offering world-class facilities, cutting-edge laboratories, and a supportive faculty. The collaborative atmosphere has enabled me to refine my ideas and expand my knowledge through discussions with professors, researchers, and fellow students. As a researcher from Bangladesh, I am committed to advancing renewable energy solutions that will benefit both the global community and my home country. I sincerely thank Japan and Saitama University for this invaluable opportunity.

This article available in the print version only

MOUSUME SAMAD (Bangladesh)
Hijikata Lab.
Electrical & Electronic Systems Department since October 2022

Research Subject: *Demonstration of Super-Resolution Microscopy Using Quantum Light for Biomedical Imaging.*

Research Summary: My research introduces a super-resolution microscopy technique using quantum-entangled photons, designed for high-precision biomedical imaging. This method enhances image contrast by detecting photon pairs, achieving higher sensitivity than classical techniques. With ultra-low illumination power, it ensures minimal damage to delicate biological samples, making it ideal for live-cell imaging and sensitive material analysis. Additionally, its simple setup offers practical usability in research labs. This quantum-based approach holds great potential for advancing imaging applications in medical diagnostics, biological research, and materials science, providing clearer, more detailed images essential for cutting-edge discoveries.

Studying at Saitama University has been an enriching experience, blending academic excellence with cultural immersion. The university's supportive environment, advanced research facilities, and welcoming community have fostered my growth both academically and personally.
Japan, with its harmonious blend of tradition and innovation, has left a profound impression on me. From the breathtaking cherry blossoms to the efficient public transport and polite society, every aspect reflects meticulous care and respect. The warmth of the people, the rich cultural heritage, and the spirit of continuous improvement make Japan an inspiring place to learn and live.

ESITI Program is the English-mediated, three-year doctoral program at the Graduate School of Science & Engineering, Saitama University in the field of Computer Science, Electrical & Electronic Systems and Mechanical Engineering.

MEXT Scholarship University Recommendation (8 positions/ year available in ESITI Program)
This is the scholarship which is sponsored by Japanese government to support the international students who wish to pursue their study in Japan. An applicant must be recommended by a Japanese university to MEXT (Ministry of Education, Culture, Sports, Science and Technology).

Eligibility:

- ✓ be a national of country that has diplomatic relations with Japan.
- ✓ be under 35 years of age as of April 1st of the application year.
- ✓ be in both good physical and mental health.
- ✓ have excellent academic achievement in one's master's degree
- ✓ have a language ability equivalent to CEFR B2 or above (e.g. TOEFL iBT 80 , IELTS 5.5 or above, or other equivalent tests)

Admission Procedure Timelines

- ➢ **September 2025** Application starts
- ➢ **December 10, 2025** Application Deadline
- ➢ **January 2026** Internet-based interviews for short-listed candidates
- ➢ **February 2026** Notification of result by ESITI Program
- ➢ **June -July 2026** Official Approval by MEXT
- ➢ **September 25, 2026** School starts

Please check our website for details.
https://park.saitama-u.ac.jp/~rese/

Privately-funded students

- ✓ no age limit
- ✓ be in both good physical and mental health.
- ✓ have excellent academic achievement in one's master's degree
- ✓ have a language ability equivalent to CEFR B2 or above (e.g. TOEFL iBT 80 , IELTS 5.5 or above, or other equivalent tests)

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