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Faculty Development Program

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

Title : Royal Academy of Engineering -UK, and European Union (JM) Sponsored 5 Days FDP on Digital Transformation in Industry 4.0 Revolution: The Power of AI, Robotics, and Additive Manufacturing for Next Generation Industry

Date : 01-Apr-2024 - 05-Apr-2024
Time : 10:00 - 17:30
Venue : CDMM304

Discussion Points

- Revolutionizing Industry ,The Technological Frontier of Industry 4.0
- Precision and Flexibility: Robot Manipulators Shaping Industry 4.0
- Leveraging AI for Sustainable Manufacturing in Industry 4.0
- AI Perception using LIDAR and Navigation
- green laser powder bed fusion
- Robotic control and solution engineering for Autonomous Mobile Robot in Industry 4.0 setup
- Revolutionizing AI Vision Advanced AI perception and Computer Vision
- Nvidia Frameworks for AI Computer Vision Algorithms
- AI in Language Models: Empowering Industry 4.0 with Advanced Linguistic Technologies
- NVIDIA Frameworks for Scalable and Efficient Large Language Models in Industry 4.0
- Harnessing Industry 4.0: Role of innovation in low-cost automation - Tools to boost productivity and competitiveness.
- Industry 4.0 Automated Sorting and Process improvements through infusion of digital technologies- some case studies
- Insights on role of simulation tools for mechatronics and autonomous systems
- Integrating AI with Image Processing in MATLAB and Simulink
- AI with Signals: Processing and Analysis in the Digital Age
- Hands-on in MATLAB and Simulink: Pick and Place Robot with Navigation and ROS

	Resource Person 1 - Details **Name :** Dr Steffen Gerhard Scholz **Designation :** Professor, MEchanical Engineering **University/ Company :** Karlsruhe Institute of Technology GERMANY, Eggenstein Leopoldshafen Germany **Address :** GERMANY, 76344.
	Resource Person 2 - Details **Name :** Dr Damien CHABLAT **Designation :** Professor, MEchanical Engineering **University/ Company :** Ecole Centrale De Nantes France, Nantes France **Address :** FRANCE, 44300.
	Resource Person 3 - Details **Name :** Dr Amal Prashanth Charles **Designation :** Product Manager, Additive Manufacturing **University/ Company :** TRUMPF GmbH Germany, Germany **Address :** Germany, 89081.
	Resource Person 4 - Details **Name :** Dr Sathiskumar Anusuya Ponnusami **Designation :** Associate Professor , School of Engineering **University/ Company :** City University of London United Kingdom, London **Address :** Germany, EC1V0HB.
	Resource Person 5 - Details **Name :** Mr Krishna Panyam **Designation :** Chief Architect ATI MOTORS, Research and Development **University/ Company :** ATI MOTORS, Bangalore **Address :** Karnataka , 560022.
	Resource Person 6 - Details **Name :** Mr Sai Karthik and Dr Rengarajan Seshadri **Designation :** Lead Engineer ATI MOTORS, Research and Development **University/ Company :** ATI MOTORS, Bangalore **Address :** Karnataka , 560022.
	Resource Person 7 - Details **Name :** Dr G V Ramana **Designation :** Managing Director , Research and Development **University/ Company :** Ardee HiTech Pvt Limited, Visakhapatnam Andhra Pradesh **Address :** India, 530007.
	Resource Person 8 - Details **Name :** Dr Souvick Chatterjee **Designation :** Senior Team Lead at Customer Success Engineering MathWorks, Research and Development **University/ Company :** MATLAB MATHWORKS, Bangalore **Address :** India, 560103.

	Resource Person 9 - Details **Name :** Ms Nivedita Majee **Designation :** Hardware Engineer at Education Customer Success MathWorks, Research and Development **University/ Company :** MATLAB MATHWORKS, Bangalore **Address :** India, 560103.
	Resource Person 10 - Details **Name :** Ms Akshatha Hulmani Dayananda **Designation :** Team Leader Addwize at Wipro, Research and Development **University/ Company :** WIPRO THREE D, Bangalore **Address :** India, 560058.
	Resource Person 11 - Details **Name :** Dr Gopalakrishnan B **Designation :** AI Trainer, Research and Development **University/ Company :** TEKCOGENT SOLUTIONS PRIVATE LIMITED, Chennai **Address :** India, 600082.
	Resource Person 12 - Details **Name :** Dr Anasuya Bhima **Designation :** Professor Computer Science and Program Coordinator for Applied Artificial Intelligence and Machine Learning , School of Applied Computer Science and IT **University/ Company :** Conestoga College Institute of Technology and Advanced Learning Waterloo CANADA, CANADA **Address :** CANADA, 600082.

Resource Person's Profile :

1. Profile of Dr Steffen Gerhard Scholz

Dr. Steffen G Scholz has more than 25 years of R and D experience in the field of process optimisation, precision engineering and micro and nano advanced manufacturing. He is an expert in algorithm design and development for micro replication processes. He studied mechanical engineering with special focus on plastic processing and micro injection moulding. He obtained his degree as a diploma engineer from the Rheinisch Westfaelisch Technical University of Aachen

2. Profile of Dr Damien CHABLAT

Damien Chablat obtained his doctorate in Mechanical Engineering from the Ecole Centrale de Nantes and the University of Nantes in 1998. For a year he worked at McGill Universitys Intelligent Machinery Centre with Professor Angeles. He joined the CNRS Centre National de la Recherche Scientifique in 1999 to work within the Robotics group of the Institut de Recherche en Communications et Cybernetique de Nantes. He became a senior researcher at the CNRS in 2011. Since 1 January 2017

3. Profile of Dr Amal Prashanth Charles

Dr. Amal is a seasoned speaker and Product Manager in Additive Manufacturing at TRUMPF, with a solid background in Metal Additive Manufacturing research and industry experience. He completed Ph.D in additive manufacturing from Karlsruhe Institute of Technology, Germany, specialized in Metal Additive Manufacturing process. He completed his Master of Science from KTH Royal Institute of Technology, Sweden. His role as a Marie Curie Fellow and Early-Stage Researcher involved contributing to the EU

4. Profile of Dr Sathiskumar Anusuya Ponnusami

Dr Sathiskumar Anusuya Ponnusami works as a Associate Professor in Structural Mechanics (Aeronautics) in the Department of Engineering at City, University of London since October 2018. Prior to City, he worked as a postdoctoral researcher in Solid Mechanics Group at the University of Oxford, where he was involved in developing computational models and data-driven machine learning tools for advanced composite fan blades within the Rolls-Royce University Technology Centre.

5. Profile of Mr Krishna Panyam

Mr Krishna Panyam holds a BE in Mech and a masters in computer science IISc. He has been in the software industry for over 35 years. Worked in Tata Motors, Cisco, Jedi, focusing on machine deep learning, Cisco. Krishna has been part of Ati Motors since inception. He is Atis Chief Architect and responsible for all aspects of autonomy, with focus on frictionless deployment. His interests and work include sensor fusion, localisation, obstacle detection, tooling etc in Ati Motors.

6. Profile of Mr Sai Karthik and Dr Rengarajan Seshadri

Mr Sai Karthik graduated from Osmania University and pursued his Masters at IIT Madras in Applied Mechanics. Naturally inclined in multi disciplinary sciences he chose to do Systems Engineering and was introduced to computational sciences. Following the Masters program, he was part of the R and D team at Renault Nissan focussing on structural design aspects of metal body systems. Attracted back to IIT Madras and he continued his research on Au

7. Profile of Dr G V Ramana

Dr. G V Ramana is the Managing Director of Ardee Hi-Tech Pvt. Ltd, a technology company he co-founded in 2000. He holds a PhD from Jawaharlal Nehru University (1992) and has over 25 years of experience across academia, journalism, and industry. Dr. Ramana started his career as a Consultant to the Government of India on industrial costs and pricing. He then worked as an Assistant Editor at The Economic Times before joining IGNOU as Assistant Professor. Since 1993, he has been focused on leading

8. Profile of Dr Souvick Chatterjee

Souvick leads the Education Team in MathWorks in Southern part of India and is based out of Bangalore. He is advocating computational thinking and model based product-oriented interdisciplinary approach in research and education partnering with universities and institutions across the country. He is recipient of Best PhD Thesis Award and Young Scientist Award from International Society for Energy, Environment and Sustainability. He worked in University of Illinois at Chicago.

9. Profile of Ms Nivedita Majee

She is a hardware engineer in the Engineering Development Group at MathWorks, Bangalore. She is a Dual degree Integrated MTech graduate from the Department of Electronics and Electrical Communications Engineering, IIT Kharagpur. She has worked in Machine Learning, Vertex plus Pvt. Ltd. She has extensive experience on hands on training in MATLAB

10. Profile of Ms Akshatha Hulmani Dayananda

She is a leading the Addwize offerings team of Wipro3D. In her second stint with Wipro3D she is taking forward the training and consulting opportunities for the group. She has dedicatedly worked for additive manufacturing for 10 years in her total work experience of 15 years. Her work environment includes research, AM OEM and services across various industry verticals. Hence, she comes with the knowledge of not only additive processes, but also the requirement and challenges

11. Profile of Dr Gopalakrishnan B

Dr. Gopalakrishnan B., a seasoned AI Trainer, currently lends his expertise to TEKCOGENT SOLUTIONS PRIVATE LIMITED. With an illustrious academic background and over 22 years and 6 months of professional experience, he holds a Ph.D. in Computer Science from Bannari Amman Institute of Technology, Bharathiar University, Coimbatore (2014). Dr. Gopalakrishnan further honed his skills with a Master's degree in Computer Science and Engineering from Kumaraguru College of Technology, Anna University,

12. Profile of Dr Anasuya Bhima

dR. Anasuya Bhima, Professor at Conestoga College, CANADA, Fourteen years of Post Secondary Classroom Teaching Experience, Five years of Industrial Experience. Experience delivering remote or virtual training to Education clients. Strong administrative and clienT. relationship management experience. Experienced in supervising a program assistant ANDcasual staff. Experience working with senior level executives. Experience in delivering and administering online programs using Learning Management

The Faculty Development Program (FDP) is designed to bridge the knowledge gap between academia and industry, focusing on the latest advancements in AI (Artificial Intelligence), Robotics, and Additive Manufacturing. Participants include academicians and industrialists from diverse backgrounds and cross-disciplinary, ranging from large multinational corporations to small and medium enterprises (SMEs). The program explores into the intricacies of Industry 4.0, emphasizing the importance of holistic comprehension for decision-makers regarding the impacts of technologies like Industry 4.0 (I4.0) on both people and processes.

The FDP comprises two primary facets: Facet 1 explores various technological dimensions of Industry 4.0, offering deep insights into cutting-edge developments such as AI, Robotics, Additive Manufacturing (including 3D cum 4D printing), smart design, materials, collaborative robotics, and Big Data utilization in digital manufacturing. Facet 2 examines the transformative potential of these technologies in fostering innovation and the creation of novel products. Topics covered include multi-material functional printing, 4D printing, AI concepts, and real-world case studies illustrating the implementation and impact of these technologies across industries.

MATLAB SIMULINK, PYTHON, OPEN SOURCE Softwares

Coordinator's: **Prof. RAMAKRISHNAN R 14769 - Associate Professor Grade 2 - SMEC**
Prof. SATHISH G P 16208 - Assistant Professor Sr. Grade 1 - SMEC