

## **IIIT-Delhi leads EU-funded robotics training initiative to advance Indian education**

**New Delhi- 4th July, 2024** - As part of the EU-funded IRASHUB project, the Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi) spearheaded a collaborative initiative to advance robotics education and research in India. Led by Principal Investigator Dr. Jainendra Shukla, Ph.D., Assistant Professor at IIIT-Delhi, the project brought together nine distinguished faculty members from IIIT-Delhi, IIIT Allahabad, and IIIT Hyderabad for an intensive two-week training programme in Robotics.

Among the participating faculty from IIIT-Delhi were Dr Sanat K. Biswas and Dr Kalpana Shankhwar, who joined their colleagues for specialized training sessions at Università degli Studi di Genova, Italy, and Warsaw University of Technology, Poland, from June 10-21, 2024.

At the University of Genoa (UNIGE), the training program, coordinated by Prof. Fulvio Mastrogiovanni and Prof. Enrico Simetti, focused on crucial aspects of robotics such as the modeling of manipulation, kinematics, dynamics, and control. These foundational areas are essential for developing and advancing robotic systems capable of performing complex tasks with precision and efficiency. Additionally, the training included gesture-based robot control and task motion planning. This research is vital for improving human-robot interaction and enabling robots to execute tasks more intuitively and effectively. The program was highly beneficial, offering in-depth insights and hands-on experience in these critical areas of robotics.

The second phase of the training at Warsaw University of Technology (WUT) was hosted by Prof. Teresa Zielinska and Prof. Cezary Zieliński. This session emphasized mobile robotics and robot programming methods, which are pivotal for creating autonomous robots that can operate effectively in dynamic environments. Additionally, we learned about agent-based robotics systems, which are crucial for developing intelligent, adaptable robots capable of collaborative behavior. This research is important as it enhances the robots' ability to navigate and perform tasks in real-world scenarios autonomously. The training was exceptionally informative and provided valuable knowledge and skills in cutting-edge robotic technologies.

The overall training experience was immensely enriching, providing comprehensive knowledge and hands-on expertise in advanced robotics, from foundational principles to cutting-edge technologies. It was an invaluable opportunity to learn from leading experts and gain insights that will significantly enhance our capabilities in research, development and training of sophisticated robotic systems.

Prof. Ranjan Bose, Director of IIIT-Delhi, highlighted the promising future of robotics in India, stating, "Robotics holds immense potential for driving innovation and solving real-world challenges in India. This event has been incredibly beneficial in equipping our faculty with the necessary skills and knowledge to lead this transformative journey. We are grateful to our European partners for their support and collaboration in making this training programme a success."

This collaborative training has significantly bolstered the participating faculty's expertise and has laid the groundwork for establishing a world-class robotics training programme in India. Inspired by the esteemed EMARO and JEMARO programs—multi-country robotics training initiatives in Europe that have been successfully conducted for over 15 years—the IRASHUB project aims to emulate and adapt these successful models to the Indian context.

Dr. Jainendra Shukla expressed his enthusiasm for the program, stating, "It was an amazing experience to witness the wonderful training facilities and infrastructure available at both partner universities. This exposure has motivated us to develop cutting-edge robotics training programmes in India, leveraging the insights and methodologies we have gained from our esteemed European counterparts. I invite stakeholders from various domains across India to collaborate with us in making India a global leader in robotics "

The EU-funded IRASHUB project, supported by 10 partners from 5 countries including 8 HEIs, 1 industry partner, aims to foster cutting-edge robotics training and research over a 36-month period with a total budget of 7,97,785 Euros. It represents a significant step forward in enhancing robotics education and research capabilities in India, fostering international collaboration, and paving the way for future innovations in the field.

"As part of the IRASHUB project, the next phase of training will take place at URV, Spain, focusing on Perception and Manipulation, and at TUC, Greece, concentrating on Robot Design and Development. Furthermore, the project includes the establishment of three RAS hubs at IIIT-Delhi, IIIT-Hyderabad, and IIIT-Allahabad. These hubs will be equipped with state-of-the-art software and hardware facilities to enable world-class training in robotics."