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Coffee & Code ;

An Initiative by the Department of Computer Engineering

VISION

To be recognized as a department that provides quality technical education and research opportunities that eventually caters to helping and serving the community.

MISSION

- To groom the students to participate in curricular and co-curricular activities by providing efficient resources.
- To motivate the students to solve real world problems to help the society grow.
- To provide a learning ambience to enhance innovations, team spirit and leadership qualities for students.

Contents:

In Association with

CESA

(Computer Engineering Student Association)

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Our Previous Articles

How AI helped ISRO to reach its pinnacle

Indian Space Research Organisation, ISRO provides applications to satellites and tools for the National Broadcasts, Communications and Geographic Information Systems.

On 22nd July 2019, ISRO stunned the world with Chandrayaan 2 spacecraft into space at minimal budget whereas the country's space organisation spent more than INR 970 crore.

The Pragyan rover, a lander for Chandrayaan 2, uses AI technology to communicate from the Moon, was developed by researchers at IIT Kanpur. The rover is a six-wheeled robotic vehicle that leverages AI for in-situ payload trials. The team has created an algorithm that detects water and other minerals on the lunar surface and provides images for study and analysis.

Solar energy supports AI tools and frameworks for functioning. The Pragyan Rover has an Alpha Particle X-Ray Spectrometer and Laser Induced Breakdown Spectroscopy.

The Alpha Particle X-Ray Spectrometer is a device that uses dispersed alpha particles to determine the chemical element content of a sample. Alpha particles are made up of two protons and two neutrons. They emit a helium nucleus in some radioactive substances and are regarded as a ray. And this ray is analysed with fluorescent X-ray to figure out the chemical composition.Laser-induced breakdown spectroscopy produces a micro-plasma on the sample surface using a brief laser pulse.

Communication plays a vital role and receiving the messages from 384,400 Km needs a powerful setup. To identify the targets, a Multi Object Tracking Radar is used in association with Machine Learning techniques. Radar data includes range, azimuth, elevation, and SNR.The target size can be classified from Range and Signal to Noise Ratio correlation. By changing the Signal to Noise Ratio in a single track time, the nature of the target can be found.Machine Learning algorithms are taught using radar monitored data, and the model will determine the kind and size of the target. ISRO employs Artificial Neural Networks and deep learning algorithms to classify, forecast, identify crop/forest species, and analyse remote sensing time series data.

ISRO has created an artificial intelligence-enabled monitoring system for forest protection for the National Remote Sensing Centre (NRSC). The system assists in monitoring the forest, identifying changes, and creating a strategy to combat deforestation by using optical remote sensing, geographic information systems, artificial intelligence, and automation technologies.

The ML model aids in picture analysis and spotting deforestation, as well as increasing the frequency of reporting.Furthermore, the approach enables scientists to interpret satellite photos more quickly, reducing the time required for new reports from a year to one month.The organisation aims to prevent negative changes in the green cover and protection of wildlife.

The NRSC technology allows for the monitoring of forest cover changes over tiny regions of one hectare by increasing the resolution from 50 metres to 30 metres using optical remote sensing, providing insights into even the most minor deforestation activities. The Autonomous Navigation Robot has come in handy for space missions. A half Vyomnoid uses 3D vision sensors to sense and be aware of surrounding elements. And uses Dexterous Manipulation, this enables a robot to use their hand to interact with the external environment. The ability has supported the scientists to use unmanned robots in manned missions.

Vyomnoid provides complete autonomy with 3D vision, dynamically controlled mobility in zero gravity, and real-time decision making using vision optimization and route planning algorithms provided by Artificial Intelligence / Machine Learning.
ISRO solved this problem by using Artificial Intelligence-enabled Path Navigation algorithms.

ISRO has recommended scientists and researchers to concentrate on developing generalised parameter extraction software based on artificial neural network (ANN) learning techniques that use multidimensional ANN approximation to map microwave filter features. A communication satellite comprises a huge number of microwave filters that must be fine-tuned after manufacturing.ISRO is actively developing high-end propulsion technology to assure cost-effective re-usable, recoverable, restartable, and dependable space launches using AI-based sensors embedded in propellants.

Congratulations!

Team Rookies of UCOE have beaten all odds to win the SIH-2022 competition.

Team Mentor: Akhil Thakkar

The team comprising of Saurabh Pandey, Jamitkumar Panchal, Janviben Panchal, Shahima Khan, Abhinav Pandey, Vaibhav Pacphute have stood first in all India SIH–2022 competition.

Faculty Achievement

Dr Jitendra Saturwar

has successfully completed

Teach forward: Best strategies for hybrid, remote, and blended learning

August 29, 2022

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MRS.POONAM MILIND THAKRE

Universal College of Engineering , Mumbai

has participated in 9 Hours of Faculty Development Program on

Microsoft Azure AI Engineer Associate (Online FDP)

conducted by ICT Academy on 20 Jun 2022 to 22 Jun 2022

Hari Balachandran
Chief Executive Officer, ICT Academy

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