DST-Funded

Centre for Artificial Intelligence and Robotics

The department of Biomedical Instrumentation Engineering has established a "Centre for Artificial Intelligence and Robotics" with funds sanctioned in 2019-2020, by DST CURIE-AI facility, for setting up AI facility at the Avinashilingam Institute. It is a center formed to enable an interdisciplinary interaction between under graduate and post graduate students, faculties, researchers and the industry to enhance research opportunities, real world problem solving, training and education for the academic clients and also for knowledge sharing. This center is also involved in research, focusing on areas such as Artificial Intelligence, Machine Learning, Deep Learning, Robotics-Control and Command, Automation and their application in the healthcare, agriculture, education, transportation, smart cities and infrastructure domains. To achieve this, a club named Avinashilingam Artificial Intelligence club (A2I) was formed with the following objectives.

Objectives

- To impart skills relevant to AI and Robotics
- To conduct intensive hands-on-training programmes associated with industries
- To nurture the creativity of students in Artificial Intelligence through AI club and to help kindle fascinating and new ideas to develop innovative AI/Robotics related projects and prototypes leading to innovations and patents.

Activities of the Research Centre

- Three days Hands-on-training on "Embedded Computing for IoT system" conducted from 19.10.2019 to 21.10.2019
- Artificial Intelligence and Machine Learning using MATLAB conducted from 17.12.2019 to 19.12.2019
- Two day Workshop on "Robotics using LabVIEW" conducted on 28.1.2020 & 29.1.2020
- The Artificial Intelligence club actively functions throughout the year. An awareness programme is organized to enthuse the new comers to join the AI club. Inaugural programme of AI Club is aimed to bring out the creativity of the new students by the existing members of the club through AI exhibits of mini projects and models. Presentations about humanoids and videos of Siri, Asimo and Sophia are screened to kindle the interest of students. A call for student's project proposal under our Avinashilingam Artificial Intelligence (A2I) Club follows. Teams with a mentor along with few students were sanctioned funds for AI Projects through a stringent evaluation process which includes a project presentation. The time allotted for completion of the shortlisted project proposals is three months, after which a report of the project is submitted by each team. The funds are released following the submission of project report.
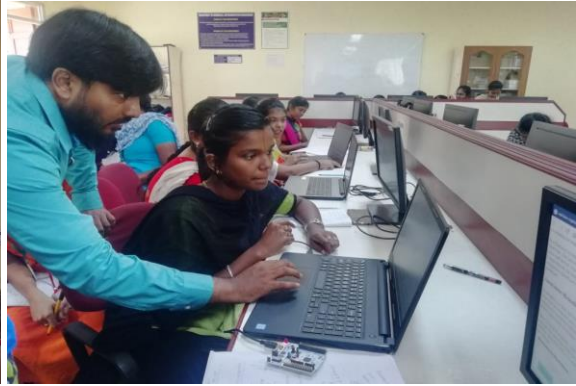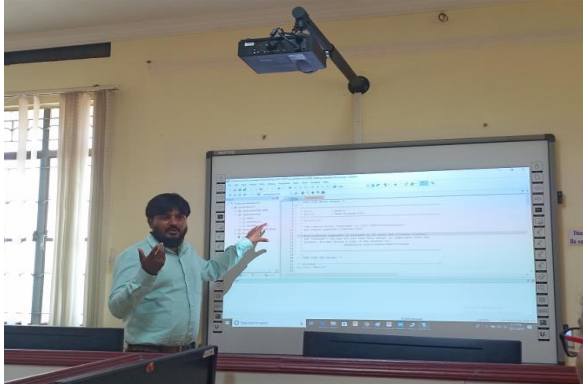
Created AI facility

Research facilities of Centre for Artificial Intelligence and Robotics include the NI Robotic Hardware bundle consisting of the Rover Vehicle Assembly system, Balancing arm Assembly system and Self balancing Robot Assembly system and the Robotics-GPU based NVIDIA Workstation has become a part of the Centre to facilitate teaching, learning and Research. Students and faculty also benefit through hands-on-training programmes.

In-house AI Research Projects funded by the Centre

❖ Development of screen printed Graphene based ECG sensor for Wearable e-textile application
❖ Neural Network based Oral disease detection using Wi-Fi module
❖ Bone Arthritis.
❖ Optimized light weight light emitting concrete blocks
❖ Non-invasive measurement of Glaucoma disease using Bio-magnetic signal from eye.
❖ Lung Function monitoring device for Asthma and Jaundice
❖ Air Quality prediction using AI
❖ Congestion control in wireless sensor network using AI techniques
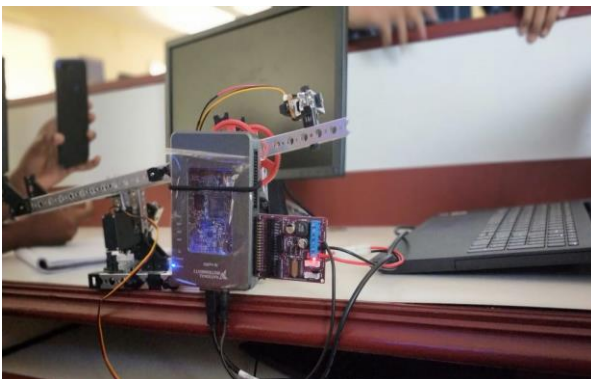
Hands-on-training organized for the students

S. No.	Date	Workshops/Training activities	Beneficiary Department
1.	09.10.2019 to 11.10.2019	Three days hands-on training on Embedded Computing for IoT Systems.	BMIE
2.	07.11.2019	One day Programme on Intelligent Sensing Technology for Non-Destructive Evaluation of Structures.	Civil
3.	18.12.2019	Two day workshop on 'Applications of IoT based food quality monitoring approach using sensor'	FPPT
4.	17.12.2019 to 19.12.2019	Artificial Intelligence and Machine Learning using MATLAB	BMIE
5.	19.12.2019 & 20.12.2019	Two day workshop on AI for cloud based IoT.	ECE
6.	23.01.2020 & 24.01.2020	Machine learning using python	CSE
7.	28.01.2020 & 29.01.2020	Robotics using LabVIEW	BMIE

Training by Mr. Mohammed Asif, Nanochip Solutions, Pvt. Ltd., Bangalore
On "Embedded Computing for IoT Systems"

Hands-on session by Mr.D.Rajkumar, Engineer, DesignTech Systems Ltd, Chennai
On "Artificial Intelligence and Machine Learning using MATLAB"

Hands-on session by Mr.T.R. Balaji, Engineer, Optithought, Chennai
On "NI Robotics"

Workshop on "Intelligent Sensing Technology for Non-Destructive Evaluation of Structures" by Technical expert, Leading Edge Lab Equipment, Coimbatore

Workshop on "Machine Learning Using Python" by Mr. Vishnu Python Developer, Gateway Software Solutions, Coimbatore

Activities of A2I Club

- Awareness programmes for the students
- Awareness programmes for the common people/sector-wise
- Awareness programmes at the adopted villages by the students
- AI Newsletter – by the students
- Inviting project proposals from the students of all Departments and the best proposals will be funded
- **AI competitions** – Student's participation in the competitions related to AI
- **AI Exhibitions –** Exhibitions will be arranged for the projects developed/concepts explored by the students
- **Technical projects**
  - ❖ Working models
  - ❖ Surveys

Awareness on A2I club among students of campus II