Faculty Development Program

TLCE

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VIT, VELLORE
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VIT®
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Title : Emerging Trends and Perspectives in Generative AI, ML and IOT

Date : 2025-03-17 - 2025-03-21
Time : 10:00 - 17:30
Venue : SJT507

Event Outcome

- Participants will gain a thorough understanding of the fundamental concepts, architecture, and components of IoT systems, with specific insights into Medical IoT, Industrial IoT, and Underwater IoT.
- Participants will become proficient in using various IoT development tools and platforms, such as Arduino IDE, Node-RED, Raspberry Pi, and edge computing frameworks like EdgeX Foundry and KubeEdge.
- Participants will acquire advanced knowledge of edge computing technologies and their integration with IoT systems to enhance performance, reduce latency, and improve data privacy and security.
- Participants will develop skills to identify and mitigate security threats in IoT systems. They will learn best practices for encryption, authentication, and intrusion detection to ensure the integrity and reliability of IoT deployments.
- Through practical sessions and projects, participants will gain hands-on experience in designing, developing, and deploying IoT applications across various domains, including healthcare, industrial automation, and underwater monitoring.

	Resource Person 1 - Details **Name :** Mr Syed Ibrahim Abdul Rajak **Designation :** Regional Manager, South **University/ Company :** Advanced Reality Solutions , CHENNAI **Address :** India, 600096.
	Resource Person 2 - Details **Name :** Jai Ganesh Suresh **Designation :** Senior Ai Architect Lead, AI **University/ Company :** Valeo, chennai **Address :** India, 600097.
	Resource Person 3 - Details **Name :** DeepanRaj **Designation :** Technical Manager, Data Science **University/ Company :** HCL Technologies, Chennai **Address :** India, 600100.
	Resource Person 4 - Details **Name :** Prof G A Ramadass **Designation :** Emeritus Professor, ocean **University/ Company :** NIOT, CHENNAI **Address :** India, 600100.
	Resource Person 5 - Details **Name :** Dr Sakthivel Murugan **Designation :** Professor , ECE **University/ Company :** NITTTR, Chennai **Address :** India, 600113.
	Resource Person 6 - Details **Name :** K Raguvaran **Designation :** Director, KSRCT TBI **University/ Company :** Mindnics Private Limited , Namakkal District **Address :** India, 637215.
	Resource Person 7 - Details **Name :** Dr Athif Shah **Designation :** CEO , Semiconductors **University/ Company :** ABE Semiconductors, Chennai **Address :** India, 600032.
	Resource Person 8 - Details **Name :** Baiju B V **Designation :** Assistant Professor Sr. Grade 1, School of Computer Science and Engineering **University/ Company :** VIT, Vellore **Address :** India, 632014.

	Resource Person 9 - Details **Name :** Pushpa Gothwal **Designation :** Assistant Professor Sr. Grade 1, School of Computer Science and Engineering **University/ Company :** VIT, Vellore **Address :** India, 632014.
	Resource Person 10 - Details **Name :** Sridhar Raj S **Designation :** Assistant Professor Sr. Grade 1, School of Computer Science and Engineering **University/ Company :** VIT, Vellore **Address :** India, 632014.

Resource Person's Profile :

1. Profile of Mr Syed Ibrahim Abdul Rajak

Syed Ibrahim is the Regional Manager South India at Advanced Reality Solutions, Chennai with 16 years of experience in IoT MATLAB AutoCAD-Electrical and CST Studio Suite Formerly a Senior Consultant Technical Lead, and Assistant Professor he has led 25 projects authored research papers and conducted 50 workshops. He has trained 100 students and contributed to faculty development programs excelling in tech driven solutions

2. Profile of Jai Ganesh Suresh

Jai Ganesh Suresh is a Senior AI Architect Lead at Valeo India with 11 years of experience in AI, Machine Learning Robotics IoT and Python Automation A renowned trainer and speaker he has conducted 800 workshops at IITs, NITs, and MNCs. He holds a India Book of Records title for the largest AI workshop and has contributed to AI research, humanoid robotics and medical AI Recognized by Dr APJ Abdul Kalam he actively mentors professionals and collaborates globally on AI innovations

3. Profile of DeepanRaj

Deepan Raj M is a Technical Manager Data Science at HCL Technologies with 10 years of training and 8 years in AI and data science A PhD scholar in AI at MIT he has conducted 750 workshops at IITs NITs and corporate firms like Nokia and Smartant IT Solutions Recognized by Dr APJ Abdul Kalam he specializes in AI ML Deep Learning Robotics and IoT His achievements include international awards for AI driven robotics and research in vision-based diagnostics and BCI systems

4. Profile of Prof G A Ramadass

Dr G A Ramadass former Director of the National Institute of Ocean Technology NIOT Chennai is a pioneer in Deep Sea Technology Mining Underwater Acoustics and Marine Instruments He leads the MATSYA 6000 project, aimed at deploying Indias manned submersible to a depth of 6000 meters With a doctorate from IIT Madras and an MSc from IIT Kharagpur he has driven multiple technology development projects resulting in innovative products publications and four international patents

5. Profile of Dr Sakthivel Murugan

Dr Sakthivel Murugan Santhanam is a Professor at NITTTR Chennai specializing in Electronics and Communication Engineering with expertise in underwater communication and image processing. With 20 years of experience he has published 150 research papers led multiple research projects and supervised doctoral theses A recipient of Best Teacher and Best Faculty Awards he is an active member of professional bodies and contributes to marine technology advancements and AI driven solutions

6. Profile of K Raguvaran

Raguvaran K is a mentor hardware designer and entrepreneur with 11 years in embedded systems 6 years in IoT and 2 years in edge computing He is the Director Hardware Design at Mindnics Pvt Ltd and a Technical Guru at AICTE IDEA Lab With 2 granted patents 11 published patents and 17 research papers he specializes in embedded C RTOS STM32 ESP32 PCB design Altium KiCAD and product development He also consults on hardware design lifecycle management and startup incubation

7. Profile of Dr Athif Shah

A technocrat educator and AI innovator he has 20 years of experience leading 40 research teams executing 60 technology transfers and managing 200 CPU projects As a trainer he has conducted 450 workshops and trained 5000 engineers Recognized as Intel Innovator 2016 and Best Project Guide by Renesas 2008 he holds an honorary doctorate 2019 and was named Personality of the Year 2020 Founder of NEURAAI he pioneers Spiritual AI GAS-AI and Conversational AI

8. Profile of Baiju B V

Dr Baiju B V is working as Assistant Professor in the Department of IoT, School of Computer Science and Engineering, Vellore Institute of Technology, Vellore. He is having more than 18 years of Teaching and Research Experience. He has published more than 50 papers in reputed journals, conference, and book chapters.

9. Profile of Pushpa Gothwal

Dr Pushpa Gothwal is a distinguished academician and researcher with over 15 years of professional experience, encompassing 14 years in academia one year in the industry and two years of research during her master's studies. She is currently serving as an Assistant Professor (Senior Grade) in the Department of the Internet of Things (IoT) at the School of Computer Science (SCOPE), Vellore Institute of Technology (VIT), Vellore, a position she has held since October 2022.

10. Profile of Sridhar Raj S

Dr. Sridhar Raj S is an Assistant Professor (Sr.) at the School of Computer Science and Engineering, VIT Vellore. He holds a Ph.D. from NIT Trichy and has extensive research experience in Computer Vision, Deep Learning, Machine Learning, and Person Re-identification.

Previously, he served as a Senior Research Fellow (SRF) and Junior Research Fellow (JRF) at NIT Trichy. His research contributions include SCI-indexed publications in top journals such as Pattern Recognition, Image and Vision

This Faculty Development Program (FDP) delves into the emerging trends and perspectives in IoT, with a focus on five key themes: Medical IoT, Industrial IoT, Underwater IoT, Edge Computing, and Security in IoT. Medical IoT, is transforming healthcare by enabling remote monitoring, telemedicine, and personalized treatment plans. Wearable devices and smart sensors collect real-time data on patients' vital signs, which can be analyzed to detect anomalies and provide timely interventions. The integration of AI and ML with IoMT can enhance diagnostic accuracy, predict potential health issues, and improve patient outcomes.

Industrial IoT is revolutionizing manufacturing, supply chain management, and asset monitoring by enabling real-time data collection and analysis. Smart factories equipped with IoT sensors can monitor equipment performance, predict maintenance needs, and optimize production processes. IIoT enhances efficiency, reduces downtime, and improves safety by providing actionable insights.

Underwater IoT extends IoT capabilities to underwater environments, enabling applications such as marine research, environmental monitoring, and underwater exploration. Sensors and autonomous underwater vehicles (AUVs) collect data on oceanographic parameters, pollution levels, and marine life. UIoT can contribute to sustainable ocean resource management and disaster prevention.

Edge computing is a game-changer for IoT, as it processes data closer to the source rather than relying solely on cloud computing. This approach reduces latency, enhances data privacy, and improves reliability. Edge computing enables real-time analytics and decision-making, making it ideal for applications requiring immediate responses, such as autonomous vehicles and industrial automation.

Security is a critical concern in IoT, given the vast amount of sensitive data transmitted across connected devices and ensuring the integrity, confidentiality, and availability of IoT systems.

ThingSpeak, Node-RED, Aqua-Sim, Azure IoT Edge, Wireshark, Grafana

Coordinator's: **Prof. KALAAVATHI B 18939 - Professor Grade 1 - SCOPE**
Prof. SHARMILA BANU K 11989 - Associate Professor Sr. - SCOPE