

Kyoto University Short Term Academic Research (KU-STAR) Program for India 2025

From 20 May 2025 to 17 July 2025



Kyoto University
Division of Graduate Studies
Office of Research Acceleration (KURA)



KURA

We are delighted to present this report on the KU-STAR Program for India 2025. This year, we had the distinct pleasure of hosting 31 exceptional students from India, offering them a unique opportunity for both intensive research at Kyoto University and valuable industrial exposure in Japan.

During their time with us, the students immersed themselves in their respective laboratories, where they not only enhanced their academic skills but also forged valuable connections. We sincerely hope their experiences, both in the lab and through the various program events, were enriching and memorable.

The success of this program would not have been possible without the generous support of our faculty and lab members, our dedicated student tutors, and our host companies and institutions. We extend our deepest gratitude to everyone who contributed. We eagerly look forward to welcoming future participants and, one day, re-welcoming these 31 students back to Kyoto University as graduate students or researchers, further enriching our global academic community.

Takao Hirajima
Head of the KU-STAR Program
Director of Division of Graduate Studies,
Kyoto University



Overview

Program Goals:

Enhance research and analytical skills:

Equip participants with valuable research experience and foster their analytical abilities to prepare them for future academic and professional pursuits.

Immerse in a world-class research environment:

Provide students with an opportunity to experience Kyoto University's cutting-edge research facilities and engage with renowned faculty members.

Build valuable networks:

Facilitate interaction and networking opportunities with Kyoto University researchers and students.

Gain insights into the Japanese academic and professional landscape:

Offer participants a deeper understanding of the research environment at KU and explore potential career paths in Japan.

Program Structure:

Laboratory Research: Engage in intensive research under the guidance of world-class faculty.

Cultural & Career Events: Gain valuable insights into Japanese culture and career paths through industries exposure and a graduate school admissions seminar.

Networking & Integration: Interact with Kyoto University students and immerse participants in daily life experiences.

Comprehensive Support: Receive Accommodation, a scholarship of JPY5,000 per day, and logistical assistance (airfare is not included.)



Key Statistics:

Participants:

31 students from India, out of a total of 519 applicants

- 5 Indian Institute of Technology (IIT) Madras
- 5 IIT Delhi
- 4 IIT Bombay
- 3 IIT Hyderabad
- 3 IIT Roorkee
- 2 Indian Institute of Science (IISc)
- 2 IIT Kanpur
- 2 University of Delhi
- 2 MIT School of Distance Education (MITSDE)
- 1 Indian Institute of Science Education and Research (IISER) Kolkata
- 1 IIT Gandhinagar
- 1 IIT Kharagpur

Program Duration:

From 20 May 2025 to 17 July 2025

Srinjoy Majumder

MI, Dept. of Economics, IIT Delhi

Information Flow in Dictatorships

Supervised by Prof. Sakade, Takeshi

Graduate School of Economics



Vishnu Kanna Umapathy

MI, Dept. of Biomedical Engineering, IIT Madras

Establishment of Quantitative 3D Vascular Net Analysis

Supervised by Prof. Yokokawa, Ryuji

Graduate School of Engineering



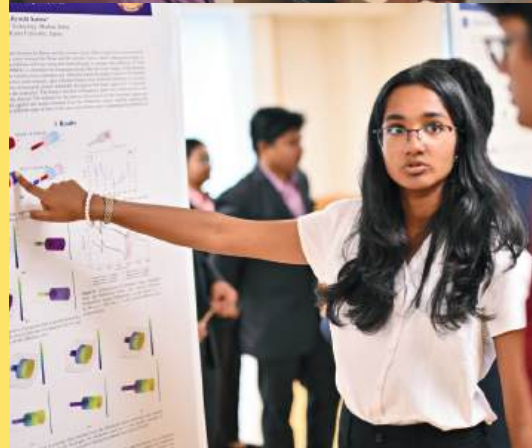
Purna Ananthkrishnan

UG3, Dept. of Aerospace Engineering, IIT Madras

Modelling the Acoustic Response of a Model Combustor

Supervised by Prof. Kurose, Ryoichi

Graduate School of Engineering



Chinmay Harishchandra Pawar

MI, Dept. of Chemistry, IIT Gandhinagar

Solvent Effects on the Photophysical Properties of Planar and Non-planar π -Conjugated Molecules

Supervised by Prof. Seki, Shu

Graduate School of Engineering



Research



Hemanta Sowmondal

M1, Materials Science Centre, IIT Kharagpur

Quantifying Water Uptake in SiO_2 and Ga_2O_3 Thin Films Grown by Glancing Angle Deposition Using Effective Medium Theory

Supervised by Prof. Suzuki, Motofumi

Graduate School of Engineering



Akshat

UG2, Dept. of Mathematics, IIT Delhi

Effects of Thermal Treatment on Epoxy Composites with Solid UHMWPE and Liquid Squalane Lubricants

Supervised by Prof. Hirayama, Tomoko

Graduate School of Engineering



Ojas Shrikant Madghe

UG2, Dept. of Mechanical Engineering, IIT Hyderabad

Physics-Aware Modeling of Crowd Counts from WiFi Probe Requests

Supervised by Associate Prof. Schmöcker, Jan-Dirk

Graduate School of Engineering



Amruthendhu Chingantavida

M1, Dept. of Civil Engineering, IIT Madras

Hydrologic Modelling of Neyyar River Basin

Supervised by Prof. Fujihara, Masayuki

Graduate School of Agriculture

Ranjini Majumdar

MI, Dept. of Humanities and Social Sciences, IIT Delhi

Dirt as Disruption: The Buraku and the Violence of Invisibility in Modern Japan

Supervised by Prof. Dsouza, Rohan-Ignatius

Graduate School of Asian and African Area Studies
(ASAFAS)



Avleen Kaur

UG3, Dept. of Multi Media and Mass Communication, University of Delhi

Mapping the Real and Online World of the Japanese Indie Game Community

Supervised by Prof. Ikegame, Aya

Graduate School of Asian and African Area Studies
(ASAFAS)



Shivankur Gupta

UG2, Dept. of Computer Science, IIT Delhi

Compile-Time Checking of Tensor Shapes Using Staged Languages

Supervised by Prof. Igarashi, Atsushi

Graduate School of Informatics



Vignesh Natarajkumar

UG2, Dept. of Electrical Engineering, IIT Madras

Power to the Agents: An LLM-Based Framework for Scalable Democratic Deliberation

Supervised by Prof. Ito, Takayuki

Graduate School of Informatics



Research



Ayush Patel

UG2, Dept. of Aerospace Engineering, IIT Bombay

Modelling and Optimization of Heat Flow Process in Ceramics Manufacturing Using Graph Neural Networks (GNNs)

Supervised by Prof. Kano, Manabu

Graduate School of Informatics



Aditeya Srivastava

UG2, Dept. of Electrical Engineering, IIT Delhi

Designing Scalable and Adaptive Echo State Networks for Embedded Systems

Supervised by Prof. Sato, Takashi

Graduate School of Informatics



Varun Rajesh Inamdar

UG2, Dept. of Mechanical Engineering, IIT Bombay

Mapping LLMs via Their Log-Likelihood Vectors for Hindi

Supervised by Prof. Shimodaira, Hidetoshi

Graduate School of Informatics



Aryan Sathish Raj

UG2, Dept. of Biotechnology, IIT Hyderabad

An Analysis of Interaction Specificity of DSEs Across 40 Plant Orders and 8 Locations and Its Relation to Their Phylogeny

Supervised by Prof. Toju, Hirokazu

Graduate School of Biostudies

Tanvi Prashant Shirude

BS-MS4, Dept. of Biological Sciences, IISER Kolkata

Real-Time Analysis of Shear Stress-Induced Calcium Dynamics in XTC Cells Using GCaMP Biosensors

Supervised by Prof. Watanabe, Naoki

Graduate School of Biostudies



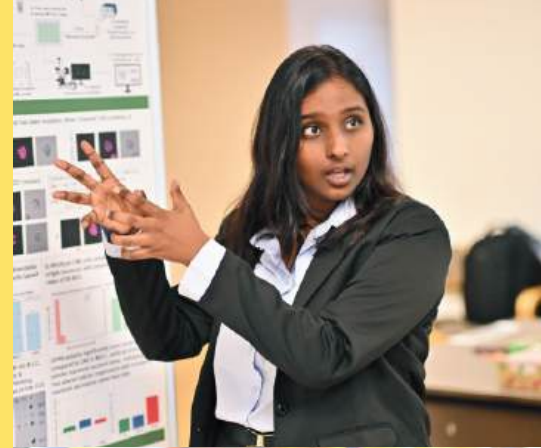
Amritha Varshini Saravanakumar

M1, Dept. of Biotechnology, IIT Hyderabad

Toward Machine Learning-Guided Screening of Algal Mutants with Altered Nucleoid Localization Patterns

Supervised by Assoc. Prof. Yamano, Takashi

Graduate School of Biostudies



Ankita Patel

UG3, Dept. of Science, University of Delhi

RNA-Seq analysis for Wild Type and SLFN11-/- in HAP1 cells

Supervised by Prof. Yasuhara, Takaaki

Graduate School of Biostudies



Deekshant Singh

M1, Dept. of Chemical Sciences, IISc

Molecular Weight Controllable Thymine-Capped PLA: A Strategy for Recyclable Polylactic Acid via UV-Induced Dynamic Covalent Bonds

Supervised by Prof. Saito, Kei

Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS)



Research



Yoogi Kovendhan

UG2, Dept. of Computer Science and Engineering, IIT Madras

Road Damage Segmentation Using YOLO and Other Models

Supervised by Prof. Zhao, Liang

Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS)



Sarthak Sarkar

M1, Dept. of Economics, IIT Kanpur

Heterogeneous Incentive Differentials in Climate Change Negotiations: a Bayesian Game Approach

Supervised by Prof. Sekiyama, Takashi

Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS)



Anand Solomon Kadaprayil

M1, Centre for Sustainable Technologies, IISc

Adhesion of Soil and Its Measurement

Supervised by Prof. Katsumi, Takeshi

Graduate School of Global Environmental Studies (GSGES)



Prajakta Santosh Jadhav

PG1, Dept. of Management, MITSDE

Drivers Behind the Voluntary Climate Change Actions in Consumer Electronics Companies in Japans

Supervised by Prof. Usami, Makoto

Graduate School of Global Environmental Studies (GSGES)

Rutuja Nitin Zarkar

PGI, Dept. of Project Management, MITSDE

Strategic Negotiation in Global Project Management: Multicultural Approaches to Conflict, Trust, and Alignment

Supervised by Prof. Colpan, Asli M
Graduate School of Management (GSM-KU)



Aman Shukla

M2, Dept. of Materials Science & Engineering, IIT Kanpur

The Impact of Thiocyanate & Chloride Additives on the Performance of Wide Bandgap Perovskite Solar Cells

Supervised by Prof. Wakamiya, Atsushi
Institute for Chemical Research (ICR)



Medha Varshney

M1, Dept. of Biosciences and Bioengineering, IIT Roorkee

Recombinant Production & Localisation of Beta-lactamase in Membrane Vesicles of Shewanella Vesciculosa HM13: Towards Understanding Vesicle Mediated Antibiotic Resistance

Supervised by Prof. Kurihara, Tatsuo
Institute for Chemical Research (ICR)



Sneha Gupta

M1, Dept. of Geology, IIT Roorkee

A Seismological Workflow for EGTD: From Event Selection to Moment Tensor Derivatives in the Noto Peninsula

Supervised by Prof. Ito, Yoshihiro
Disaster Prevention Research Institute (DPRI)



Research



Rushab Jain

M1, Dept. of Biosciences and Bioengineering, IIT Roorkee

Orbiting Genomic Stress: Programmable DNA Origami Nanopores as G-quadruplex Sensors

Supervised by Snr. Lec. /Jr. Assoc. Prof. Namasivayam, Ganesh-Pandian

Institute for Integrated Cell-Material Sciences (iCeMS)



Aadi Suketu Bharatia

UG2, Dept. of Engineering Physics, IIT Bombay

CaSb₂:Controlling Superconductivity with Uniaxial Strain

Supervised by Collaboration Center Prof. Maeno, Yoshiteru

Toyota-Riken Kyoto University Research Center (TRiKUC)



Aagam Sheetal Kumar Kasaliwal

UG2, Dept. of Mechanical Engineering, IIT Bombay

RuO₂:Crystal Growth and Optical Imaging of Thermal Contraction

Supervised by Program-Specific Asst. Prof. Mattoni, Giordano

Toyota-Riken Kyoto University Research Center (TRiKUC)

Special Thanks to 31 host faculty members and laboratories from:

- Graduate School of Economics
- Graduate School of Engineering
- Graduate School of Agriculture
- Graduate School of Asian and African Area Studies (ASAFAS)
- Graduate School of Informatics
- Graduate School of Biostudies
- Graduate School of Advanced Integrated Studies in Human Survivability (GSGAIS)
- Graduate School of Global Environmental Studies (GSGES)
- Graduate School of Management
- Institute for Chemical Research (ICR)
- Disaster Prevention Research Institute (DPRI)
- Institute for Integrated Cell-Material Sciences (iCeMS)
- Toyota Riken-Kyoto University Research Center (TRiKUC)

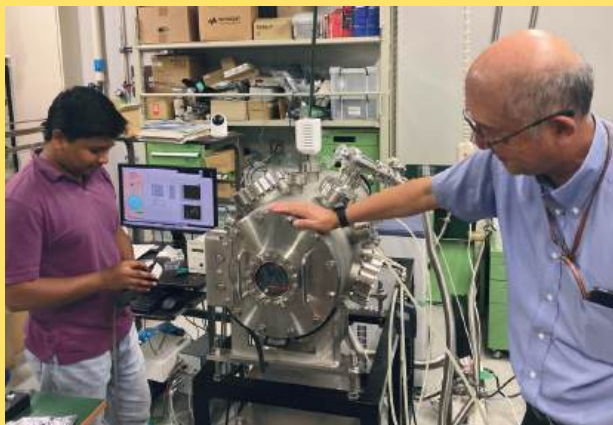
Lab Experience

My Lab Experience Shaped My Academic Goals

This was my first experience in a laboratory setting, because the projects and professors I worked with back in India did not require me to work from their labs. This was a very good learning experience, because I truly understood certain things, such as the culture of a scientific laboratory, the scale of resources and funding required, the work ethic of students pursuing Masters or PhD and the interactions between the professors and students in a laboratory.

I ended up publishing 2 preprints during this time, including 1 with my KU-STAR advisor, experienced what it was like to work in a world-class research facility, and am now also motivated to pursue my MS/PhD in the fields of my interest.

I truly enjoyed the academic freedom and support that large-scale research labs provide, and this has made me realize that I want to continue my education and conduct research for many years after my undergraduate as well. (Vignesh)



Academic Freedom and Friendship

My lab experience was beyond what I could have ever expected. My professor and his research associates were always very enthusiastic and gave suggestions about what I could do further. You get a lot of academic freedom and will never be pressurized by anyone to do some specific thing. You can explore whatever you find interesting. Everyone in the lab was really kind, helpful and polite – helping me out whenever I was stuck, be it technical problems or daily life struggles. I also managed to bond with my lab members post working hours – we used to go out for lunch together and on every Friday we went out to some restaurant for dinner. (Varun)

Mentorship, Teamwork, and Independent Learning

My experience in the lab was enriching both academically and personally. The environment fostered independent learning while offering strong mentorship and teamwork. I gained practical skills, developed critical thinking, and built meaningful relationships with peers and mentors. (Tanvi)

More Than a Lab: A Second Home

For me, the lab was never just a place to work; it quickly became a second home. My supervisor, Usami sensei, was incredibly kind and considerate. He was always willing to explain even the smallest details, ensuring I had a strong grasp of everything. As for my lab mates, they truly felt more like family. We shared a very close bond and would often take breaks to talk and laugh together. I never felt like the youngest or newest member of the group; everyone made me feel included and supported. I'm honestly going to miss the two months I spent in that lab. It was a truly special experience. (Prajakta)

Events

20 May 2025 – 17 July 2025

- Conduct research at assigned research laboratories

May

- 20 (Tue): Orientation, Campus Tour
- 21 (Wed)–22 (Thu): Japanese Classes
- 26 (Mon): Visit to Shimadzu Corporation

June

- 2 (Mon): Visit Samco Inc.
- 11 (Wed): Japanese Class with AMGEN Scholars (Optional)
- 13 (Fri): Visit to Nijo-jo Castle
- 19 (Thu): Meet KU Faculty and Student&Graduate Schools Admissions Seminar
- 19 (Thu): Fujitsu Limited Info Session
- 26(Thu): Visit to DMG MORI CO., LTD.

July

- 2 (Wed): Final Presentation by Vishnu
- 7 (Mon): Visit to Center for iPS Cell Research and Application (CiRA)
- 10 (Thu): Suzuki Motor Corporation Info Session
- 10 (Thu): Final Presentation by Akshat, Shivankur and Aditeya
- 14 (Mon): Visit to HORIBA Ltd.
- 16 (Wed): Final Presentation





20 May: Orientation, Campus Tour

Facilities such as library, coop, etc were introduced. Orientation helped to know everyone in person and their research topics. (Anand)



21-22 May: Japanese Classes

The teacher was incredibly helpful and made the sessions easy to follow, even for complete beginners. (Shivankur)



26 May: Visit to Shimadzu Corporation

It inspired me to do further research in my field and create something which will have a lasting impact on the society. (Varun)



2 June: Visit Samco Inc.

The most memorable part was speaking with the founder. The internship opportunities were very encouraging. (Vishnu)



13 June: Visit to Nijo-jo Castle

The little historical details explained by the guide were memorable. I got to learn key historical events of Japan. (Rushab)



19 June: Meet KU Faculty Student, Graduate Schools Admissions Seminar

I now have a roadmap to start my application process for Kyoto university, which saves me a lot of time later. (Aryan)



19 June: Fujitsu Limited Info Session

I had the fortune to learn a lot about the company culture and efforts through the company officials who had arrived at Kyoto University to interact with us. (Vignesh)



26 June: Visit to DMG MORI CO., LTD

Witnessing cutting edge automation. The entire technology was intriguing. (Amritha)



2 July: Final Presentation by Vishnu

I'm deeply grateful for the invaluable experience of engaging in research while immersing myself in Japanese culture. (Vishnu)



7 July: Visit to CiRA

The opportunity to see cutting-edge research first-hand on a Nobel-prize winning discovery is very, very rare, and I'm thankful and glad to have gotten such an opportunity. (Aryan)



10 July: Suzuki Motor Corporation Info Session

It was very insightful to hear how Suzuki Motor Ltd. evolved into a global automobile giant. (Hemanta)



10 July: Final Presentation by Akshat, Shivankur & Aditeya

Everyone's posters were very interesting and I learnt a few new things that I could implement in my further research as well. (Aryan)



14 July: Visit to HORIBA Ltd.

HORIBA was extremely welcoming, and the factory visit was an excellent experience. It provided a clear insight into their advanced technologies and work culture. (Hemanta)



16 July: Final Presentation-Poster

Presenting my own work in a formal setting also helped boost my confidence in communicating scientific ideas. (Tanvi)



16 July: Group Presentation

We also tell our experiences in Kyoto through the group presentations. It was a perfect way to sum up our stay in Japan. (Varun)



Events & Impressions

KU-STAR program



KU-STAR Program for India
Division of Graduate Studies, Kyoto University

indiadesk-kuemail2.adm.kyoto-u.ac.jp
<https://www.kugd.k.kyoto-u.ac.jp/en/ku-star-program/>