

KYOTO UNIVERSITY SHORT TERM ACADEMIC RESEARCH (KU-STAR) PROGRAM

17 MAY TO 19 JULY 2024

“Be the STAR for the Shining Future”



Kyoto University
Division of Graduate Studies
Research Administration Center, KURA



OVERVIEW



Duration

- From 17 May to 19 July 2024

Number of Participants

- 18
 - From 6 IITs: 8 IIT Madras, 4 IIT Bombay, 3 IIT Delhi, 1 IIT Kanpur, 1 IIT Kharagpur, 1 IIT Guwahati
 - 13 Undergraduate Students and 5 Mater's program students
 - 11 Male Students and 7 Female Students
 - Selected from 128 applicants after rigorous document and interview screenings

Laboratories

- 16 from 8 Graduate Schools and Institutes
 - GS of Engineering, GS of Agriculture, GS of Energy Science, GS of Informatics, GS of Biostudies, GS of Advanced Integrated Studies in Human Survivability (GSAIS), Institute of Advanced Energy (IAE), Disaster Prevention Research Institute (DPRI)

Campus

- Yoshida Campus, Katsura Campus and Uji Campus

GOAL

To enhance research and analytical skills for your future career as a researcher through cutting edge research

OBJECTIVES

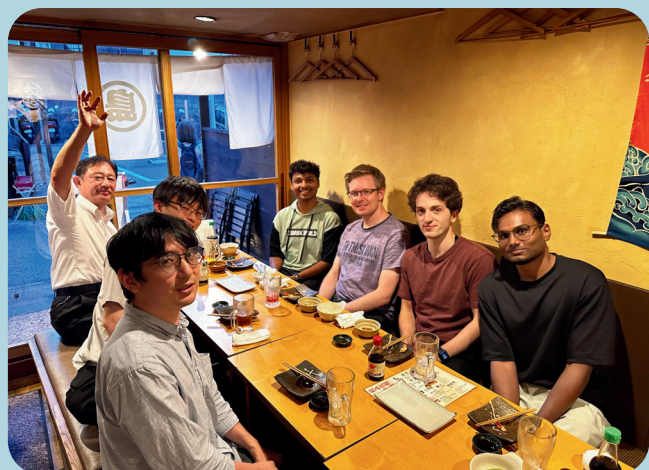
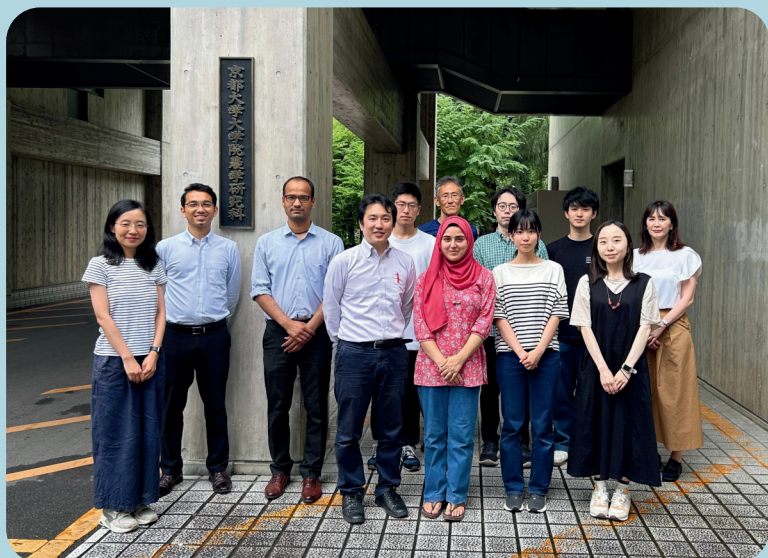
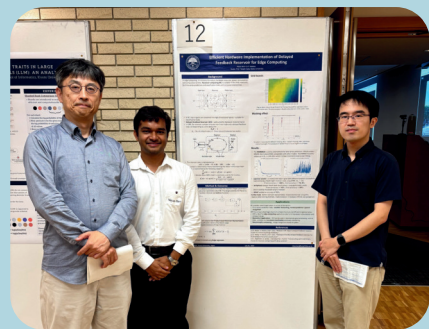
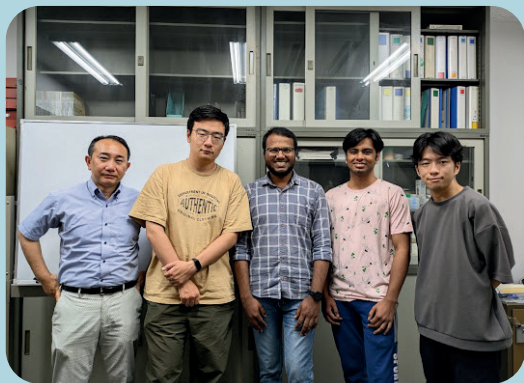
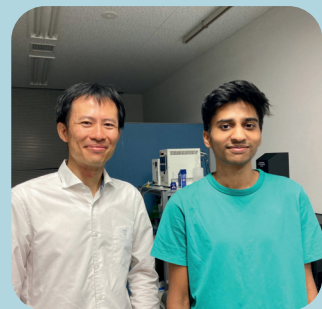
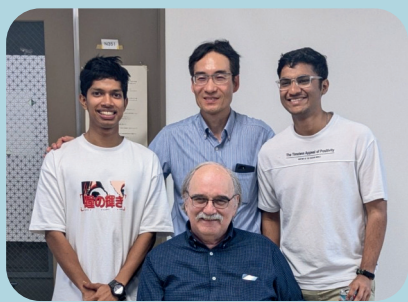
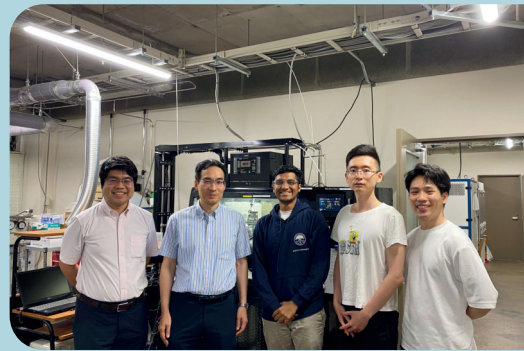
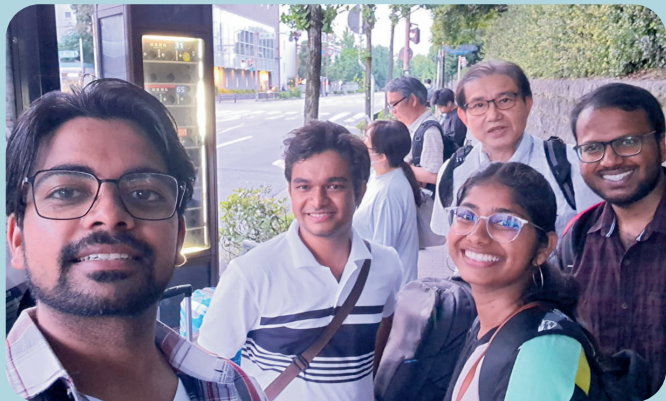
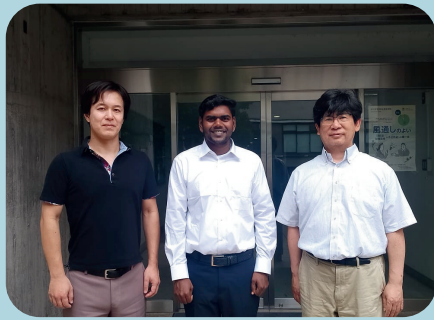
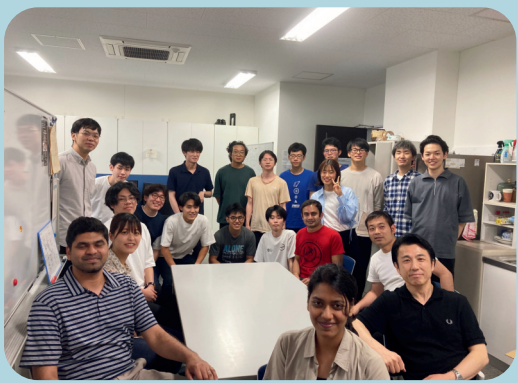
- To experience Kyoto University's world-class study, and research environment and build networks with the faculty members
- To have a clear career image in Japan through practical and cultural experience

FEATURES

- The first university-wide short-term research internship program covering comprehensive research fields
- Intensive research activities at a chosen laboratory supervised by world-rank faculty
- Various official events to explore Japanese culture and career opportunities
- Interactions with Kyoto University students and young scientists to build a network and experience daily life in Japan
- Seamless support such as visa application, accommodation arrangement, daily scholarship, and daily troubleshooting (Airfare is not included)

OUTCOMES

- Hone practical research skills and establish a firm network with KU professors and students
- Deeply understand the research environment at KU and academic/corporate career in Japan

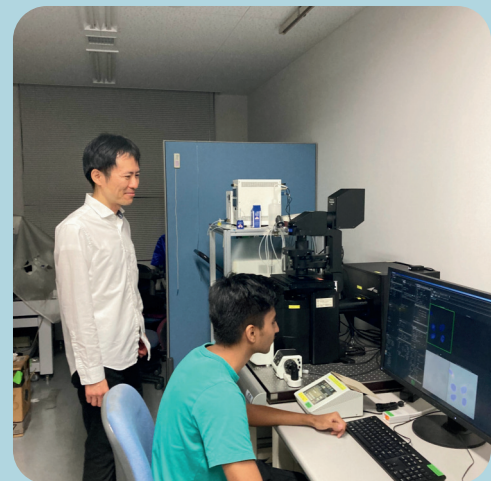


LAB EXPERIENCES

The lab experience was very well (much better than I expected). Everyone was so helpful in everything. My supervisor supported me throughout my research with every question that I had, and made sure that I got all the resources I needed. The lab mates helped me every-time I had a doubt about something related to my stay or work here. I really enjoyed working here, so much that I even visited my labs during weekends and holidays. That was another perk, that I could use the lab any time I want without any hassle. There was also a relaxing-room where I could just go and rest for a while any time I want.

The experience that I got from lab was very different compared to my home college. I had very frequent interaction with my professor, and we have discussed on several topics which was really helpful for me. I barely faced any difficulties in lab, all the lab mates were ready to help me out for any issues that I faced.

During my KU-Star research internship, I engaged in weekly meetings with professors for project updates and guidance, and collaborated with peers in brainstorming sessions and resource sharing to effectively address research challenges. This environment nurtured both personal development and teamwork, greatly boosting my research capabilities.





DISHA GUPTA

UG3, IIT Bombay

Supervised by Prof. Ryoichi Kurose
Dept. of Mechanical Engineering and Science,
GS of Engineering

Examining Carbon-Containing Fuels and
Enhancing Combustion Performance of
Ammonia (Carbon-Free) Fuel through
Hydrogen Addition: A 1D Numerical Simulation
Study



KHUSHI AGGARWAL

UG3, IIT Delhi

Supervised by Prof. Motofumi Suzuki
Dept. of Micro Engineering,
GS of Engineering

Nanostructured Thin Film Deposition Using
High Temperature Glancing Angle Deposition



CHAITANYA KESHRI

UG2, IIT Bombay

Supervised by Prof. Takeshi Abe
Dept. of Energy and Hydrocarbon Chemistry,
GS of Engineering

Effect of Polymer Electrolyte on the Bonding
Interface of Anode Material for All-Solid-State
Sodium Ion Batteries



ZAFIRA

MI, IIT Kharagpur

Supervised by Prof. Kazunori Fujisawa
Division of Environmental Science and Technology,
GS of Agriculture

Numerical Analysis of Dynamic Behaviour of
Elastoplastic Material



INHAAS VIRMANI

UG2, IIT Delhi

Supervised by Prof. Takashi Sagawa
Dept. of Fundamental Energy Science,
GS of Energy Science

Preparation of CsPbI₃ Quantum Dot
Perovskite Solar Cells and Evaluation of Their
Properties

RESEARCH



ADARSH PRAJAPATI

UG2, IIT Bombay

Supervised by

Associate Prof. Iwao Kawayama

Dept. of Energy Science and Technology,
GS of Energy Science

Investigation of Photocarrier Dynamics in
Perovskite Solar Cells Using Laser Terahertz
Emission Microscopy



MOHIT

M1, IIT Madras

Supervised by

Associate Prof. Iwao Kawayama

Dept. of Energy Science and Technology,
GS of Energy Science

Sensitive Characterization of (Hf, Zr)O₂ Thin
Films on Si Wafers by Laser Terahertz
Emission Spectroscopy



TEJAS ANAND

UG3, IIT Delhi

Supervised by Prof. Atushi Igarashi

Dept. of Informatics,
GS of Informatics

Approximate Model Counting and Its
Applications in Quantitative Information Flow



AMAN KHILANI

UG3, IIT Kanpur

Supervised by Prof. Manabu Kano

Dept. of Informatics,
GS of Informatics

Surrogate Modelling of Industrial Chemical
Processes with Physics Informed Neural
Networks (PINNs)



HRUSHIKESH KANT

UG2, IIT Madras

Supervised by Prof. Manabu Kano

Dept. of Informatics,
GS of Informatics

Digital Twin of Nuclear Reactor Using Physics
Informed Neural Network (PINN)

RESEARCH



LOKENDRA KUMAR

M1, IIT Madras

Supervised by Prof. Nobuo Yamashita
Dept. of Informatics,
GS of Informatics

Optimization Strategies to Overcome from
Saddle Points in Triangular Low-Rank
Factorized Semidefinite Programs



NIYAS MON PARAMBADAN

UG4, IIT Madras

Supervised by Prof. Takashi Sato
Dept. of Informatics,
GS of Informatics

Efficient Hardware Implementation of
Delayed Feedback Reservoir for Edge
Computing



ARJAV SINGH

M1, IIT Madras

Supervised by
Associate Prof. Yugo Murawaki
Dept. of Informatics,
GS of Informatics

Personality Traits in LLMs: An Analysis



VIVIAN FRANCIS JOSEPH

UG3, IIT Guwahati

Supervised by
Associate Prof. Shigehiro Yoshimura
Division of Integrated Life Science,
GS of Biostudies

Screening and Characterization of Novel
Anti-HIV-1 Host Factors



ANU RAMYA DURGA SRI NARIPIREDDY

UG3, IIT Madras

Supervised by Prof. Takashi Sekiyama
GS of Advanced Integrated Studies in Human
Survivability (GSAIS)

Erosion or Evolution? A Critical Review of the
Relationship Between Climate Change and
National Sovereignty

RESEARCH



DHRUV GARG

UG2, IIT Bombay

Supervised by Prof. Toshiyuki Nohira
Institute of Advanced Energy (IAE)

Electrodeposition of Crystalline P-Si on Graphite Substrate in Molten KF-KCl for Application in Solar Cells



CATHRYN SEBASTIAN

M1, IIT Madras

Supervised by Prof. Ryosuke Uzuoka
Disaster Prevention Research Institute (DPRI)

Study on Centrifuge Modelling of Geogrid-Reinforced Soil Walls Subjected to Rainfall and Earthquakes



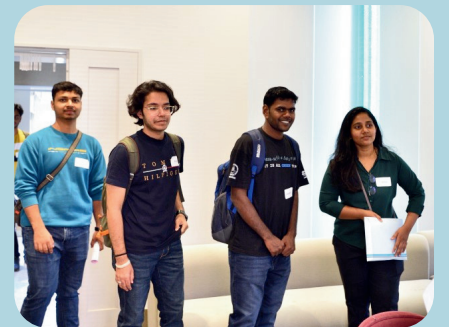
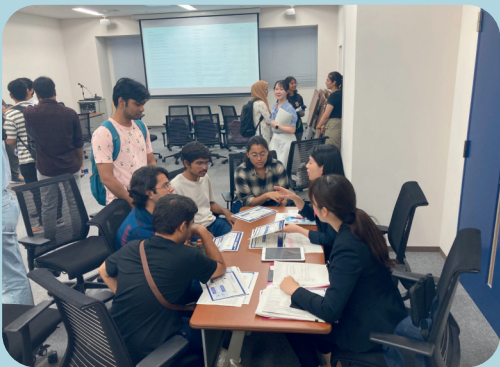
NASEEMA BANU SHAIK

UG3, IIT Madras

Supervised by
Associate Prof. Subhajyoti Samaddar
Disaster Prevention Research Institute (DPRI)

Understanding Flood Dynamics in Chennai :
A Case Study Analysis in Triplicane and Kotturpuram

RESEARCH



EVENTS

Various official events to explore Japanese culture and career opportunities.

- 17 May: Orientation & Campus Tour
- 22-23 May: “Survival” Japanese language lessons
- 3 June: One-day company visit at Shimadzu Corporation
- 5 June: Discussion with the KU executive board
- 14 June: Graduate Admissions Seminar
- 18 June: Courtesy call on the Mayor
- 1 July: Final presentation & poster presentation
- 17 July: Special lecture by the CEO of DMG Mori
- 17 July: Gion festival viewing





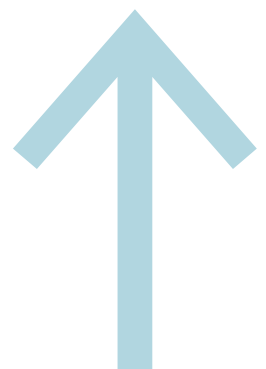
17 MAY: ORIENTATION & CAMPUS TOUR

The first day consisted of an orientation, welcome lunch and campus tour. The orientation began with welcoming remarks and words of encouragement from the following Kyoto U officials: Dr Takao Hirajima, Director of the Division of Graduate Studies; Dr Akira Murakami, Dean of the Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS); and Fuyuki Ishikawa, Director of the Kyoto University Research Administration Center (KURA). The students seemed relaxed and excited about the cutting-edge research and life in Kyoto that awaited them over the next two months. Having only recently met, they enjoyed the welcome lunch and campus tour as opportunities to socialise.

The orientation provided comprehensive information about the program structure, resources, and campus facilities, ensuring a smooth start to the internship.

The first day itself we were shown around the campus, introduced to kizuna, library and other facilities in the campus. That helped us a lot in navigating and getting comfortable.

KU-STAR Program 2024 EVENTS





22-23 MAY: "SURVIVAL" JAPANESE LANGUAGE LESSONS

KU-STAR students studied Japanese with Dr Kashiwagi. It was the first time for most of the students to learn Japanese "officially". Dr Kashiwagi taught them "survival Japanese". In each class, three students from Kyoto University presented "Virtual Tour at Kyoto University" and "Virtual Tour near Kyoto University" with basic Japanese words.

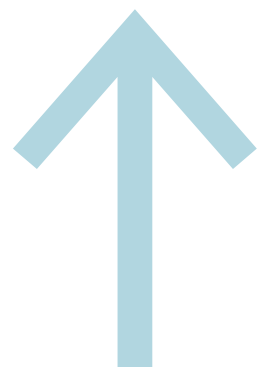
These lessons introduced us to basic Japanese and helped us in understanding the day-to-day conversations we had with the people there.

3 JUNE: ONE-DAY COMPANY VISIT AT SHIMADZU CORPORATION

KU-STAR students visited Shimadzu Corporation as part of the Comprehensive Collaboration Agreement signed between the university and the company in 2022. The visit included a factory tour and a workshop to help the students gain a better understanding of research applications and work culture in Japan.

The visit to Shimadzu provided valuable insights into industrial applications of research, fostering connections between academic learning and real-world applications in technology.

KU-STAR Program 2024 EVENTS





5 JUNE: DISCUSSION WITH THE KU EXECUTIVE BOARD

The students met with President Nagahiro Minato and Dr Tetsuo Sawaragi, Executive Vice President for Research Ethics, Integrity, Code of Conduct and International Affairs, to discuss their research environment and career aspirations. The main purpose of the meeting was for the participants to reflect on their first two weeks at KU-STAR and to review their research plans for the programme.

Both the KU president and executive VP gave us good insights and showed their interest for us coming back to Kyoto University.

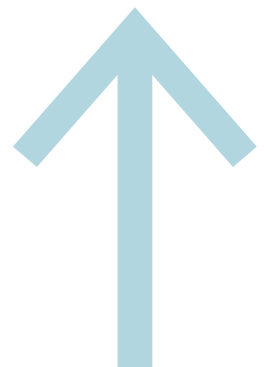


14 JUNE: GRADUATE ADMISSIONS SEMINAR

Faculty and students from India at Kyoto University shared their experiences and career paths with the KU-STAR students. The students also learned more about graduate school admissions and scholarship opportunities from the Admissions Assistance Office.

We had a clear idea on how to proceed further if we want to join the university for our future academic pursuits.

KU-STAR Program 2024 EVENTS

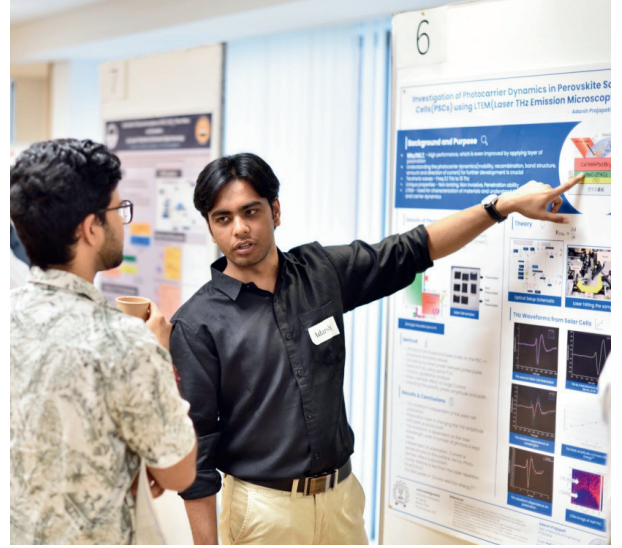




18 JUNE: COURTESY CALL ON THE MAYOR

KU-STAR students paid a courtesy call on the Mayor of Kyoto City, Koji Matsui. The visit was organised in light of the city's ongoing focus on strengthening cultural and economic ties with India. Eight students gave speeches sharing their impressions of Kyoto and their career plans.

Meeting the Mayor was a very delightful experience and a great opportunity to understand the policies in Japan, and how things are planned here.

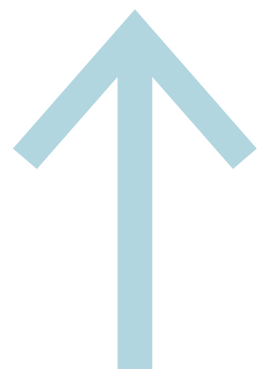


1 JULY: FINAL PRESENTATION & POSTER PRESENTATION

During the first half of the event, students presented their research in the form of poster presentations. The wide-ranging session saw active interaction between the presenters and the audience, with the former eagerly answering questions about their research. In the second half of the event, the students gave presentations on their experiences in the KU-STAR programme and their career plans.

Explaining our work to people from different backgrounds was a great learning experience. I also learned about so many new topics from my fellow interns, too.

KU-STAR Program 2024 EVENTS





17 JULY: SPECIAL LECTURE BY THE CEO OF DMG MORI

Dr Mori, CEO of DMG Mori, gave a special presentation to the KU-STARS about his company, market and strategy.

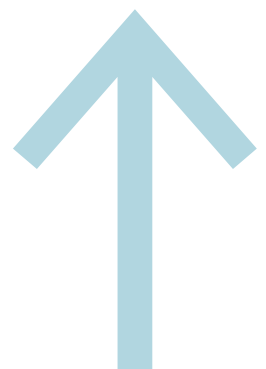
17 JULY: GION FESTIVAL VIEWING

Thanks to the Nippon Indo Cultural and Economic Centre, NICE, KU-STAR students witnessed the float procession that took place at one of the main intersections during the Sakimatsuri, or early festival, of the Gion Festival. They saw several floats and also tsujimawashi, the technique of changing direction at an intersection.

The lecture provided valuable industry insights, enhancing understanding of advanced manufacturing technologies and their relevance to current research and development trends.

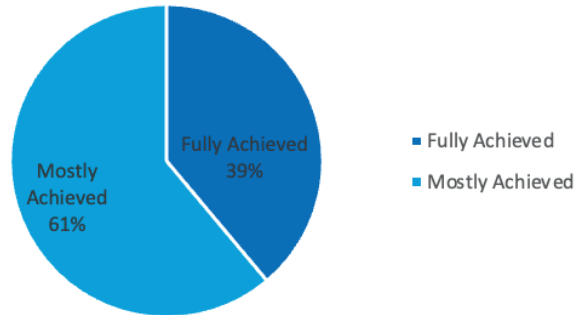
The Gion Festival offered a rich cultural experience, allowing participants to immerse themselves in Kyoto's traditions and gain a deeper appreciation of Japanese culture and community spirit.

KU-STAR Program 2024 EVENTS

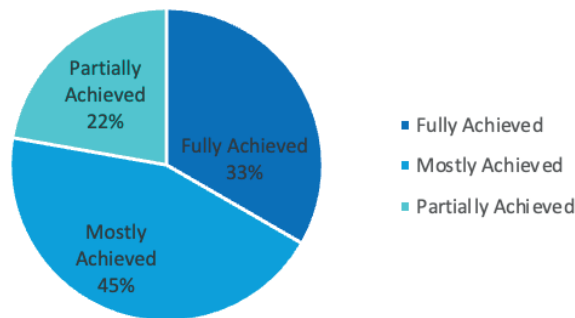


VOICES FROM KU-STARS

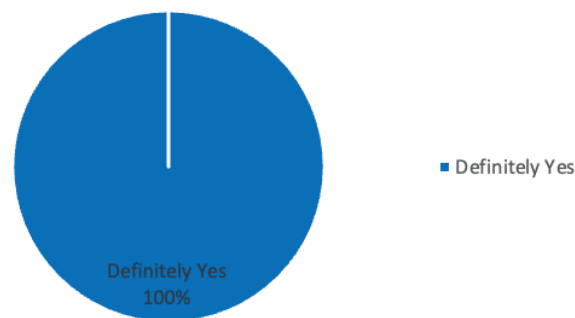
Have you achieved your goals of the KU-STAR Program?



How much have you achieved your research goals as planned?



Would you recommend this internship program to other students?



This is going to be a new chapter in your life. You will be working with a lot of people who are older than you and experienced. Try to grab most out of them. When you finish your internship, you will be able to handle your project and think quite differently.

Joining this internship was a great move for my career growth and cultural learning. I highly recommend it for hands-on experience and networking opportunities that prepare you for future success.

This internship program is unlike any other. It's more than just academia. Be it research, industrial exposure or cultural exchange, this program blends it all extremely well. By the end of it, we have memories of a lifetime.

Highly recommended. If you have a knack for research or are interested in Japanese culture and organizations, do give it a try.

“WOULD YOU RECOMMEND THIS INTERNSHIP PROGRAM TO OTHER STUDENTS?”

“DEFINITELY, YES!”

This program offers a wide variety of research areas and in one lab itself, sometimes you get to choose among different topics. This is a great opportunity to take part in research activities in a foreign institution. You get to interact with a lot of people including professors, students and industry experts which helps in knowledge sharing and expanding your network.



